

THE PROBLEM OF TRIBAL SETTLEMENT IN IRAQ,
WITH SPECIAL REFERENCE TO THE NOMADS
OF THE WESTERN REGION

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
Abdul Razzak Hussain
1966



This is to certify that the

thesis entitled

THE PROBLEM OF TRIBAL SETTLEMENT IN IRAQ,
WITH SPECIAL REFERENCE TO THE NOMADS
OF THE WESTERN REGION

presented by

Abdul Razzak Hussain

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in Geography

A handwritten signature in cursive script, appearing to read "J. Morrison".

Major professor

Date February 25, 1966

ABSTRACT

THE PROBLEM OF TRIBAL SETTLEMENT IN IRAQ, WITH SPECIAL REFERENCE TO THE NOMADS OF THE WESTERN REGION

by Abdul Razzak Hussain

The main purpose of this study is to investigate the possibilities of settling the present nomadic tribes of the Western Region of Iraq and to make recommendations how this might best be accomplished for the mutual benefit of the tribesmen and the rest of the nation. These Bedouins number some 200,000, almost four per cent of Iraq's population, and they occupy nearly 60 per cent of the national area.

Since problems associated with sedentarization are ones of long standing in Iraq, a second objective of the study is presentation of an analysis of the results of past governmental policy in this regard, starting when the Ottoman Turks gained control of the area. In addition, recent experiences in settling the nomads of other arid lands of the Old World are reviewed in order to provide insight and conclusions applicable to Iraq. Some of the necessary information for completion of the dissertation was gathered by field reconnaissance in Western Iraq during the summer of 1963. The rest was obtained by intensive library research, primarily in the Michigan State University Library.

Following a chapter describing the physical environment of the study area and another discussing the historical background and present-day condition of Iraq's nomadic tribes, three chapters of the dissertation are devoted to analysis of the settlement process during the Turkish Period (1534-1916), the British Period (1916-1932), and the Independence

Period (since 1932). There was a reduction of nomads from 35 to 17 per cent of the total population between 1867 and 1905, and to 4 per cent by 1962. The number of nomads dropped from 450,000 to 393,000, and to 250,000 the same years.

Much of this change occurred in spite of, rather than because of, government policy dealing with the nomads. It was stimulated by such factors as improved internal security, development of steam navigation on the Tigris - Euphrates waterways and motor transportation on the land, introduction of water-pumps and other irrigation facilities, and growth of the oil industry after 1926. Evaluation of government measures for sedentarizing the nomads reveals that even the best-intentioned ones have been only partially successful. This has been because of inadequate planning, the lack of management experience and technical know-how, improper coordination of efforts, and the ability of the Shaikhs, money-lenders, and other powerful groups to twist the measures to their own advancement. Even so, there is a growing desire among the remaining nomads to abandon their traditional way of life.

Recommendations made in the dissertation have for the most part been designed to achieve settlement of these nomads in territory they now occupy. They are based on the premise that a combination of animal husbandry and some form of cultivation is the most desirable occupation for most of the nomads, apart from the few that may be employed in industry. The implementing of some of the recommendations, as for example the installation of multipurpose dams and their associated irrigation systems, will require much time and money. They should be considered, however, not only from the standpoint of benefiting the nomads, but for the much greater contribution which they can make to development of the whole

nation.

Meanwhile a great deal can be accomplished by getting started on some of the other suggested lines of action. Particularly appropriate is the founding of a special research institute to investigate all the varied aspects of sedentarization of the nomads. Establishment of one or more pilot settlement projects at especially selected places in the Western Region is also of high priority, but such should become operative only after careful planning of an over-all program. This should take into consideration not only animal husbandry and agriculture, but most aspects of community life, including housing, sanitation, education, and marketing facilities. Moreover, once established, such a project should continue to be given technical advice and government assistance until chance of failure is past. Voluntary cooperation of the nomads is necessary for success, but a much more critical requisite is continuing sympathetic attention to settlement problems by government policy makers. Without this it is impossible for subordinates, no matter how dedicated and competent, to properly carry out the necessary planning, implementation, and follow-up activities. The problem of successfully settling tribal people is a highly complicated one, but the guide posts of past failures and successes can point the proper way.

THE PROBLEM OF TRIBAL SETTLEMENT IN IRAQ,
WITH SPECIAL REFERENCE TO THE NOMADS
OF THE WESTERN REGION

By
Abdul Razzak Hussain

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Geography

1966

ACKNOWLEDGMENTS

The writer wishes to express his appreciation to the many persons and organizations who have made contributions to this study, though not all can be mentioned by name.

Professor Paul C. Morrison, under whose direction this dissertation was written, gave unfailingly of his time, understanding, and experience in guiding the work to completion. My appreciation is also extended to Mrs. Paul Morrison for generous donation of time and skill in typing major parts of the original manuscript.

I wish to acknowledge indebtedness to the authors whose publications were consulted, and especially to John Batatu for granting permission to borrow valuable information from his Ph.D. dissertation.

It is not feasible to thank individually all the tribesmen and officials who, when interviewed in the field, were highly cooperative in providing otherwise unobtainable background information. I am particularly grateful to officials of the Iraqi Ministry of Interior for supplying an authorization which was very helpful in doing the field work.

I wish to thank the Government of Iraq, through its Office of the Cultural Attache in Washington, D.C., for the financial support provided for my study in the United States and for the field-study grant which made work in Iraq possible.

Finally, special appreciation is reserved for the understanding help and patience of my wife; without her continued encouragement the dissertation would not have been completed.

East Lansing, Michigan
January 15, 1966

Abdul R. Hussain

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	vii
LIST OF ILLUSTRATIONS	x
 Chapter	
I. INTRODUCTION	1
Statement of Problem	
II. PHYSICAL CHARACTERISTICS OF THE WESTERN REGION OF IRAQ	18
Physiography	
The Jezira	
The Western Desert	
The Alluvial Plain	
Climate	
Soil	
Soil of the Jezira	
Soil of the Western Desert	
Soil of the Alluvial Plain	
Natural Vegetation	
Water Supply	
Surface Water	
Ground Water	
Mineral Resources	
III. HISTORICAL BACKGROUND AND PRESENT CONDITION OF THE TRIBES OF IRAQ	65
The Nomadic Streams in Mesopotamia (Iraq)	
The Process of Settlement	
Present Condition of the Tribes	
Settled Cultivators of the Mesopotamian Plain	
Marsh Dwellers of Southern Iraq	
Mountain Tribes of Northern Iraq	
Nomadic Tribes of Western Iraq	
Social Structure of the Nomads of Western Iraq	
Social Characteristics of the Nomads	
Problems of the Nomads of Western Iraq	
The Problem of Water	

TABLE OF CONTENTS--Continued

Chapter	Page
The Problem of Grazing Economic Problems Social Problems Administrative Problems Recent Tendency Among the Nomads Toward Settlement	
IV. TRIBAL POLICY AND SETTLEMENT DURING THE TURKISH PERIOD, 1534-1916	115
The Early Turkish Period, 1534-1869 The Late Turkish Period, 1869-1916 Change in Administration Security The Impact of Communication The Influence of Towns Land Policy Sanniya Land System Ottomanization Policy Detribalization and Settlement Tribes of the Lower Euphrates Tribes of the Jezira Tribes of the Middle Euphrates Tribes of the Lower Tigris Tribes of the Middle Tigris Tribes of the Western Desert Tribes of the Mountains Factors Discouraging the Settlement Process, 1869-1916	
V. TRIBAL POLICY AND SETTLEMENT DURING THE BRITISH PERIOD, 1916-1932	152
British Tribal Policy The Position of the Shaikhs Security Land Policy Irrigation Introduction of Water-Pumps Development of Agriculture Development of Transportation The Influence of Oil Factors Discouraging the Settlement Process	

TABLE OF CONTENTS--Continued

Chapter	Page
VI. TRIBAL POLICY AND SETTLEMENT DURING THE INDEPENDENCE PERIOD, 1932-1964	198
Policy and Settlement, 1932-1958	
The Position of the Shaikhs	
Land Policy	
Distribution of Landownership	
The Condition of the Fallah	
Tribal Migration from Rural to Urban Areas	
Tribal Immigrants of Baghdad	
The Asima Settlement	
Problems Resulting from Tribal Migration	
The Development of Agricultural Facilities	
Development of Water Resources	
Land Reform and Settlement Projects	
Dujaila Project	
Latifiya Project	
Shahrzoor Project	
Sinjar Project	
Problems of the Settlement Projects	
Technical Problems	
Social Problems	
Administration Problems	
Tribal Policy and Settlement, 1958-1964	
The New Agrarian Reform	
Implication of New Agrarian Reform to Settlement of the Tribes	
VII. RECOMMENDATIONS FOR SETTLEMENT AND IMPROVEMENT OF THE NOMADS	256
Objectives	
Principles to Guide Any Settlement Project	
Practical Steps Toward Settlement and Development of the Nomads	
Establishment of a Research Organization	
Development of Surface Water Resources	
Increased Use of Natural Precipitation	
Development of Ground Water Resources	
Betterment of Grazing Resources	
Improvement of Livestock	
Development of Agriculture	
Acceleration of Land Distribution	

TABLE OF CONTENTS--Continued

Chapter	Page
Establishment of Villages	
Settlement Through Industrialization	
Provision of Services and Facilities	
The Possibility of Settling Some Nomads in Other Areas	
Steps for a Pilot Settlement Project	
VIII. SUMMARY AND CONCLUSIONS	321
Review of the Past	
Problems and Prospect	
Practical Lines of Action	
BIBLIOGRAPHY	356

LIST OF TABLES

Table	Page
1. Annual Temperature Range at Selected Stations	24
2. Monthly Number of Depressions that Entered Iraq Along Various Latitudes During the Years, 1938-1940 . .	27
3. Average of Annual, Winter, Spring, and Autumn Rainfall at 16 Selected Stations in and Bordering the Western Region	33
4. Average Monthly Relative Humidity for Mosul, Rutba, Nasiriya and Basra	37
5. The Average Monthly Water Supply of the Tigris and Euphrates Rivers in Iraq	53
6. Drilled and Hand-Dug Wells and Quantities of Water Pumped in the Western Region of Iraq	57
7. Shammar and Allied Tribes in 1879	71
8. Aneza and Allied Tribes in 1879	72
9. Genealogy and Major Tribes of Aneza	87
10. Turkish Punitive Expeditions Against the Arab Tribes of Iraq from 1546-1872	117
11. Changes in Nomadic-Rural-Urban Composition of the Population of Iraq, 1867-1962.	126
12. Tribal Shaikhs and Heads Appointed by the British as Administrative Officers During the Period, 1916- 1920	158
13. Tribal Disputes Over Possession of Land and Number of Dead Tribesmen for the Period, 1922-1952	171
14. Ownership of Water-Pumps in Amara Province in 1929	172
15. Number and Social Status of Landholders in Amara Province for the Years, 1918-1951	172

LIST OF TABLES--Continued

Table	Page
16. Distribution of Landholdings in Amara as Reflected by Land Revenue Demanded in 1929	173
17. Pump Development of Riverine Lands for the Period from 1921-1929	176
18. Number of Licensed Cars in Iraq for the Years from 1927-1934	180
19. Number of Camels Imported by Egypt for the Years 1902-1937	182
20. A Sample of the Number of Camels which Crossed the Syrian Desert for Commercial Transport and Marketing, as Reflected by Travelers' Descriptions in the 18th Century	184
21. Approximate non-Urban Population of Iraq and their Distribution in 1930	195
22. Shaikhs' Seats in Parliament in Iraq, 1937-1958 . . .	200
23. Land Tenure in Iraq as Classified by the Cadastral Survey up to 1958	202
24. Area of Private Landholdings According to Cadastral Survey in Iraq in 1951	206
25. Distribution of Lazma Grants of State Land in Holdings of Over 10,000 Dunums in Iraq up to 1954 . .	207
26. Lazma Grants of State Land of Over 10,000 Dunums Held by Individuals in Nine Provinces of Iraq up to 1954	208
27. Distribution of Agricultural Landholdings According to Area in Iraq at the End of 1958	209
28. Number and Average Area of Agricultural Holdings in the 14 Provinces of Iraq in 1958	210
29. Tribal Migration to and from the Rural Interior of Nine Provinces of Iraq, 1947-1957	213

LIST OF TABLES--Continued

Table	Page
30. Approximate Number of Tribal Immigrants in the City of Baghdad During Selected Years, 1951 to 1963	215
31. Occupational Distribution of the Labor Force of the Asima Settlement, 1957	218
32. Distribution of Family Income of the Asima Settlement per Month in 1957	218
33. Distribution of Family Income of the Asima Settlement per Month in 1954	219
34. Family Expenditure per Month in the Asima Settlement in 1954	219
35. Some Components of the Fourteen Agricultural Extension Centers in Iraq in 1961	224
36. Facts Related to Distribution of Miri Sirf Land, 1945-1957	232
37. Financing of the Miri Sirf Land Development Committee, 1946-1955	233
38. Yearly Income of 133 Families of the Latifiya Settlement Project in 1959	237
39. Lands Under the Administration of the Agrarian Reform Organization of Iraq and Number of Fallahen Benefited up to 1963	255
40. The Present Yearly Water Budget of the Tigris and the Euphrates Rivers	268
41. Standards for Irrigation Water	285
42. Mean Annual Recharge from Precipitation and Number of Wells that Can be Supported in Fifteen Selected Drainage Areas of Western Iraq	289

LIST OF ILLUSTRATIONS

Figures

Figure	Page
1. Administrative Provinces, Cities, and Communications, Iraq	2
2. Physiographic Regions, Iraq	6
3. Physiographic Subregions, the Western Region, Iraq . .	19
4. Prevailing Winds, Average Annual Rainfall, and Climatic Types, the Western Region, Iraq	26
5. Temperature and Rainfall Data for Mosul, Rutba, Nasiriya, Basra	30
6. Temperature and Rainfall Data for Haditha, Habbaniya, Salman, Baghdad	31
7. Variation in Amounts of Annual Rainfall, 1936-1939, The Western Region, Iraq	35
8. Soil, the Western Region, Iraq	39
9. Natural Vegetation, the Western Region, Iraq	48
10. Sources of Ground Water Supply, the Western Region, Iraq	56
11. Mineral Resources, the Western Region, Iraq	62
12. Distribution of the Tribes, Iraq	73
13. Main Flood Control, Irrigation, and Settlement Projects, Iraq	226
14. Flood Water Irrigation in Tributary and Main Wadis (Schematic)	278
15. Quality of Ground Water, the Western Region, Iraq . .	283
16. Location of Fifteen Drainage Areas Selected for Analysis, in the Western Region, Iraq	287

LIST OF ILLUSTRATIONS--Continued

Plates

Plate		Page
I, Fig. 1.	Stony Surface in the Juraibaniya Area	345
Fig. 2.	Birkat Hamad, One of the Masonry-Lined Tanks Along the Darb Zubaida	345
II, Fig. 1.	Irrigation <u>Ná'ur</u> at Dagani	346
Fig. 2.	Bir Slubi, A Privately Owned Hand-Dug Well . .	346
III, Fig. 1.	Government-Drilled Well at the Lussaf Police Post	347
Fig. 2.	Eucalyptus Trees and Small Field	347
IV, Fig. 1.	The Newly Excavated Spring of Ruhaima	348
Fig. 2.	Vegetable Field in the Ruhaima Oasis	348
V, Fig. 1.	Concrete Storage Tank Near Habbariya	349
Fig. 2.	The Large Spring at Ain Ghaim	349
VI, Fig. 1.	An Idle Government-Drilled Well	350
Fig. 2.	Trucks Used for Conveying Water from Wells in the Rutba Area	350
VII, Fig. 1.	A Sheep-Owning Nomadic Family on Summer Grazing Ground	351
Fig. 2.	A Bedouin Family About to Move to A New Location	351
VIII, Fig. 1.	Nomadic Aneza Tribesmen Marketing Salt in Baghdad	352
Fig. 2.	A Harvested Field of Wheat	352
IX, Fig. 1.	Well and Pumphouse at Abu Kard	353
Fig. 2.	Habbariya, One of Three Villages Recently Established by Aneza Camel-Owning Nomads . . .	353

LIST OF ILLUSTRATIONS--Continued

Plate		Page
X, Fig. 1.	Main Street of Rutba	354
Fig. 2.	H-1, Oil-Pumping Station	354
XI, Fig. 1.	Reed-Mat Huts of Tribal Immigrants in Baghdad	355
Fig. 2.	Women of the Asima Immigrant Camp Carrying Water	355

CHAPTER I

INTRODUCTION

Present-day Iraq borders upon Iran to the east, Turkey and Syria to the north and northwest, Jordan to the west, and Saudi Arabia and Kuwait to the southwest and south. Its 172,000 square miles of territory is divided into fourteen administrative provinces (Fig. 1). The national census of 1957 indicated the population was about 6.5 million. According to official estimates, this number had increased to slightly more than 6.7 million by 1962. Of these persons, approximately 2,447,000, or 36 per cent were urban; 4,046,000, or 60 per cent, rural settled tribal people; and the remaining 250,000, or four per cent, tribal pastoral nomads.

Before Iraq was established as a nation, the area was known as Mesopotamia, "the country between two rivers," namely the Tigris and the Euphrates. Mesopotamia formed, as does Iraq today, a large geographic triangle extending diagonally across the southeast end of the Fertile Crescent.¹ Its favorable geographic location in Southwest Asia, the richness of its soil, and the abundance of water supplied by the two rivers have always been important attractions to the civilized nations

¹The Fertile Crescent is defined as the area forming a semi-circle extending between the head of the Persian Gulf and the southeast corner of the Mediterranean Sea. George B. Cressey, Crossroads: Land and Life in Southwest Asia (Chicago: J. B. Lippincott Company, 1960), pp. 42-43.

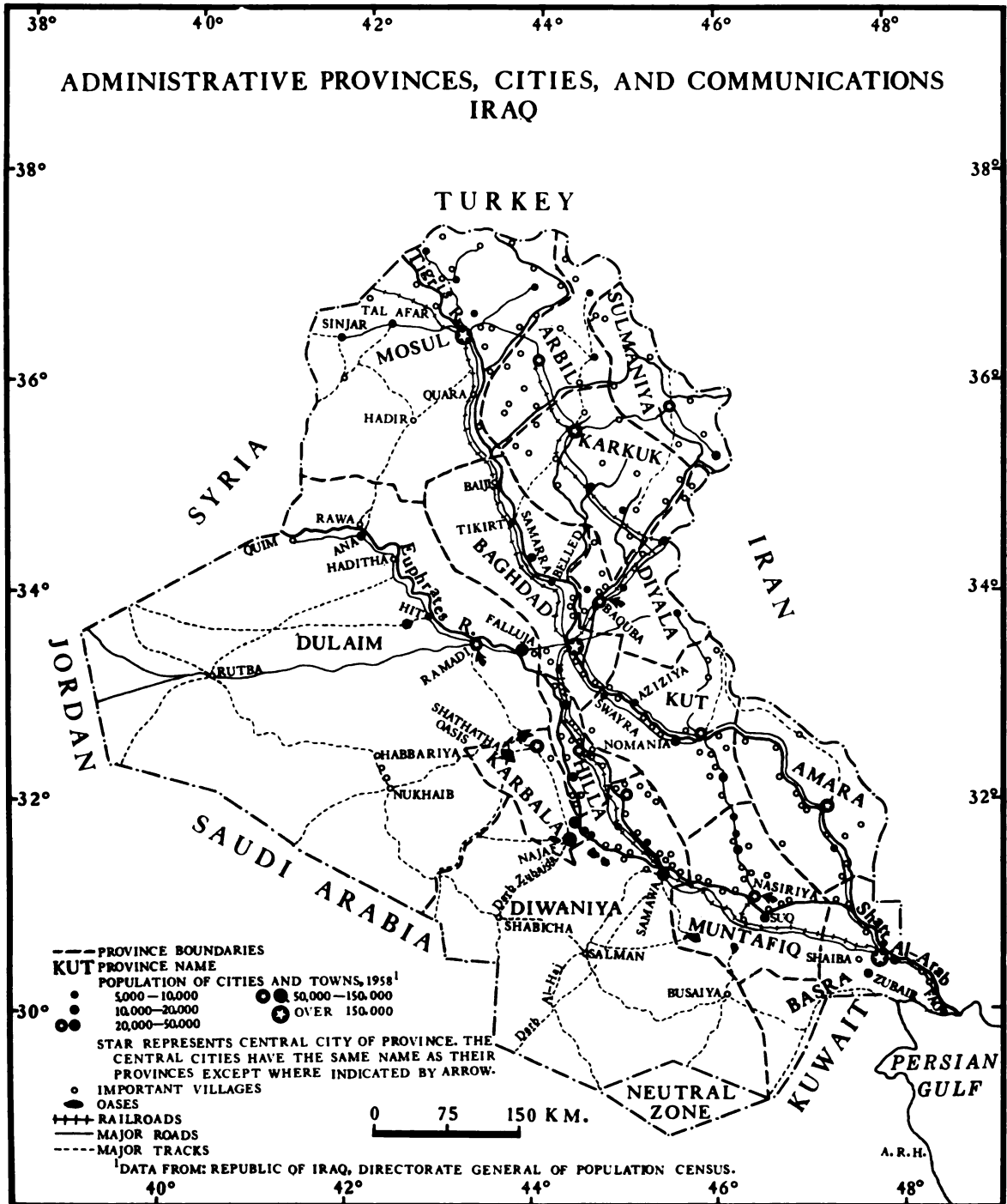


Fig. 1

as well as to the nomadic tribes of the surrounding deserts and steppes. The deserts to the south and west constituted no barrier to mounted nomads, and the passes in the mountains to the north and east provided easy entry corridors. The history of Mesopotamia, therefore, reflects long struggles between the wandering tribes and the sedentary population already in possession of the areas more suitable for settlement, as well as among the nomads themselves. Sumerians, Akkadians, Babylonians, Assyrians, Persians, Greeks, Romans, Arabs, Mongols, Turks, and the British have followed one another in control of this area,² and all have contributed to a greater or lesser degree to the complexity of its society.

Mesopotamia was, so far as is known, also the cradle of the first civilization. This was developed by the Sumerians and carried on by the Akkadians, the Babylonians, and the Assyrians. The dawn of written history found these people living in villages and houses much like those seen in rural Iraq today. The abundant water supply and the fertile soil of the Mesopotamian valley plain allowed the early development of a complex, irrigated agriculture and the rise of great cities such as Ur, Erdu, Babylon, and Ninevah.

The development of Mesopotamia and its advanced civilization was not a continuous process. The economic and social levels of its people rose and fell with the expansion and contraction of agriculture and irrigation systems. Furthermore, during much of its history Mesopotamia was a frontier zone between two great rival empires. Persia from the east controlled the area at intervals from the sixth century B.C., until early in the seventh century A.D. The major contenders from the west were the

²Ellen C. Semple, "The Ancient Piedmont Route of Northern Mesopotamia," Geographical Review, VIII (1919), 153.

Greeks who were followed by the Romans. The Moslem conquest of Mesopotamia in 637 A.D. brought not merely a new set of rulers, but the Arabic language, the Islamic religion, and a certain pattern of life which has characterized the country ever since.

In the eighth century A.D., during the Abbaside Period, Baghdad became the focal point of the world's cultural and scientific renaissance. In this period, the Caliph Harun Al-Rashid ruled a population of some 30 to 40 million in Mesopotamia.³ The zenith had been passed, however, when the Mongol invasions of the thirteenth century accelerated a deterioration from which present-day Iraq has not yet recovered. The irrigation system, upon which prosperity depended, fell in ruin, and the agricultural areas were turned into wasteland dominated by nomadic tribes.⁴

In 1534 the Ottoman Turks gained control of Mesopotamia, which they held, with brief interruptions, for about four centuries before losing it in 1916. The Turkish Period in Iraq falls into a number of easily recognized stages, ending in 1749, 1831, 1869 and 1916 respectively. With the exception of the last seventy years of this period, Mesopotamia suffered at all times from a complex of weaknesses of the Turkish rule and from the repressions of Turkish power. Arab tribes dominated the larger part of the countryside. Among these tribes there was no willingness to obey foreign rulers. From this antipathy resulted the problem of tribal transgression.

Iraq next came under British Occupation from 1916 to 1921. This period was characterized by several measures followed by the British to

³Ritchie Calder, Man Against the Desert (London: George Allenord Unwin Ltd., 1951), p. 131.

⁴Ahmed Sousa, Irrigation in Iraq (Baghdad: New Publishers, 1945), pp. 33-34.

maintain law and order, especially among the tribes. In 1921, an Arab monarchy was established under the British Mandate. Subsequently, Iraq achieved full independence in 1932 and became a recognized member of the League of Nations. The revolution of July 14, 1958, ended the Monarchical Period and established the present-day republic.

Contemporary Iraq can be divided geographically into five major regions whose physical differences have led to distinctive ways of life. These regions, shown in Figure 2, are: (1) the Mesopotamian Plain of central and southern Iraq, (2) the Piedmont east of the Tigris River, (3) the mountains in the north and northeast, (4) the Jezira between the upper Tigris and Euphrates rivers, and (5) the Western Desert west of the Euphrates River.

The northern limit of the Mesopotamian Plain extends from Belled on the Tigris River to Falluja on the Euphrates. This region is composed of silt laid down by the Tigris and its tributaries, the Euphrates, and the Karun and Karkha rivers which join the Shatt Al-Arab from the southern Zagros Mountains to the east. Archeological evidence indicates that the silt of these rivers has slowly pushed the old coastline of the Persian Gulf southward to its present location.⁵ Sedimentation of this region is heavy, being estimated by Mitchell to total about 24 million cubic meters annually.⁶ The surface is characterized by large tracts of permanent and

⁵A detailed discussion of the recession of the head of the Persian Gulf during historic time is presented in W. B. Fisher, The Middle East: A Physical, Social, and Regional Geography (London: Methuen & Co. Ltd., 1952), pp. 341-345; and in G. M. Lees and N. L. Falcon, "The Geographical History of the Mesopotamian Plains," Geographical Journal, CXVIII (1952), 24-39.

⁶Paul C. Mitchell, "Instability of the Mesopotamian Plains," Bulletin de la Societe de Geographie d'Egypt, XXXI (1958), 129.

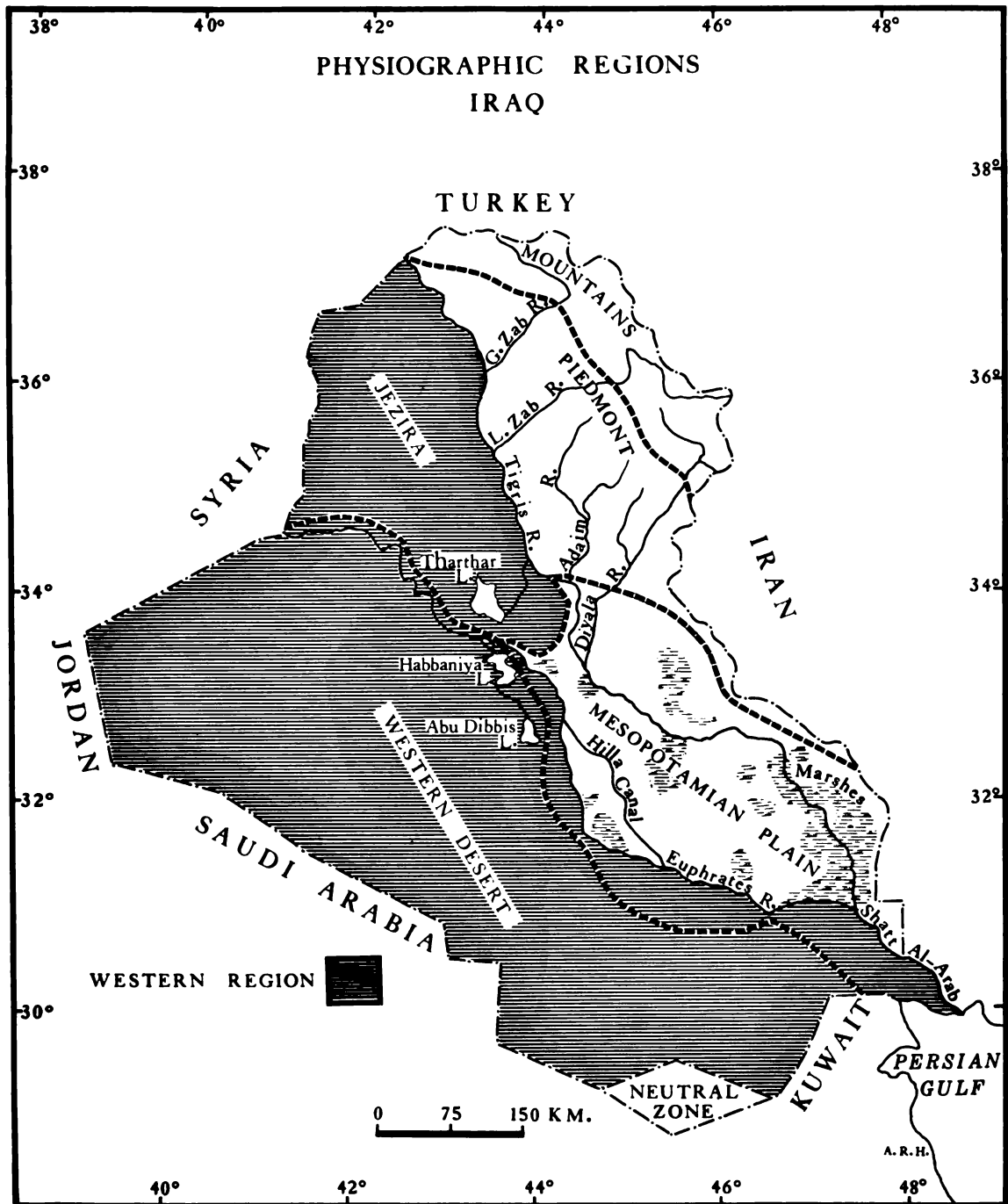


Fig. 2

seasonal swamps which occupy slightly more than 6,000 square miles, or nearly 4 per cent of the total area of Iraq.⁷ The extreme flatness of land, the inefficient irrigation practices, and the periodic floods give rise to harmful concentration of salt and make drainage a critical problem in the irrigated areas. The soils are silt, clay, silt loam, and sand loam. Generally, throughout this alluvial and delta plain, there is a heavy vegetation cover of common reeds, sedges, tube grasses and water lilies. The borders of the marshes are covered primarily by such plants as mint and Bermuda grasses.

The Piedmont regional forms a folded, tectonic belt of transition between the flat alluvial lowlands to the south and the high mountains to the north and northeast (Fig. 2). Elevation varies from 1,800 feet to 4,500 feet above sea level. Toward the east and northeast, the land rises in gradual steps, each being marked by ridges. The soils are old residual types derived from mixed and tufaceous rocks. Steppe vegetation covers the surface and consists principally of different kinds of grasses and bulbous plants with several varieties of thistles.

The Mountain region forms the northern and eastern rim of the Piedmont. This zone of rugged folded highlands consists of parallel anticlinal ridges and synclinal valleys having a northwest to southeast trend. Elevation varies from 4,500 to 10,500 feet above sea level. Agriculture is limited to a few elongated valleys and structural basins filled with alluvial soils. Chestnut soils are predominate over most of the region.⁸

⁷Wilfred Thesiger, "The Ma'dan or Marsh Dwellers of Southern Iraq," Journal of Royal Central Asian Society, XLI (1954), 4.

⁸Burnell G. West, "The Soils of Iraq and Their Management," Prospects of Iraq Biology: A Monograph of the Biological Society of Iraq (Baghdad: Al-Rabita Press, 1958), p. 18.

The surface is covered with considerable vegetation which varies with elevation. Above 7,300 feet, especially in the western parts of the highlands, an alpine vegetation prevails which consists of grasses with alpine flowers, mosses and lichens. Below this, there is a zone of thick forest which covers areas of elevation down to 2,400 feet. Over great parts of the region, the forest cover has been destroyed by overgrazing, burning, and the cutting of timber and shrubs for use as fuel by the Kurdish nomadic tribes. The immediate result has been rapid runoff, severe soil erosion, and floods. Recently, especially since 1953, the government has started some reforestation projects in this region.⁹

In contrast the Jezira is an undulating land located north of the Mesopotamian Plain and extending between the upper Tigris-Euphrates rivers. A western extension of this region comprises the Jezira of Syria, while a northwestern extension is within Turkey. In part it is underlain by gypsum and other evaporites laid down in ancient seas.¹⁰ The surface soil varies considerably, but generally appears to have lower salt concentration, higher organic matter content, and no major drainage problem, in comparison to the soils of the Mesopotamian Plain.¹¹ The vegetation is of steppe and desert grasses, with some shrubs and trees in the northern, more-hilly sections. It should be mentioned here that a more detailed discussion of the physical characteristics of this area and of the next-listed Western Desert region will be presented later in

⁹Hassan Kettani, "The Forests of Iraq," Prospects of Iraq Biology: A Monograph of the Biological Society of Iraq (Baghdad: Al-Rabita Press, 1958), p. 27.

¹⁰Hans H. Boesch, "El-Iraq," Economic Geography, XV (1939), 328.

¹¹Wafiq Hussain Al-Khashab, The Water Budget of the Tigris and Euphrates Basin (Ph. D. dissertation, Department of Geography, The University of Chicago, Chicago: By the Author, 1958), p. 12.

this study.

The Western Desert region represents a vast area situated west of the Euphrates River. It forms part of the arid land which extends west into Syria and Jordan and south into Saudi Arabia and Kuwait. In Iraq, the Western Desert rises gently from east and south towards the west and northwest. Its surface is characterized by exceptional flatness broken by numerous wadis (beds of intermittent streams) and broad shallow depressions.¹²

The climate of Iraq shows less regional differentiation than does its topography. The temperature throughout the country displays a great degree of continentality, as evidenced by large diurnal and annual ranges and long summer and winter seasons. However, the degree of continentality is greatest in the central part of Iraq and decreases toward the north and south. The north shows less continentality as a result of higher elevations and nearness to the Mediterranean Sea; the south because of the influence of the Persian Gulf.

Arid and semi-arid climatic conditions are dominant over most of Iraq. Humid climate is largely confined to the mountain belt. Moreover, rainfall is very unreliable over more than three-fourths of the nation. Winter, spring and autumn are the rainy seasons, while the summer months are dry except for occasional showers in the extreme south and north portions. The rainfall increases from southwest to northeast, ranging from

¹²These depressions are created by gentle folding, wind erosion, solution, and runoff water during rainy seasons. However, it is interesting to note that the origin of Al-Umchaimin depression located 90 kilometers southwest of the village of Rutba is related to a possible meteoritic origin. See Richard Merriam and James G. Holwerda, "Al-Umchaimin, A Crater of Possible Meteoritic Origin in Western Iraq," Geographical Journal, CXXIII (1957), 231-233.

an annual average of 50 mm. in the extreme southwest to 1,000 mm. in the extreme northeast.

Agriculture and animal husbandry are the major occupations of Iraq's population. Nearly 60 per cent of the inhabitants derive their income directly from working on the land. The remaining 40 per cent are engaged in non-agricultural activities such as trade, services, transportation and manufacturing. Most of the cultivated areas are concentrated in the Mesopotamian Plain of central and southern Iraq. Barley and wheat are the most important field crops and they occupy about 90 per cent of the annually-cultivated area in the country, with corn, sesame, and millet as minor summer crops.

On the basis of a comparison of population distribution with the physical and occupational factors, the country can be divided into four regions. The first includes the Western Desert, the Alluvial Plain lying west of the Euphrates River and Shatt Al-Arab, and the Jezira. In this study it will be referred to as the Western Region. With the exception of the riverine settlements and a few villages, oases and police posts scattered around water wells away from the rivers, this region has almost no sedentary population (Fig. 1). It is primarily the home of the nomads who move with their livestock from place to place.

Of the remaining three regions, to which the sedentary population is largely confined, the most important is the Mesopotamian Plain of central and southern Iraq. In this region the inhabitants are concentrated along the rivers and artificial distributaries and total about 70 per cent of the sedentary population of the country as a whole.¹³

¹³J. H. G. Lebon, "Population Distribution and the Agricultural Regions of Iraq," Geographical Review, XLIII, (1953), 223-228; also Doris G. Adams, "Current Population Trends in Iraq," Middle East Journal, X (1956), 153.

This is primarily a rural tribal area, though there is a concentration of towns in its western and northwestern sections. These towns function mainly as trade centers for the surrounding agricultural areas.

The Piedmont region is dotted with small villages, and rural population is fairly heavy between Karkuk and Mosul. In the Mountain region the population is generally sparse. However, the Kurdish people are concentrated in certain longitudinal valleys and intermontane basins. The chief mountain urban centers are the Kurdish cities of Sulmaniya (49,000 people) and Halabja (16,500 people). Population thins out as the terrain becomes higher and more broken farther north and close to the Turkish and Iranian frontiers (Fig. 1).

Any description of the present population of Iraq must distinguish several groups. The most obvious differentiation is that between tribal population and city dwellers.¹⁴ On the basis of ethnic origin the tribes fall into two categories, namely the Arab tribes and the Kurdish tribes. The Bedouins of Arabia are the ancestors of the Arab tribes which constitute the majority of the tribal population.

There is a distinction among the tribes themselves. In their way of life some are pastoral nomads and some are settled cultivators. The pastoral nomads numbering about 250,000 can in turn be classified into three groups. The first is the Kurdish nomads who occupy the Mountain region and part of the Piedmont zone. Their number is approximately 40,000 and they are engaged in a variety of pastoral activities. The second is the sheep-owning Arab nomads. Their number can be established at nearly 10,000 people scattered throughout the cultivated areas

¹⁴Stephen H. Longrigg and Frank Stoakes, Iraq (New York: Frederick A. Praeger, 1958), p. 183.

of the country outside the Kurdish section. The third group is the desert nomads totaling some 200,000 people who at present are occupying the Western Region of Iraq (Fig. 2). It is with the latter group that this study is concerned.

Statement of Problem

As indicated above, four-fifths of the nomadic peoples of Iraq, comprising less than four per cent of the nation's population, occupy territory in Western Iraq which totals nearly 60 per cent of the national area. Included is the Jezira, the Western Desert, and an alluvial strip of the Mesopotamian Plain lying immediately west of the Euphrates River and Shatt Al-Arab (Fig. 2). The latter section is included because here nomadic tribesmen intermingle with settled riverine people. The study area, hereafter referred to either as the Western Region of Iraq or Western Iraq, is therefore defined by the presence of nomadic tribes in the area, and not on the basis of physical features.

The problem of the Arab nomadic tribes of the Western Region of Iraq is one of long standing. In spite of the fact that public security now extends over the entire country, these tribes still constitute a constant threat to law and order because of their destructive feuds and their traditional habit of encroaching upon settled cultivators, ruining properties and causing bloodshed. Moreover, they present difficulties with respect to the collection of taxes, the taking of censuses, military conscription, the operation of health and education programs, and in other ways. Their strict loyalty to their tribes, for example, often comes into conflict with the national interest.

In addition, the tribes themselves have been faced increasingly with diverse economic and social difficulties. Backwardness and stag-

nation are the dominant features of their pastoral economy. Their grazing techniques, knowledge of animal husbandry, and production methods have remained fundamentally unchanged for centuries. At present they represent the poorest, least educated and most backward portion of Iraq's society. Thus, these nomadic tribes deserve special attention to at least bring them up to the level of decent human existence.

The same problems associated with the nomads of Iraq have long been faced elsewhere in arid lands of the Old World, but since World War II they have received particular attention in the Arab States of the Middle East where nomadic tribes still constitute a considerable proportion of the total population.¹⁵ This has come about as a result of the nationalistic awakening of the Arab people as a consequence of the Arab countries achieving independence and initiating development plans. In the planning the tribal community is being given due consideration, for leaders within Arab governmental circles recognize that national unity cannot be permanently achieved unless the nomadic segment is settled and fully integrated with the rest of the people.

This desire for amalgamation of the tribes with the rest of the population appeared clearly in four Social Seminars for the Arab States of the Middle East which were held at Beirut in 1949, Cairo in 1950, Damascus in 1952, and Baghdad in 1954.¹⁶ These seminars were organized by the combined efforts of the United Nations and the Arab League for finding solutions to problems linked with the nomads in the Arab States.

¹⁵Afif I. Tannous, "The Arab Tribal Community in a Nationalist State," Middle East Journal, I (1947), 5.

¹⁶For review of these seminars see United Nations Social Welfare Seminar for Arab States in the Middle East, Beirut, 15 Aug. to 8 Sept., 1949, UN Publications, Technical Assistance for Social Progress, No. 3,

More recently, these problems have received the attention of the Social Development Center of the Arab World which has been established in Egypt. The participation of UNESCO in this connection underlines the magnitude of the questions.¹⁷ As a result, most of the Arab States have established special departments and have initiated programs to deal with their tribal situation. Their major objective is to create favorable conditions for the stabilization, and thereby improvement of economic status, of their nomadic tribes. The measures adopted in some cases have proved a complete failure, but in most instances have been more or less successful.

In Iraq, while the problem of settling the present nomads and the bettering of their condition has been a concern of the authorities since independence, no serious attempt has been made to establish any well defined course of action in this respect. This is true even though the solution of the problem has been an essential part of the programs of many political parties in the country, among these being the National Party, the National Union Party, the Liberal Party, the Reform Party, and the Constitutional Party.¹⁸ The strong desire of the Iraqi

¹⁶ pp. 34-36; Second United Nations Social Welfare Seminar for Arab States in the Middle East, Cairo, 22 Nov. to 14 Dec., 1950, UN Publications, TAA Conference and Seminar Series, No. 2, pp. 61-70; Third United Nations Social Welfare Seminar for Arab States in the Middle East, Damascus, Dec. 8 to 20, 1952, UN Publications, New York, 1953, pp. 33-35; Preliminary Report on the World Social Situation, UN Publications, New York, 1952, pp. 149-156; see also Arab League, Department of Health and Social Affairs, Fourth Social Seminar of the Arab States, Baghdad, May 6 to 21, 1954, (Cairo: Dar Al-Hana Press, 1954), in Arabic, pp. 197-301.

¹⁷ For participation of this organization in the study of the nomads' problems and sedentarization in various countries see, UNESCO, "Nomads and Nomadism in the Arid Zone," International Social Science Journal, XI (1959), 481-585; UNESCO, Arid Zone Research, The Problem of the Arid Zone, Proceedings of the Paris Symposium (Paris: By the UNESCO, 1962), No. 18, especially pp. 325-267.

¹⁸ Talat Al-Shaybani, The Agricultural Property in Iraq (Baghdad: Dar Al-Ahali Press, 1958), in Arabic, pp. 88-94.

authorities to deal with the domestic nomadic situation appeared very clearly in 1954 when they invited the Arab delegates who were interested in the problem to hold their fourth Social Seminar in Baghdad. The Iraqi government has also established a special "Tribal Department." Moreover, between 1949 and the present the government has organized four "Bedouin Sedentarization Committees" whose members are official representatives drawn from different ministries. The purpose of these committees has been to outline a settlement program for the nomadic tribes of the country and especially those of the Western Region.

Upon investigation one finds that in Iraq there is general agreement that the nomadic tribes constitute a national problem and that the only over-all solution of this is settling the tribes and transforming them to cultivators through land distribution. It is taken for granted that once such a step is taken, the problems of the nomads will be solved. Practically, with the exception of providing some water wells in the Western Region for the nomads to use, the matter has not gone beyond this general thinking. It should be emphasized here that the problem of settlement of the tribes under consideration is an extremely complicated one and a much more comprehensive approach than has as yet been contemplated is required. Formulation of this is a future task of great importance and so fundamental that it has prompted the author to make it the subject of this study.

The primary objective, then, of preparing the dissertation was to investigate the possibilities of settling the present nomadic tribes of the Western Region of Iraq and to make recommendations how this might best be accomplished for the mutual benefit of the tribes and the rest of the nation. Remembering that sedentarization of the nomads is a

problem of long standing, that ancestors of most contemporary Iraqi were tribesmen, and that these groups once roamed over more territory than they do today, it seems evident that satisfactory attainment of the primary goal of the study requires a review of the past.

Some reasons why analysis of the process of settlement of former nomadic tribes is important, and why past experience should be considered in formulating plans for dealing with the nomads now living in Western Iraq, are: (1) already settled tribes resembled the present-day nomads in the earlier stages of their social and economic development; (2) study of the settlement of the former tribesmen provides insight and conclusions making possible emulation of the successes and avoidance of the failures of the past in solving today's problems associated with the nomads; and (3) past efforts at sedentarization, even when successful were often accompanied by undesirable occurrences and the creation of problems which can probably be avoided by rational planning based on experience.

Thus, a second objective of the dissertation, one which supports the first, is presentation of results of study of the influence, especially the spatial impact, of past and present governmental policy regarding the nomads. Consequently, after setting the stage by describing the physical characteristics of the Western Region of Iraq in Chapter II and discussing the historical background and present-day condition of Iraq's nomadic tribes in Chapter III, the next three chapters of the dissertation are devoted to consideration of government policy towards the tribes and efforts to settle them during three successive time intervals. These are the period of Turkish rule, 1534-1916; that of British control, 1916-1932; and that of Independence, 1932-1964.

Following Chapter VII, in which recommendations are made for settling present-day nomads, major findings of the study are summarized in a concluding chapter.

Some of the data necessary for the completion of the study was gathered by field work in the Western Region of Iraq. The author spent more than two months in the area during the summer of 1963, making a thorough reconnaissance and conducting personal interviews with nomadic tribesmen as well as with government representatives stationed in the area. Additional information was obtained from officials in Baghdad, the capital of Iraq. Being a citizen of Iraq with a long-time interest in the culture and problems of the nomadic tribes of the Western Region, the author had made other trips to the area before 1958, the year he left Iraq to continue his education in the United States. The nature of the study also called for intensive library work which was conducted primarily in the library of Michigan State University, both before and after the field work.

CHAPTER II

PHYSICAL CHARACTERISTICS OF THE WESTERN REGION OF IRAQ

For the most part the area consists of an undulating plain, rising gently from east and south toward the west and northwest. The surface is broken by numerous wadis (intermittent stream valleys) descending toward the Euphrates-Tigris rivers. The majority of these wadis are 50 to 100 feet deep. In addition, there are many depressions, low folded hills, sand dunes, terraces, and alluvial plains. The distribution of these features is largely controlled by structural, lithologic, topographic, and climatic conditions.

Physiography

On the basis of physical factors it is possible to divide the area under consideration into three major physiographic regions. These are shown in Figure 3 and are: (1) the Jezira, between the upper Tigris and the upper Euphrates rivers, (2) the Western Desert, and (3) the Alluvial Plain, a part of the Mesopotamian Plain, just west of the Euphrates River and Shatt Al-Arab. The Jezira and the Western Desert may be divided into smaller subdivisions (Fig. 3). The Jezira is separated by the Sinjar and Makhul Hills into: (a) the Folded Hills in the north, and (b) the Plain in the south. At least five subdivisions may be recognized in the Western Desert. From west to east these are: (a) the Hamad Plain, (b) the Upper Wadian, (c) the Hajara Stony Plain, (d) the Lower Wadian, and (e) the

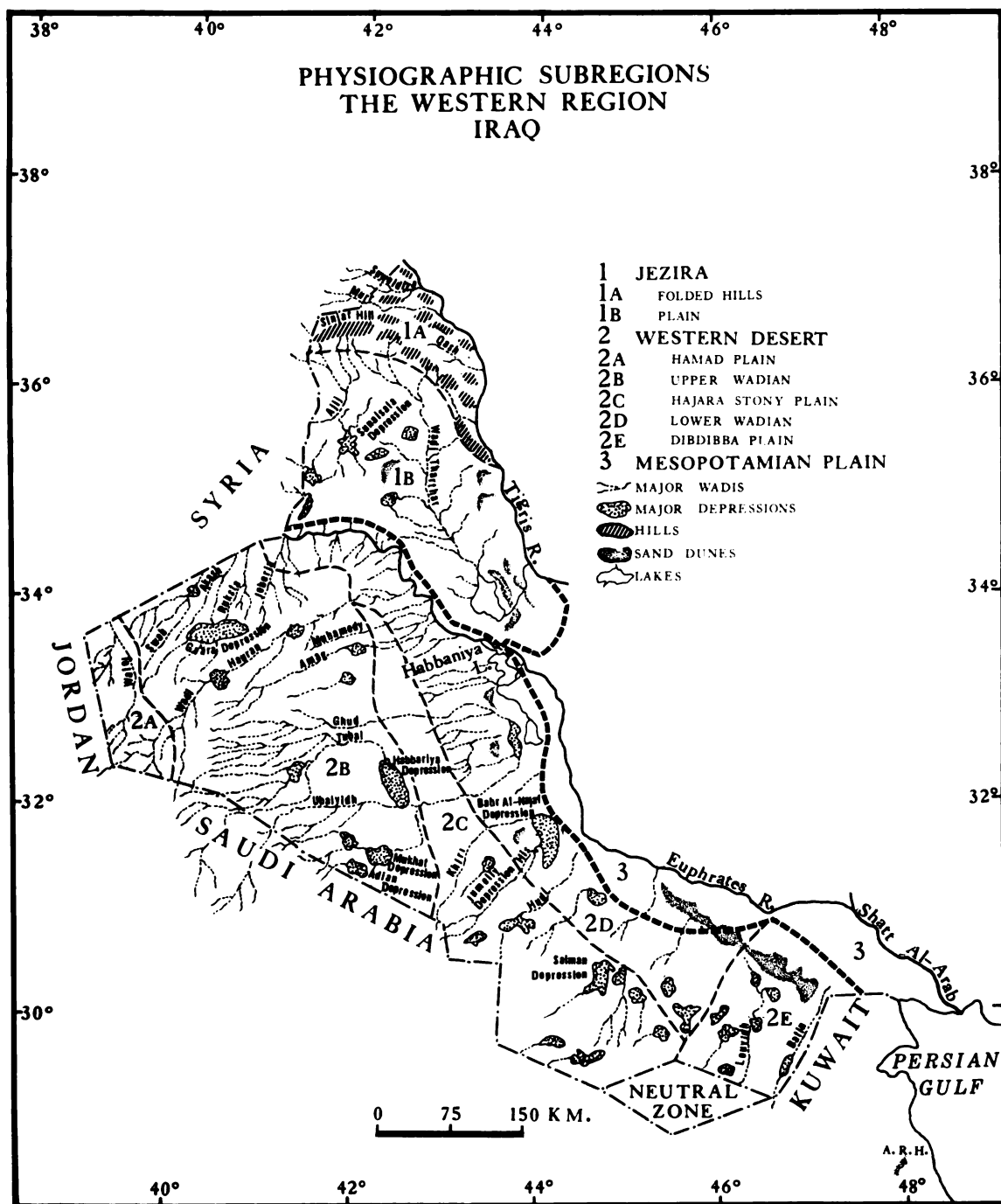


Fig. 3

Dibdibba Plain in the extreme south.

The Jezira

The Folded Hills.--This subregion of the Jezira is characterized by low folded ridges which extend in a west-east direction between the Iraqi-Syrian border and the Tigris River (Fig. 3). These anticlinal hills are separated by synclinal troughs, filled largely with recent alluvial sediments to form plain surfaces. The hills expose, in many places, rocks belonging to the Miocene Age. Several wadis have developed on the surface of this subregion, the most important of which are Wadi Suweidiya, Wadi Murr, and Wadi Qash. The wadis are tributaries of the Tigris River except in the areas where they are prevented from reaching the river by the northwest-southeast trend of the uplifted anticlinal hills such as those lying northwest of the city of Mosul.

The Plain.--This second subregion is bounded by the Folded Hills to the north and the northern end of the Lower Wadian to the south. It is essentially flat, having relatively little relief. In the western portion there are numerous low buttes or plateaus rising from 20 to 100 feet above the surface of the plain. This subregion is also characterized by sand dunes, wadis, and shallow topographic depressions that become intermittent lakes and marshes during the rainy seasons. An example of these intermittent or playa lakes is the Sunaisala, which is about eight kilometers in diameter and lies in the northwest part of the plain.¹ The area is one of internal drainage and its surface runoff flows into the shallow depressions and playa lakes through the wadis. Wadi Tharthar,

¹Ralph M. Parsons Company, Ground Water Resources of Iraq (Los Angeles: Government of Iraq, Ministry of Development, 1955), Vol. V, p. 7.

about 275 kilometers long, flows intermittently from north to south and emerges into the Tharthar depression. Numerous small wadis drain easterly and empty their water during the rainy seasons into this larger wadi (Fig. 3).

The Western Desert

The Hamad Plain.--This is an old peneplain,² lying west of the Upper Wadian subregion and extending into Syria, Jordan, and Saudi Arabia (Fig. 3). Limestone, mostly of the Eocene Age, underlies the plain and dips very slightly to the west and northwest. The plain in Iraq is almost featureless except for the large Wadi Walej and its tributaries. This wadi originates in Saudi Arabia and passes through Jordan and Iraq into Syria. Wadi Hauran also traverses the south part of this plain in its course eastward through the Western Desert to join the Euphrates River. The elevations range from 2,300 feet above sea level, near the Syrian border, to about 3,000 feet at Aneza Hill, where the Saudi Arabian, the Iraqi, and the Jordanian international boundaries meet. Drainage from the high area at Aneza Hill is to the north, northeast, east, and west.

The Upper Wadian.--This subdivision is underlain, for the most part, by Cretaceous beds of limestone and sandstone rocks which are overlain by clay, gravel, marl, and other deposits belonging to the Oligocene Age. The area is characterized by a complex system of wadis and their tributaries arranged in a dendritic pattern, generally draining toward the northeast and east (Fig. 3). In the rainy season the wadis carry streams of runoff, but are generally dry the rest of the year.

²Hans H. Boesch, "El-Iraq," Economic Geography, XV (1939), 327.

The most important wadis in this subregion are Swab, Akash, Ruksta, Jeberia, Hauran, Amag, Ghud, Tubal, and Ubaiyidh. These wadis vary in cross section throughout their courses from broad shallow valleys with low banks to flat-bottomed, steep-walled, canyon-like features. Some of them originate outside the Iraqi boundaries. Some terminate within this subregion, while others reach large natural depressions found on the Lower Wadian to the east. Such are Wadi Ghud and Wadi Ubaiyidh which empty into Bahr Al-Milh. Still others, such as Wadi Jeberia and Wadi Hauran, empty into the Euphrates River. In the southern part of the subregion, some wadis are characterized by terraces and high edges. It is believed that these features are the result of distinct cycles of regional uplift and subsequent erosion.

There are many depressions on the surface of the Upper Wadian subregion, such as the Ga'ara, Habbariya, Mukhat, Adian, and others (Fig. 3). The largest of these is the Ga'ara, located about 50 kilometers north of Rutba village, with an area of 2,080 square kilometers. These basins are filled with recent sediments which have been deposited by the winds and by drainage from their tributary wadis.

The Hajara Stony Plain.--Rocks underlying this plain for the most part consist of limestone of the Eocene Age. The surface is largely covered with residual pebbles and rock fragments (Pl. I, Fig. 1). Limestone ridges, shallow grassy depressions, and rocky-sided wadis which drain toward the northeast all add some relief to the generally flat topography of this subregion (Pl. I, Fig. 2).

The Lower Wadian.--This is an eastern extension of the Upper Wadian subdivision. It, too, reveals a complex system of shallow wadis which drain towards the east, some joining the Euphrates River and others

emptying into eastern depressions such as Habbaniya, Bahr Al-Milh, and Bahr Al-Najaf. Six main wadis which cross this subregion deserve mention. These are Wadi Hauran, Muhamedy, Ghud, Ubaiyidh, Khirr, and Hudi (Fig.3). Landforms such as structural terraces, mesas, and cuestras also break the surface of this subregion.

The Dibdibba Plain.--Located in the extreme southeastern section of the Western Desert, the Dibdibba Plain has a slightly rolling, sandy to gravelly surface. It has no notable features with the exception of many shallow depressions and a few broad wadis, the most important of which are Wadi Louyidh and Wadi Batin, and their numerous small tributaries. Rain-pools are invariably formed in winter and spring. Some of these are quite extensive and their waters last for two or three months after the rainy season. This subregion also includes the southern portion of an extensive sand dunes belt which extends from northwest to southeast bordering the lower course of the Euphrates River and varies in width from five to ten miles (Fig. 3).

The Alluvial Plain

This is the most eastern physiographic region of the area under consideration (Fig. 3). It is part of the Mesopotamian Plain. It forms a narrow strip of alluvial land lying along the west bank of the Euphrates River and Shatt Al-Arab, from Falluja in the north to the Persian Gulf in the south. To the west the plain merges imperceptibly with the Lower Wadian in many places.

Climate

The climatic conditions prevailing throughout the study area are typically arid and semi-arid, characterized by large daily and annual

ranges of temperature, clear skies, low humidity, and extreme variability of rainfall from year to year.

There are many factors responsible for the creation of these climatic conditions, but those particularly significant are the latitudinal location, the area's situation in relation to neighboring water bodies and land masses, and atmospheric pressure, the prevailing winds, and the passage of cyclonic storms from the Mediterranean Sea.

The area as a whole is located within the lower middle latitudes, approximately between 30° and 37° north latitude. The average daily amount of sunshine in July is about four hours longer than that of January. The greater insolation makes summer months much warmer than winter ones. The result is, as would be expected, considerable annual and daily temperature ranges. Table 1 shows how the annual temperature ranges increase with increasing latitude.

TABLE 1
ANNUAL TEMPERATURE RANGE AT SELECTED STATIONS^a

Station	Latitude	Annual Temperature Range in Degrees F.	Years of Record
Mosul	36.19	49.1	25
Diwaniya	31.51	44.8	10
Salman	30.28	44.7	3
Shaiba	30.25	44.3	22

^aGovernment of Iraq, Meteorological Department, Climatological Means for Iraq, Publication No. 10 (Baghdad: Government Press, 1954), p. 6.

The location of the Western Region of Iraq in its relation to the water bodies in Southwest Asia is the next important factor controlling its climate. The closest water bodies are the Persian Gulf and the Mediterranean Sea, and these are the two sources from which marine in-

fluences commonly penetrate the area, especially during the winter months. The Caspian, Black, and Red seas are farther away. Moreover, their influence is largely restricted by high mountain ranges and plateaus.

Winter Air Movements.--In winter the low pressure centers concentrate over the Mediterranean Sea and the Persian Gulf. In addition, a system of relatively low pressure occupies the Mesopotamian lowland, extending northwest to southeast to link the Mediterranean low and that of the Persian Gulf. At the same time high pressure centers prevail over the Anatolian and the Armenian plateaus.³ Therefore, the area is situated within a complex of high and low pressure centers. Northwestern winds originate in the high pressure centers and tend to move parallel and close to the northwest-southeast extension of the mountain chains of northern Iraq and southern Turkey (Fig. 4). The influence of these northwesterly winds, therefore, is mostly restricted to the Jezira in the north. Since these winds descend from high land masses, they are cold and dry and do not bring much rain in the area. These are the predominant local winds over Iraq from February to October and they are especially strong from June to August.

During the winter months, as a result of cyclonic activity associated with the low pressure conditions prevailing over the Mediterranean Sea, a succession of atmospheric depressions move eastward from the sea. These lows pass over the study area and reach the rest of Iraq along two major tracks. The first group tends to avoid the high pressure center that exists over the Anatolian Plateau and proceeds to the south of it by way of the Aleppo Gap eastward to Iraq. The second group

³Ali H. Al-Shalash, "The Climate of Iraq" (Unpublished M. A. thesis, Department of Geography, University of Maryland, 1957), p. 15.

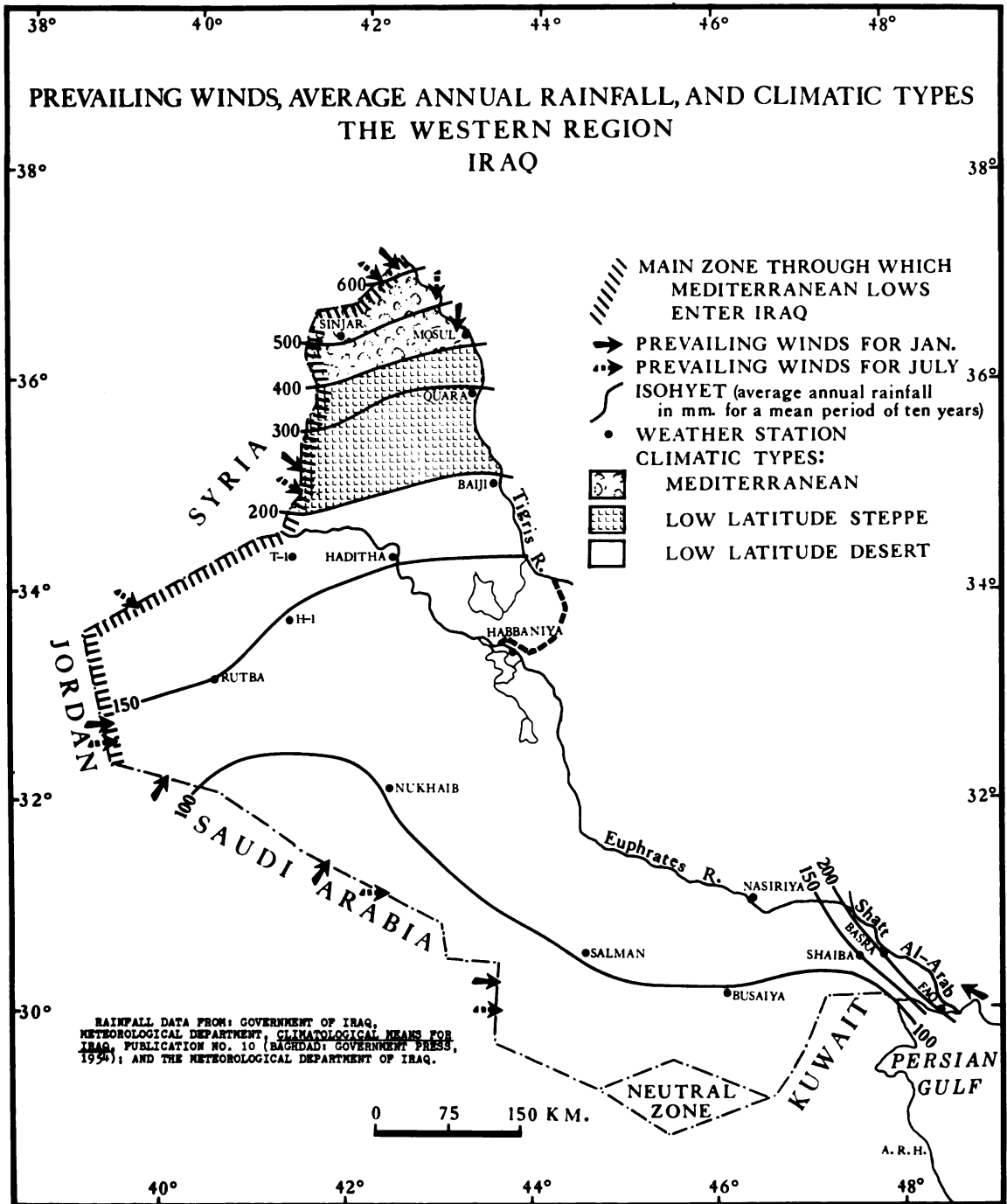


Fig. 4

travels farther to the south, following a course parallel to the southern branch of the Mediterranean Petroleum Pipeline, which runs just north of the village of Rutba. The damp air of these cyclones first flows over the mountainous country of the Levant and then crosses the Syrian Desert, depositing much of its moisture, so that on arrival in Iraq only a reduced rainfall is possible. Nevertheless, the lows are the main source of rainfall, not only for the Western Region, but for the entire country. Some of these depressions remain for several days causing very heavy rain, whereas others last no more than a few hours. Table 2 shows that the time of their occurrence and their latitudinal distribution vary greatly.

TABLE 2

MONTHLY NUMBER OF DEPRESSIONS THAT ENTERED IRAQ ALONG
VARIOUS LATITUDES DURING THE YEARS, 1938-1940^a

Month	Below 30° N	30°- 32°N	32°-34°N	34°-36°N	36°-38°N	Total Per Month
J	2	2	4	9	1	18
F	4	1	8	12	1	26
M	3	0	5	7	0	15
A	1	2	10	5	0	18
M	0	3	4	1	0	8
J	0	0	0	0	0	0
J	0	0	0	0	0	0
A	0	0	0	0	0	0
S	0	0	0	0	0	0
O	1	1	1	5	0	8
N	1	5	2	2	2	12
D	4	1	4	6	0	15
Total	16	15	38	47	4	120

^aAli H. Al-Shalash, "The Climate of Iraq" (Unpublished M.A. thesis, Department of Geography, University of Maryland, 1957), p. 20.

According to the table, a total of 120 cyclonic depressions entered

Iraq between 1938 and 1940. Of these, 85 passed through the middle section of Western Iraq between latitude 32°N and 36°N . The table also shows that the depressions are unequally distributed through the seasons. They reach their maximum frequency in winter (59 for January, February, and December), followed by spring (41 for March, April, and May), and autumn (20 for September, October, and November), while there are none during the summer (June, July, and August). Since rain in Western Iraq is highly dependent on the passage of these cyclones, this means that winter is the wettest season, followed by spring and autumn, whereas summer is dryest.

During the winter also strong southeasterly winds, cold and relatively damp, usually develop in front of an advancing depression. These originate over the Persian Gulf, move over Iraq and meet the northwesterly winds. This creates atmospheric instability and thundershowers which become common over Iraq for several days. Such a condition brings some moisture to the area under consideration.

In winter, the frequency and the direction of the prevailing winds vary over the Western Region; the predominant winds over the Jezira are coming from the northwest (Fig. 4). Over the northern part of the Western Desert the prevailing winds are the westerly and southwesterly, while in the southern part they are mainly from the west and southeast.

Summer Air Movements.--In summer the area lies mainly between two low pressure centers. One of these develops over the Persian Gulf and the southern part of Iraq, and is believed to be a westerly extension of the low pressure belt prevailing over the Indian subcontinent in this season. The other center is over the island of Cyprus.⁴ The former is

⁴W. B. Fisher, The Middle East: A Physical, Social, and Regional Geography (London: Methuen & Co. Ltd., 1952), p. 29.

stronger than the latter, and therefore, the winds which originate from the relatively high pressure concentrations over the high mountains of Asia Minor blow over Western Iraq toward the Persian Gulf. Being hot and dry, these northwesterly winds bring no rain as they move southeast. Although they are dominant throughout the year, they are especially so in summer when not interrupted by the passage of any cyclonic storms from the Mediterranean Sea.

Temperature.--Figures 5 and 6 show average minimum, maximum, and monthly temperatures for eight selected stations in the study area and on its edge. On the basis of the available data from these stations, it is possible to make a brief statement regarding the temperature and rainfall characteristics of the area.

The data for these stations indicate that the summer season, the one with average monthly temperatures over 68°F., is very hot and generally five or six months in length. The winter season with average monthly temperatures of 40° to 60°F. is short and mild, while both spring and autumn, having temperatures of 60° to 68°F., are very short. Of the eight stations, Basra has the highest average temperature for January, this being 55°F., while the others are between 40° and 50°F. for the same month. The proximity of Basra to the Persian Gulf at a low latitude and low elevation is one element in explaining its higher temperature.

The average monthly temperature for July is 90°F. or above for all stations except Mosul and Rutba where it is almost 90°F. for the former and 84°F. for the latter. The relatively lower temperature for these two stations is due to the fact that they are at a higher elevation than the others.

A study of the average monthly maximum and the average monthly

TEMPERATURE AND RAINFALL DATA FOR

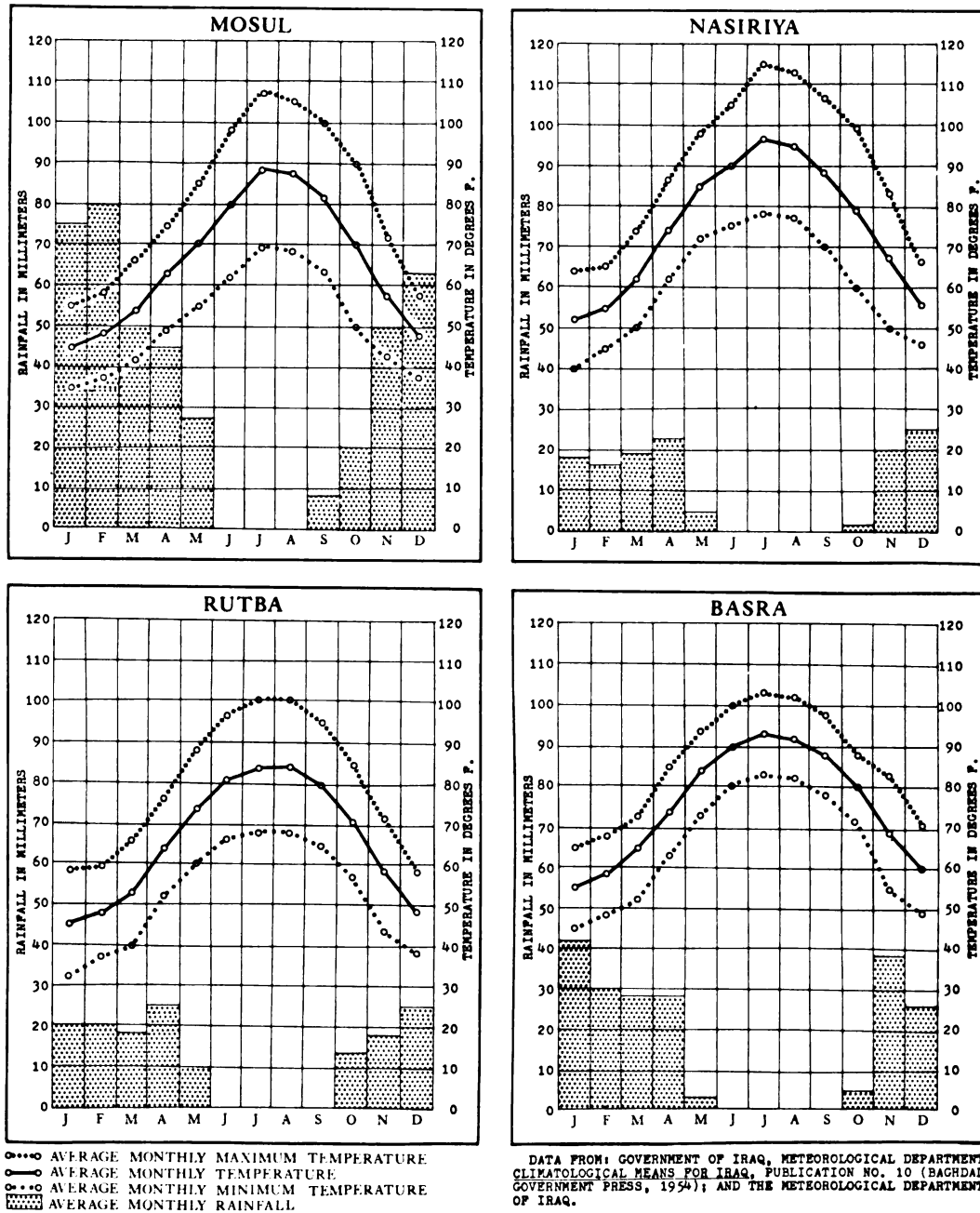


Fig. 5

TEMPERATURE AND RAINFALL DATA FOR

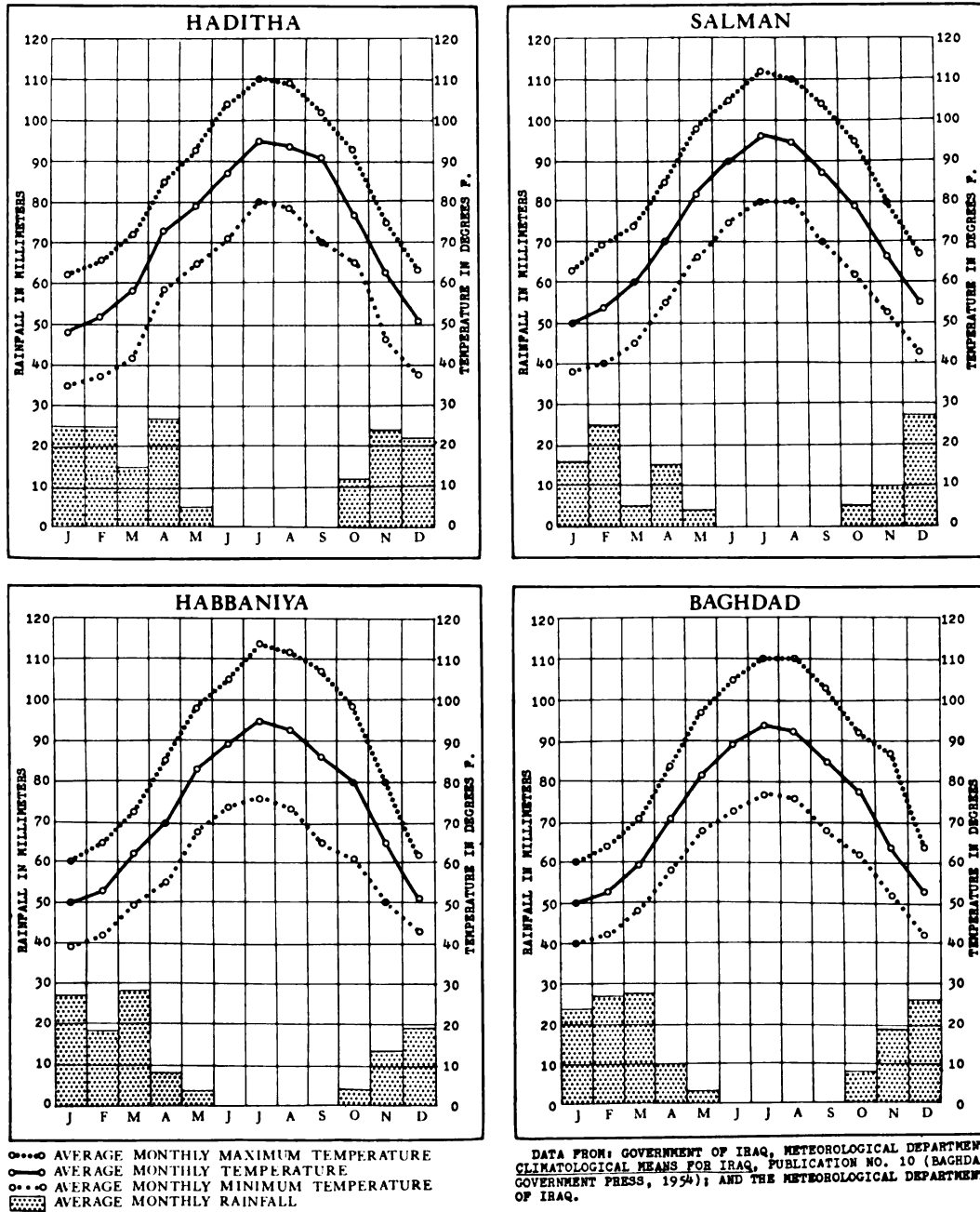


Fig. 6

minimum temperatures reveals that all eight stations have a maximum for July and August of over 100°F., while the average minimum for the same months falls between 68°F. and 83°F. (Fig. 5 and Fig. 6). The average monthly maximum for January and February for Nasiriya, Basra, Haditha, Habbaniya, Salman, and Baghdad is 60°F. or more. Mosul and Rutba on the other hand have averages for the same months of 55°F. and 58°F. in the former and 58°F. and 59° in the latter. Except for Rutba which has an average monthly minimum of 32°F. for January, the rest of the stations have their averages above the freezing point.

The absolute monthly maximums are high and the absolute monthly minimums are low for all of the eight stations. For example, a July absolute monthly maximum temperature of 125°F. has been recorded for Shaiba, 124°F. for Mosul,⁵ and 115°F. for Rutba,⁶ while the January absolute monthly minimum temperatures at the same places are 20°F., 10°F., and 6°F. respectively.

Rainfall.--A study of Figures 5 and 6 reveals that rainfall is almost absent in the summer months. That rain which does fall comes either at the beginning or at the end of summer. Consequently, rainfall is almost entirely during the winter, spring, and autumn. Table 3 shows that the amount of rainfall is small at all the stations; it ranges from 95 mm. annually at Busaiya to 505 mm. at Sinjar.

Figure 4 indicates the average annual rainfall for the area and is constructed from the data presented in Table 3. A study of the figure

⁵Government of Iraq, Meterological Department, Rainfall in Iraq, 1936-1939, Occasional Publication No. 3 (Baghdad: Government Press, 1940), pp. 3-10.

⁶Government of Iraq, Meterological Department, Climatological Means for Iraq, Publication No. 10 (Baghdad: Government Press, 1954), p. 37.

TABLE 3

AVERAGE OF ANNUAL, WINTER, SPRING, AND AUTUMN RAINFALL AT 16 SELECTED STATIONS IN AND BORDERING THE WESTERN REGION IN mm^a

Station	Annual	Winter	% of Total	Spring	% of Total	Autumn	% of Total	Years of Record
Mosul	418	218	52	122	30	78	18	13
Sinjar	505	291	57	132	26	82	17	11
Quara	298	156	52	90	30	52	18	11
Baiji	193	98	51	61	31	34	18	10
Haditha	155	72	46	47	30	36	24	10
H-I	145	59	40	53	37	33	23	10
T-I	176	81	46	53	31	41	23	9
Habbaniya	122	64	52	35	29	23	19	12
Baghdad	143	76	53	40	28	27	19	15
Rutba	150	65	44	53	35	32	21	15
Nukhaib	105	66	63	23	22	16	15	8
Salman	108	68	63	25	23	15	14	8
Busaiya	95	55	60	27	27	13	13	8
Shaiba	150	90	60	40	27	20	13	11
Basra	200	98	49	59	29	43	22	10
Nasiriya	128	59	46	47	37	22	17	10

^aGovernment of Iraq, Meteorological Department, Climatological Means for Iraq, Publication No. 10 (Baghdad: Government Press, 1954); and the Meteorological Department of Iraq.

reveals that the rainfall increases from southwest to northeast in the study area. The whole region of the Western Desert normally receives less than 200 mm. annually, while most of the Jezira region receives an average of 200 to 600 mm. each year. The driest part of the study area, on the other hand, is in the extreme southwest of the Western Desert where the annual average is less than 100 mm.

Another important fact concerning the rainfall of the area is illustrated by Figure 7. It shows that rainfall over the whole area varies greatly in amount and distribution from year to year, but keeps the same pattern, i.e., an increase from southwest to northeast. Moreover, most of the rainfall comes as heavy thunderstorms which may last for only a short period, and which are largely due to the arrival of moist maritime air from the Mediterranean Sea in the form of cyclones, as previously indicated.

Seasonality is another important characteristic of the rainfall of the area (see Table 3). The winter (December, January, and February) is generally the wettest period of the year. In fact, most stations for which data are presented in Table 3 receive more than half of their annual amount of precipitation during this period.

Rainfall in spring is considerably less than in winter. This is due to many factors, the most important being the decrease in the frequency of passage of cyclonic storms of the Mediterranean Sea. This permits the prevailing northwest winds which originate over the plateaus of Anatolia and Armenia to become more dominant. Being dry winds and descending from higher to lower altitudes, they accentuate the dryness in the area in spring.

Table 3 shows that the amount of rain received in autumn is still

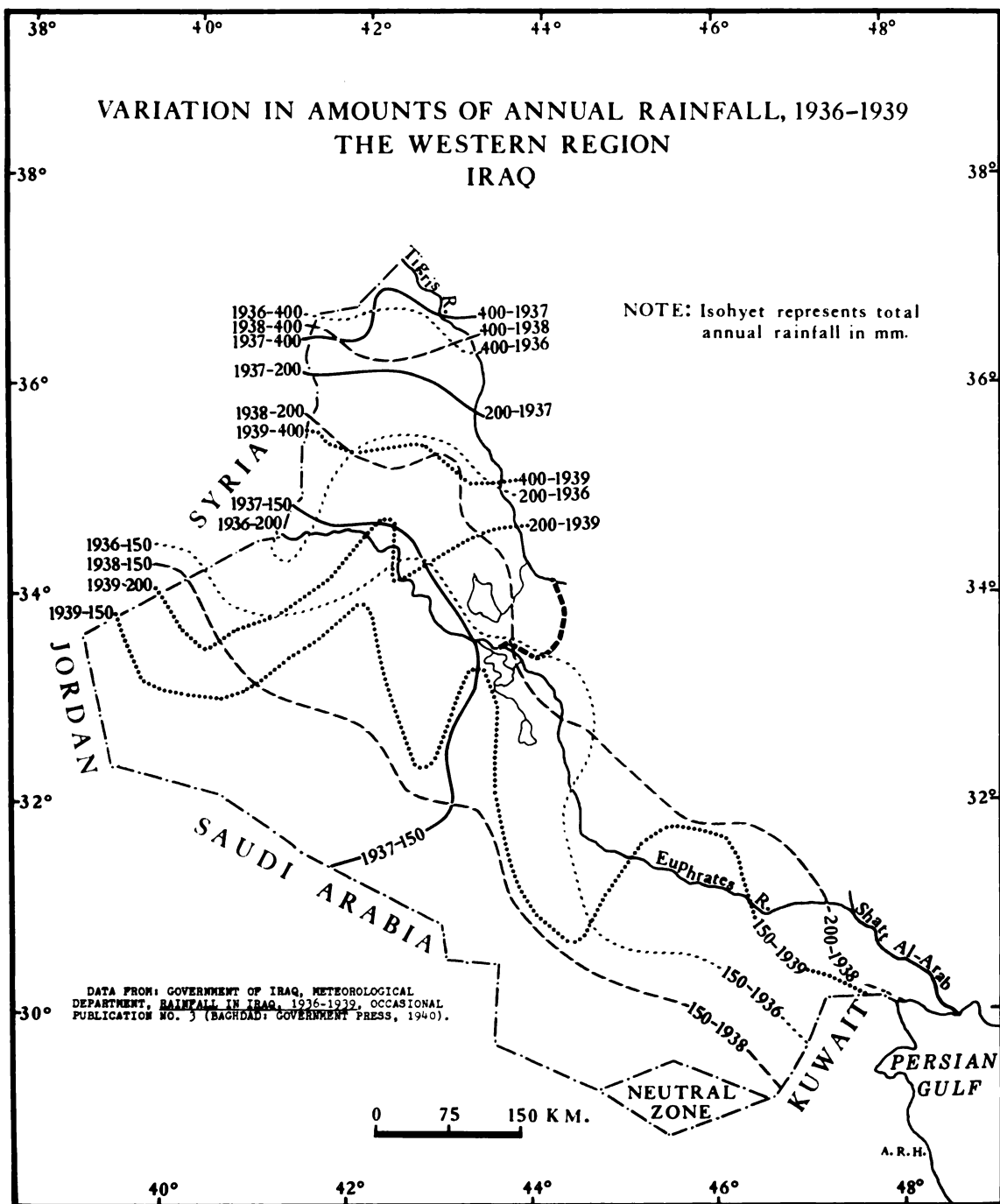


Fig. 7

less than that of spring or winter. All stations listed in the table receive less than 25 per cent of their annual rainfall in this season. It is also significant to note that none of the Western Desert stations receives as much as 100 mm. of precipitation during any of the four seasons, while a large part of the Jezira receives more than this amount during the winter and spring.

Relative Humidity.--A study of the average monthly relative humidity taken at 6 A.M., 9 A.M., and 3 P.M., at Mosul, Rutba, Nasiriya, and Basra (see Table 4), shows that Basra is more humid during summer than the other three stations. This is mainly due to its proximity to the Persian Gulf. Nasiriya and Rutba seem to have approximately the same relative humidity, although Nasiriya is located far south of Rutba and at a lower altitude. Nasiriya's southern latitude and low altitude compensate by its nearness to the Persian Gulf and its location within the marshes of southern Iraq. The same table indicates that the summer months are characterized by low relative humidity. This low relative humidity is primarily due to summer drought and high temperature, while in winter months one finds the reverse condition in these stations.

On the basis of the previous discussion of the climatic conditions, it is possible to divide the study area into three climatic regions (Fig. 4). These are: (1) Low Latitude Desert; (2) Low Latitude Steppe; and (3) Mediterranean. The first region includes the southern portion of the Jezira and the whole Western Desert; in other words, it covers areas which have average annual rainfall of less than 200 mm. The two other climatic regions are semi-arid and are located in areas receiving average annual rainfall of 200 mm. or more. Areas of the Jezira receiving 200 to 400 mm. have a dry steppe climate, while those getting over

TABLE 4

AVERAGE MONTHLY RELATIVE HUMIDITY FOR MOSUL, RUTBA, NASIRIYA AND BASRA^a
(In Per Cent)

Station & Time of Record	J	F	M	A	M	J	J	A	S	O	N	D	Yearly Average	Years of Record
Mosul														
6 A. M.	92	90	88	85	73	54	49	47	56	67	83	91	73	32
9 A. M.	89	86	77	69	47	33	30	31	35	49	73	88	58	32
3 P. M.	64	60	51	43	28	17	16	15	18	28	49	64	38	32
Rutba														
6 A. M.	83	76	68	59	50	41	40	41	41	47	67	82	58	25
9 A. M.	78	69	56	44	36	29	28	27	33	38	58	77	48	25
3 P. M.	47	39	32	25	20	15	15	15	17	23	39	47	28	25
Nasiriya														
6 A. M.	79	75	70	62	51	44	41	38	40	48	66	81	58	21
9 A. M.	72	64	55	44	36	34	31	25	25	33	55	73	46	21
3 P. M.	46	38	34	27	24	23	20	15	14	19	35	50	29	21
Basra														
6 A. M.	90	87	81	75	66	50	59	59	62	69	81	90	72	24
9 A. M.	83	76	66	58	50	49	47	46	48	53	66	83	60	24
3 P. M.	61	52	48	42	39	39	35	34	32	34	49	63	44	24

^aRepublic of Iraq, Ministry of Planning, Central Bureau of Statistics, Statistical Abstract, 1961
(Baghdad: Zahra Press, 1962), pp. 14-17.

400 mm. have a Mediterranean type of climate.

Soil

Information concerning types, characteristics, and distribution of soils in the study area is meager. An empirical study of soil conditions in Iraq has been recently done by P. Buringh,⁷ but unfortunately it deals mainly with the lowlands of the Tigris and Euphrates basin and the uplands and mountains in the north. In preparing the following discussion, much information on the subject was taken from a series of reports by the Parsons Company⁸ which has done intensive ground water surveying in the study area. In addition, some data were supplied by the Agriculture Department of Iraq. Moreover, the physiographical and climatic characteristics of the area provide a basis for interpreting the probable soil conditions. The classification used here distinguishes the following categories: (1) Soils of the Jezira region, comprised of (a) soil of the Folded Hills, (b) soil of the Plain; (2) Soils of the Western Desert, comprised of (a) soil of the Hamad Plain, (b) soil of the Upper Wadian, (c) soil of the Hajara Stony Plain, (d) soil of the Lower Wadian, and (e) soil of the Dibdibba Plain; and (3) Soils of the Alluvial Plain. The major soil types appear in Figure 8.

Soil of the Jezira

Soil of the Folded Hills.--The soil of this subregion belongs to the

⁷P. Buringh, Soils and Soil Conditions in Iraq (Baghdad: Republic of Iraq, Ministry of Agriculture, 1960).

⁸Ralph M. Parsons Company, op. cit., Vols. II, III, V, VII, VIII, and XI.

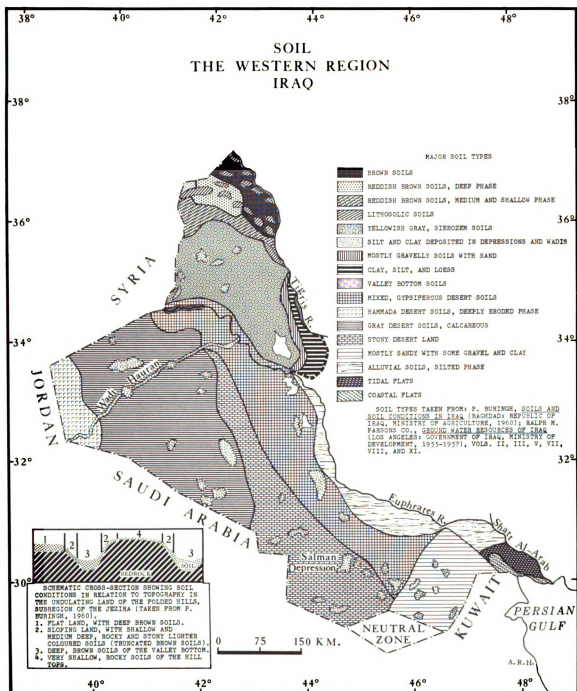


Fig. 8

brown soil group. The brown surface layer is about 25 to 35 cm. thick, grading into a brownish-gray to whitish horizon of lime accumulation.⁹ The top soil has about eight per cent organic matter. It is mainly derived from gypsum, particularly in the southern limits of this region. To the east and northeast, just west of the Tigris and south of Mosul, brown soil is developed mainly on gypsum and partly on sandstone and limestone.¹⁰ West and northeast of Mosul, however, limestone becomes more predominant than gypsum as the parent material.

In the level parts of this subregion, deep soils occur over rather large areas and especially north of Sinjar Hill. Many hilltops on the other hand, are barren rocky land with generally shallow soils. The slopes of these hills have mostly stony, shallow to medium deep soils. Hilltops and slopes are labeled on the map as lithosol (Fig. 8). An inset in Figure 8 illustrates soil conditions in relation to the topography of the undulating land of this subregion.

Crust soils of lime and gypsum occur in some places in this subregion, especially in the extreme north in the area where the Tigris River enters Iraq. These crusts have been considered secondary formations, since they often develop several decimeters below the land surface and then are revealed by erosion of the thin upper soil layers.¹¹

Tels, heaps of earth material created by man as a result of the leveling of land, are widespread in this section, some even being found south of Sinjar in the Plain of the Jezira. These tels are usually

⁹Buringh, op. cit., p. 78.

¹⁰Burnell G. West, "The soils of Iraq and Their Management," Prospects of Iraq Biology, A Monograph of the Biological Society of Iraq (Baghdad: Al-Rabita Press, 1958), p. 18.

¹¹Buringh, op. cit., p. 78.

found in places with deep soils. It is generally believed that their presence demonstrates that the area was densely populated and intensively used during the Assyrian period, and they indicate good soils.

Since the soil of the Folded Hills subregion was formed under Mediterranean climate and a relatively thick grass cover, it developed an "A" horizon rich in organic matter. It appears that this soil has high potentialities for future development since it can be irrigated when the Eski Mosul Dam is built. Attention then will have to be paid to drainage.

Soil of the Plain.--Soils here are of fluviatile and aeolian origin. Almost the whole area is underlain by gypsum, shale and occasionally limestone.¹²

In the northern part of this subregion, just south and east of Sinjar Hill, reddish-brown soil with a deep phase is found over a quite extensive area. It has been pointed out that twenty per cent of the borings done in this soil show profiles of more than 200 cm. depth, while only four percent show thicknesses of less than 60 cm. which is considered to be a minimum depth for soil in this section.¹³

To the south of the deep reddish-brown soil, a belt of reddish-brown soil with medium to shallow phase is found. The reddish-brown surface horizon of this soil grades into a reddish, heavier subsoil, which in turn overlies a white horizon with lime or gypsum accumulation. It is relatively low in biological activity and chemical weathering.

In the central and southern parts of the plain there is yellowish gray sierozem soil consisting predominantly of weathered gypsum material.

¹²Ralph M. Parsons Company, op. cit., Vol. V, p. 9.

¹³Buringh, op. cit., p. 211.

The surface soil of this section is very low in organic matter and is less than 20 cm. in depth. This grades into a highly calcareous subsoil with lime or gypsum accumulation. Gypsum, which sometimes has a marble-like appearance, is exposed to the surface in some spots. Some areas where the gypsum does not appear on the surface and which have not been subjected to severe wind erosion have somewhat reddish colored silt and clay soils. Desert pavements resulting from wind action and dry climate are common in some areas. In most depressions clay and silt-clay soils with some salt content are found.¹⁴ In addition, extensive tracts of small sand dunes or mounds ranging between 20 and 30 cm. high and about one meter in diameter have developed on the gypsum desert land in many places, especially along the eastern and southern edge of Wadi Tharthar and its depression.

The Baiji-Samarra area just west of the Tigris River in the south-eastern section of the Jezira (Fig. 8), has a deep soil consisting of sand, silt, and clay. This soil is covered to a depth of several inches by low sand dunes, loess and other wind-blown materials.¹⁵ The presence of some plant cover on this soil causes organic materials to be mixed with it, adding fertility and tilth to its characteristics.

The agricultural potentialities of the soil of the Jezira region range from fair to good. The deep soil is relatively the best; brown soil is better than reddish brown soil for dry farming. The silt, sand, and clay soil of the Baiji-Samarra area presents great possibilities for development and is probably the first area which should be reclaimed in

¹⁴Ralph M. Parsons Company, op. cit., Vol. V, p. 9.

¹⁵Ibid., Vol. VIII, p. 23.

entire Jezira region since it is very fertile and could be easily irrigated by the Tigris River. On the basis of present-day farming carried on by some tribesmen in the Folded Hills subregion and in the Plain immediately south of Sinjar Hills, a tenfold return of wheat is obtained during good years, sevenfold in a normal year, and the equivalent of the seed in a bad year. Experience shows that the frequency of crop failure varies with the annual distribution of rainfall in the Jezira and the Western Desert. It has been stated that in the area with average annual rainfall between 350 mm. and 600 mm. there is one crop failure in five years; the area that receives 350 mm. to 200 mm. average rainfall has one crop failure in four years; and that getting between 200 mm. and 150 mm. usually has one crop failure in every three years. It is certain, therefore, that the results of farming in arid and semi-arid lands, such as the Western Region of Iraq, chiefly depends upon rainfall and the availability of water. It seems that in the absence of irrigation, a fallow cropping system which would be based on wheat or barley cultivation in years of crop success followed by leaving the land for grazing or for reseeding with grasses, would be a desirable way to use the areas which are receiving 150 mm. of rain or more.

Soil of the Western Desert

Soil of the Hamad Plain.--The soil of this subregion is developed on limestone bedrock. It is very thin, subject to very severe wind erosion, and almost without profile. Stones and pebbles of different sizes are scattered on the surface. This type of soil is usually called "Hammada Desert Soil."

Soil of the Upper Wadian.--Soils in the wadi beds contain partially

rounded, pink and white colored cobbles and pebbles of limestone and siliceous rocks, mixed with brownish, calcareous sand, silt, and clay. These materials have been transported to the beds of the wadis by runoff water and wind erosion. In larger depressions along the courses of some wadis deep alluvial fills of such material have developed. The upland areas between wadis have a shallower layer of soil, often mixed with, or covered by, cobbles and pebbles forming a dark brown to blackish desert varnish. Closed basins and shallow depressions which are developed outside wadi beds, such as Habbariya, Mukhat, Ga'ara, and Adian, are commonly filled with soils that are generally richer in clay content than those of the wadi beds. The fluviatile layers in many such depressions are about three to seven meters deep, and they often show typical cracks during the dry season. The surface is frequently colored with an iron rust layer. Moreover, some depressions have brown soils. The soils of these depressions contain some salinity because of evaporation.

Soil of the Hajara Stony Plain.--The surface of this subregion is covered extensively with pebbles, cobbles, angular boulders of limestone, flint, and chert and is dark colored due to desert varnish (Pl. I, Fig. 1). This latter is believed to be mostly associated with limestone deserts. This consists of very thin dark brown to blackish material, sometimes called "Desert Lac". A thin cover of soil is often found under and between the stones and pebble layers.

There are few depressions in this subregion. These are characterized by soil which is different from that of the surrounding area. The result of laboratory analysis of the soil of the Salman depression, having an area of about 50 sq. km., is shown below.¹⁶

¹⁶Data was supplied by the Agricultural Research Center of Abu Ghraib, Baghdad, October 10, 1963.

- | | | |
|---|-------------|--------------------------------------------|
| A | 0-80 cm. | Brown; mixed clay and sand; small grains. |
| B | 80-140 cm. | Brown; mixed clay and sand; larger grains. |
| C | 140-200 cm. | Brown; mixed clay and sand; larger grains. |

Soil of the Lower Wadian.--In the Lower Wadian the soils are derived mainly from mixed gypsum and limestone bedrock. The presence of gypsum makes the soil somewhat saline in many places. Descriptive profiles of some locations in this subregion near the Oasis of Shathatha are given below.¹⁷

Sample 1 - in depression

- | | | |
|---|-------------|------------------------------------------------------------|
| A | 0-80 cm. | Brown; mixed clay, lime, and gravel. |
| B | 80-180 cm. | Light Brown; mixed clay loam, sand, lime, and gravel. |
| C | 180-200 cm. | Light Gray-Brown; mixed clay loam, sand, lime, and gravel. |

Sample 2 - in open surface

- | | | |
|---|------------|------------------------------------------|
| A | 0-60 cm. | Dark Brownish-Gray; mixed clay and sand. |
| B | 60-150 cm. | Yellow; mixture of sand and lime. |

Sample 3 - in cultivated field of alfalfa

- | | | |
|---|------------|-----------------------------------------------------|
| A | 0-60 cm. | Dark Brownish-Gray; mixture of mud and clay. |
| B | 60-80 cm. | Brown; mixture of clay and lime. |
| C | 80-150 cm. | Light Brown; mixture of clay, mud, lime and gravel. |

Soil of the Dibdibba Plain.--Almost all the soils of this section are sandy to gravelly with some clay element. Soil samples from the Zubair area of this region show 78 to 96 per cent sand. Consequently,

¹⁷Data was supplied by the Agricultural Research Center of Abu Ghraib, Baghdad, October 10, 1963.

this soil is generally moderately permeable with some impermeable sections, as in mud flat areas.¹⁸

The sand dunes of the area have been formed by the erosional action of wind upon sandstone in Saudi Arabia. The wind transports the sand to the Dibdibba Plain where the deposits form the dunes. The color of the sand is white to reddish-orange, and it consists predominantly of quartz mixed with limestone.

On the basis of the meager information on the soil of the Western Desert of Iraq, accurate and valid evaluation of the potentialities of this soil is impossible. But it seems that the soil of this area, when supplied with water, is highly productive. The best soil from the farming point of view is that of the wadi beds and terraces along their sides and that of the depressions. Soil of the Dibdibba Plain, which consists of clay and sand, is light and could be successfully developed if water could be provided. The soil of the Hamad subregion and that of the Hajara subregion present the least potentialities for development because the former is very shallow and the latter is very stony. Therefore, they should be left for grazing, but even this might be unprofitable.

Soil of the Alluvial Plain

Soil of this region has been built by more or less continuous sedimentation over a long period by the Euphrates River. This soil is composed of particles of sand, silt, and clay of different sizes. It possesses high potentiality for development, and it is one of the most

¹⁸Ralph M. Parsons Company, op. cit., Vol. VII, p. 8.

promising soils for utilization.

Along the western bank of Shatt Al-Arab, an extensive area of flat surface has been formed by the tidal influence of the river. The coastal flats soil at the head of the Persian Gulf has developed in the estuary and is believed to be non-saline or only slightly saline, but little is known at present about its condition and potentiality.¹⁹

Natural Vegetation

The distribution of vegetation is strongly controlled by temperature and rainfall, and there is a close correlation between the climatic condition and the vegetation pattern of the area. Four regions of natural vegetation are recognized in the Western Region of Iraq (Fig. 9). These are: (1) the Wet Steppe Vegetation Region, (2) the Dry Steppe Vegetation Region, (3) the Desert Vegetation Region, and (4) the Riverine Vegetation Region.

The Wet Steppe Vegetation Region.--This zone is characterized by a relatively dense vegetation cover, including many perennial species in the plant communities. It is found where there is 400 mm. or more average annual rainfall. Some trees and shrubs cover hilltops and upper slopes, while park-like grasses grow on lower slopes with scattered juniper, bushes of Christ thorn, or thorn and wormwood, separated by smaller shrubs such as sage and thyme. More than half of the plants of this region are annuals and disappear in summer. Hence, there is a considerable difference between late winter and early spring, when numerous species of grasses are in rapid growth, and the rest of the year

¹⁹Buringh, op. cit., p. 189.

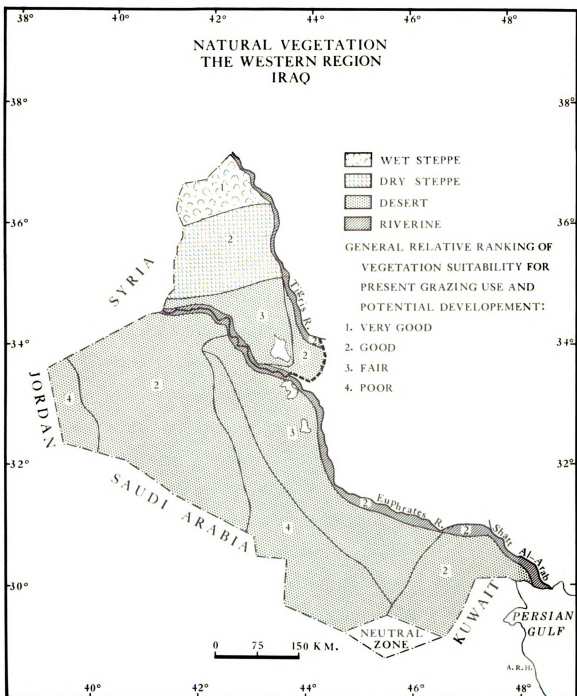


Fig. 9

when most plants are dead or dormant.

The Dry Steppe Vegetation Region.--This region represents a transitional vegetation zone between the true desert vegetation region in the south and the wet (true) steppe in the north. Here, in addition to some thorny desert plants, grass communities are more dominant than in the true desert. It is located where there is between 200 mm. and 400 mm. mean annual rainfall.

The Desert Vegetation Region.--Desert vegetation²⁰ occupies about ninety per cent of the study area. According to Gillett, 75 per cent of the 450 desert plant species are annuals, while the remaining 25 per cent are perennials.²¹ In winter and spring, short grasses and desert wild flowers such as red poppies, lupines, and wild barley are fairly common and provide the main grazing feed of the many sheep and camels raised by the nomads. Small sagebrush, bushes, and shrubs such as Athl, Gisum, and Rimth, as locally known, are quite abundant throughout the year in many of the low-lying areas in the wadis and in the shallow depressions, or where sandy soil exists as in the Dibdibba Plain. Where detritus gypsum occurs, salt tolerant bushes are common, while reeds, lillies, and other water-loving plants thrive in wetter places such as those along Wadi Tharthar in the Jezira.

Shrubby perennial plants such as Haloxylon salicornicum, some of which may reach 2.5 meters in height, are developed on the dunes of the

²⁰ Detailed discussion of the desert vegetation of the Middle East is presented by M. Zohry, "Hydro-Economical Types in the Vegetation of Near East Deserts," J. C. Thompson (ed.), Biology of Deserts (London: The Institute of Biology, 1954), pp. 56-57.

²¹ J. B. Gillett, "The Desert Vegetation of Iraq," Report submitted to the Government of Iraq, Ministry of Agriculture, Range Management Section, Baghdad, 1948, pp. 3-4. (Mimeographed).

Jezira region.²² Annual plants can also be observed in the area and have potential value for grazing. They are mostly confined to the tops of low mounds of stabilized soil.

The Riverine Vegetation Region.--In the alluvial lowlands and along the banks of the Tigris-Euphrates rivers special types of natural vegetation are to be found. These include numerous plant communities of grasses, shrubs, and trees. They form a relatively dense cover. Aquatic grasses, papyrus, lotus, and reeds make up a thick undergrowth in the lower course of the Euphrates River. In addition, scattered willow, poplar, alder, and tamarisk are the main species growing along the Euphrates.²³ Thorn in the Alluvial Plain west of the river is found in dense groups. This has great advantages in improving the soil fertility by adding nitrogen to its elements.

At the present time the nomads of the Western Region of Iraq use these natural vegetation areas for grazing their animals. There is an urgent need for scientific surveys, mapping, and classification of the existing plants of the area in order to determine their suitability for grazing.²⁴ As a first step toward such a program, the author of the present work presents a map which indicates the general grazing value of the major classes of vegetation and their potentialities for future development. (Fig. 9). According to suitability for grazing and development the

²²A. Q. Agnew, "Studies on the Plant Ecology of the Jezira of Central Iraq," Bulletin of the College of Sciences, University of Baghdad, VI (1961), 48-52.

²³J. M. Khalaf, Physical, Economic, and Human Geography of Iraq (Cairo: Al-Bayan Al-Arabi Press, 1961), in Arabic, p. 131.

²⁴Such need for the entire area of Iraq is emphasized by Nicholas Polunin, "On the Need for a Flora and Ecological Survey of Iraq," Bulletin of the College of Arts and Sciences, Baghdad, I (1956), 12-17.

vegetation cover of the area is classified into four levels. The wet steppe vegetation is the best. The dry steppe, the desert vegetation of the Upper Wadian and the Dibdibba Plain, and the riverine plants rank second. That of the Lower Wadian and most of the desert vegetation of the Plain of the Jezira rank third, while desert plants growing on the Hajara and on the Hamad (except those on wadi beds and depressions) are least valuable and lowest in potential.

Water Supply

There are two sources of water available in the area: (1) surface water which includes water of the upper Tigris and Euphrates rivers and runoff water that accumulates in wadi beds and natural depressions, and (2) ground water available from wells, springs, and karezes.

Surface Water

The Tigris and Euphrates Rivers.--The headwaters of these two rivers are located in the mountains of Turkey. There are no perennial tributaries of the Euphrates in Iraq, although the wadis which descend from the Western Desert discharge their excess runoff into the river during the rainy season. Wadis of the Jezira discharge their water into the Tigris River. By reason of their rapid descent, the waters of these wadis have enormous erosive power and large quantities of silt are brought down to the main rivers, especially during unusually wet years. This silt is a continuing menace to the efficient functioning of the irrigation canals and the Shatt Al-Arab waterway. The Tigris has four major tributaries joining the main stem of the river in Iraq (Fig. 2).

Almost all the water supply of the Tigris-Euphrates system, which

is about 73,414 million cubic meters a year is available in Iraq, although Iraq contributes only 24 per cent of this amount.²⁵ As can be seen from Table 5 the Tigris tributaries taken together are the largest contributor of the available water supply, followed in turn by the Euphrates River and the main stem of the Tigris River.

It is also apparent that an important characteristic of all the streams is the seasonal variation of water availability. The table reveals that the largest average monthly supply is 14,312 million cubic meters in April and almost as much in May. These are the two months when the combination of runoff from the winter maximum of precipitation and water from melting snow in headwater areas is greatest. The smallest average monthly supply, 1,898 million cubic meters, occurs in September at the end of the dry season. It should also be noted that there is a large annual variation of stream flow. In years of heavy precipitation the water supply of these rivers may be four times as great as during the dry years.

At the present time, only a limited amount of the water supply of the Tigris and the Euphrates rivers is being used (mainly for domestic and irrigation purposes) in Western Iraq. In the north, because the river valleys are deep, irrigation is restricted to a very narrow, discontinuous strip of lowland near the river banks, where various devices for lifting water such as diesel pumps and na'urs²⁶ have been employed. Along the lower course of the Euphrates, on the other hand, where deposition of

²⁵Wafiq Hussain Al-Khashab, The Water Budget of the Tigris and Euphrates Basin (Ph. D. dissertation, Department of Geography, The University of Chicago, Chicago: By the Author, 1958), p. 41.

²⁶A na'ur is a pump consisting of an enclosed chain of buckets driven through a shaft and wooden gears and powered by a horse or donkey. The buckets dip below the surface of the water and each carries up a small quantity of water to an artificial channel.

TABLE 5

THE AVERAGE MONTHLY WATER SUPPLY OF THE TIGRIS AND
EUPHRATES RIVERS IN IRAQ^a
(Million Cubic Meters)

River	J	F	M	A	M	J	J	A	S	O	N	D	Annual
Tigris	1,270	1,979	2,512	3,964	3,421	1,693	829	453	380	431	651	916	18,499
Tigris Tributaries	2,032	2,821	4,419	5,475	4,703	2,587	1,448	926	759	796	1,094	1,445	28,505
Euphrates	<u>1,572</u>	<u>1,616</u>	<u>2,577</u>	<u>4,873</u>	<u>5,973</u>	<u>3,136</u>	<u>1,519</u>	<u>948</u>	<u>759</u>	<u>849</u>	<u>1,122</u>	<u>1,466</u>	<u>26,410</u>
Total	4,874	6,416	9,508	14,312	14,097	7,416	3,796	2,327	1,898	2,076	2,867	3,827	73,414

^aData compiled from Knappen, Tippetts, Abbott, McCarthy, Engineers, Development Plan for the Tigris and Euphrates Rivers, Iraq (Baghdad: The Development Board, 1955), pp. 28-31.

sediments in the river bed has raised its channel above the surrounding lands, gravity canals are used in a few areas to divert water for irrigation and domestic purposes. The replenishment of ground water of areas adjacent to the river courses seems to be an important contribution of these rivers to the study area. It is believed that seepage which comes directly from the rivers and indirectly from reservoirs such as the Tharthar, Habbaniya, and Abu Dibbis have been replenishing the ground water of nearby areas.

Water Supply from Rain-Pools and Tanks.--Small rain-pools in wadis and large shallow depressions commonly collect precipitation during the rainy season. Although of a temporary nature, they are of widespread occurrence throughout the desert and especially in the southwestern section of the Western Desert west of Busaiya village. During the rainy months and for a few weeks after, they are preferred to the subsurface water supply by the nomads because of their somewhat less saline quality. Their use at present is entirely for domestic and livestock purposes.

The rain-pools vary greatly in size and shape. Water in the larger pools may last for two months or more during the winter and spring, as in those located at Shabicha, at Jumeily near the Lussuf Police Post, at Shagra northeast of the village of Busaiya, and at Juraibaniya south of Salman village in the central and southwestern part of the Western Desert (Pl. I, Fig. 1).

In addition to the natural rain-pools, there are 17 artificial, masonry-lined or rock-cut tanks, constructed to intercept local runoff and store it for later use. These are located in the central section of the Western Desert along the historic pilgrimage route of Zubaida between Iraq and Saudi Arabia. They are situated in natural depressions or in

wadi beds, and have circular and square shapes, and sizes of 100 feet in length and width, or in diameter for the circular ones, with depths of 30 feet. The masonry-lined tank at Birkat Hamad (Pl. I, Fig. 2) and the rock-cut one at Al-Hammam, both located north of the Shabicha village, are the only two still in use, the others having fallen into disrepair. The water stored in these tanks usually lasted longer than that in the rain-pools. The use of tanks such as these in the past points to one way water supply at some places in the desert may be increased in the future.

Ground Water

The existing ground water supply includes water wells, both hand-dug and drilled, perennial springs, and some karez systems. Together, these are the more permanent and the most important sources of water supply in the desert at the present time. Their distribution is shown in Figure 10.

Hand-Dug Wells.--There are about 312 hand-dug water wells in the entire area, with 182 of these in the Jezira and the remaining 130 in the Western Desert and the Alluvial Plain. Of the latter number, 48 are scattered in the northern section and 82 are distributed throughout the southern part (Table 6).

Some of these wells are privately owned by individual nomads, but the majority are tribally or communally owned and maintained. At present, the primary use of these wells is for domestic and livestock supply, although some are used for irrigation of small fields, as in the area south of Zubair where melons and vegetables are produced. The wells are usually circular in shape and range from four to seven feet in diameter.²⁷ The

²⁷Ralph M. Parsons Company, op. cit., Vol. V, pp. 29-30.

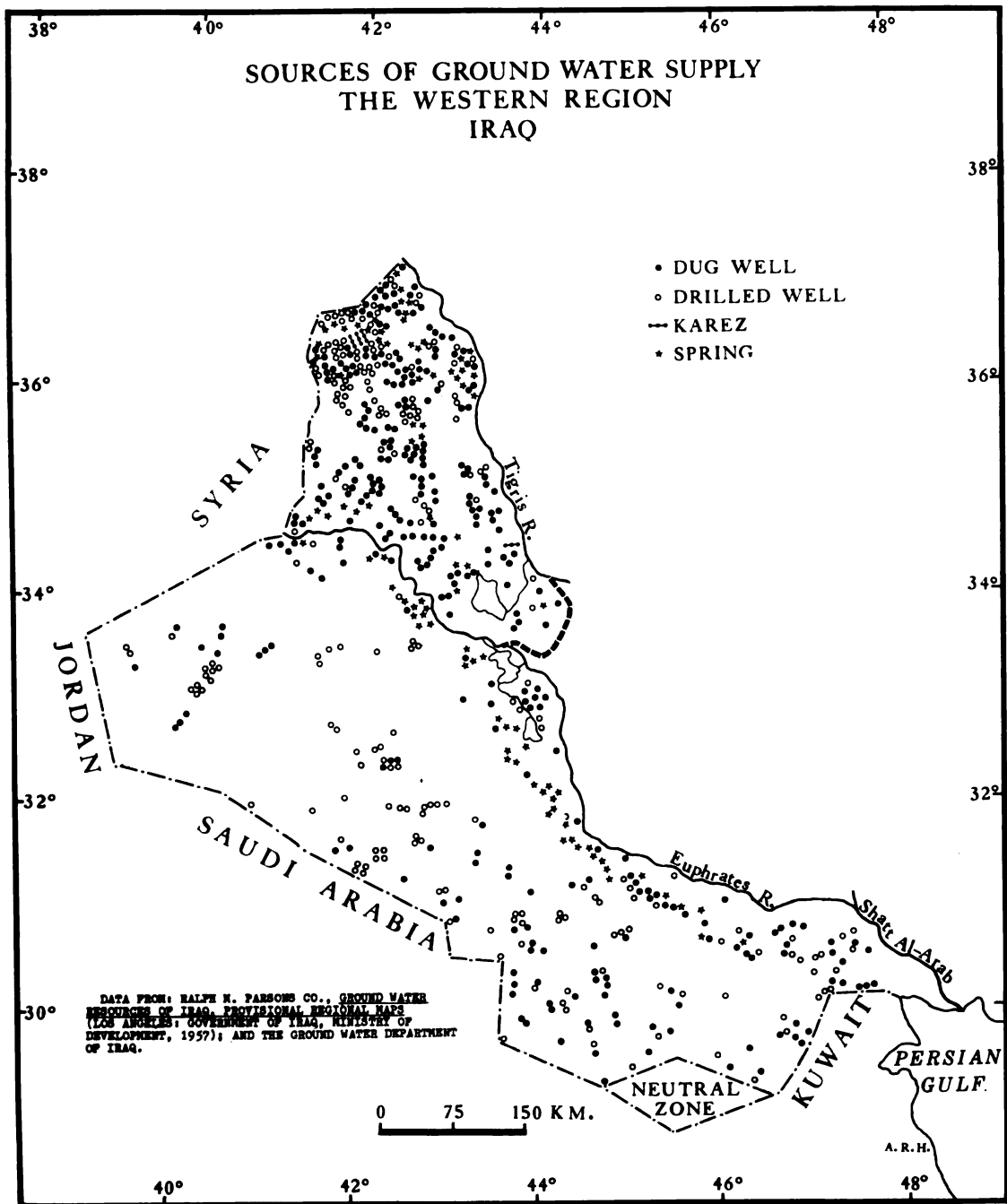


Fig. 10

TABLE 6

^a Republic of Iraq, Ministry of Planning, Central Bureau of Statistics, Statistical Abstract, 1961 (Baghdad: Zahra Press, 1962), p. 143.

^bCompiled from Ralph M. Parsons Company, Ground Water Resources of Iraq, Provisional Regional Maps (Los Angeles: Government of Iraq, Ministry of Development, 1957), p. 4.

most widely used method of lifting water from these wells is by hand, but in some instances a na'ur device, a donkey or a camel is employed (Pl. II, Fig. 1). Small centrifugal or hand pumps have been installed in a very few cases, especially when wells are privately owned and the good quantity and quality of their water are assured (Pl. II, Fig. 2).

The depth, the dissolved salt content of the water, and the yield vary considerably from well to well and from place to place. The chemistry and quantity of the ground water will be analyzed in more detail later in this study. It has been pointed out that wells located in the southern portion of the Western Desert have depths of from a few feet up to fifty feet. Those dug alongside or in the wadis, however, commonly have less depth, usually under thirty feet, greater yield, and better quality water than those in the depressions, although both are located in the same general area.²⁸

The hand-dug wells of the Jezira have depths from five to 38 feet with an average of about eleven feet. Those in the central and southern part of the Jezira west of Wadi Tharthar are generally characterized by small yield and water of relatively high salt content. These factors may provide a partial explanation for the large number of hand-dug wells in this part of the study area. It appears that a definite procedure of digging wells prevails in this section of the Jezira. The nomads dig in the ground searching for water, but when they discover that either the quantity or the quality of the water is unsatisfactory, they abandon the site and move to another area to repeat the process. It may be concluded, therefore, that many of the existing wells can be classified as

unproductive, unused, or overused.

Drilled Wells.--In 1961 there were about 208 drilled wells in the study area, with 87 of these in the Jezira and 121 in the Western Desert and the Alluvial Plain. Approximately, this same number exists at the present time. About 87 of the latter number are in the northern part and 34 are in the south (Table 6). The majority of the drilled wells have been put down by Iraqi authorities since 1933; most of the rest by the Iraq Petroleum Company and its associates, the Basra Petroleum Company and the Mosul Petroleum Company, for their survey parties in the area.

The wells range in depth from fifty feet to about 200 feet and produce water of varying quality from limestone, marls, sandstones, gypsum, and conglomerates. The water recovered varies from highly saline to a very good quality.

The government wells all have installations of centrifugal pumps powered by diesel engines for lifting the water to the surface. They are also supplied with pumphouses, water storage tanks, and water troughs (Pl. III, Fig. 1). The latter are about seven meters long and allow forty head of sheep to be watered at the same time.

The average supply capacity is estimated at about sixty U. S. gallons of water per minute per well of safe yield.²⁹ Thus, a total of 8,985,600 gallons of water could be supplied by the 208 drilled wells of the study area during twelve hours of continuous pumping. Actually, these

²⁹The maximum annual amount of usable water that can be withdrawn in a given area without (1) lowering the water level or reducing the yield below economic limits, (2) causing deterioration of chemical quality by inducing inflow of poor quality water, or (3) causing deterioration of aquifer's yield and storage characteristics.

wells are operated according to the needs of the nomads. They discharged 588,650 gallons per hour in 1961. Many wells are expected to yield larger quantities of water to be used for irrigation purposes. At present, the main purpose of these wells is to insure a permanent supply of drinking water for the nomads and their livestock (Pl. III, Fig. 1). In addition, some wells are also placed to serve the needs of small villages and police posts in areas away from the rivers, and still others have been used for the irrigation of small fields of alfalfa, vegetables, and wheat (Pl. III, Fig. 2).

Karez.--In some instances ground water is obtained from horizontal wells known as karez. The essential idea of a karez is that a subterranean canal is provided by digging a tunnel upslope from the place to be supplied with water, often along the radius of an alluvial fan, until the water table is tapped at a point where it is higher than where the tunnel originated. A number of vertical shafts are dug along the course of the tunnel to give access to it to facilitate the digging. Since the karezes are limited to sloping lands, usually alluvial fans or outwash gravels at the bases of mountains, there are very few in the study area and, therefore, they are of minor importance as sources of water. There are some located west of the Tigris River in the Baiji-Samarra area, but almost all have been abandoned in favor of water from hand-dug wells or from the Tigris River. Other karezes which are still in use are found on alluvial fans on the southern side of Sinjar Hill in the Jezira region (Fig. 10).

Springs.--There are some 92 water springs in the area. Of these 45 are located along a line on the eastern edge of the Western Desert, parallel to the Euphrates River (Fig. 10). In many places, the springs occur in natural depressions, five to ten feet below the general ground

surface.

In the past, springs were an important source of water supply along the ancient caravan routes crossing the desert between Basra and the Mediterranean Sea. At present, because of neglect, only about twenty of these springs are productive and each yields an average of 100 U. S. gallons per minute, but if excavated they could be a dependable source of water for domestic, stock watering, and irrigation (Pl. IV, Figs. 1 and 2).

Chemical composition of water from the springs shows marked similarity, but there is marked dissimilarity from adjacent ground water. The spring water is generally less mineralized than that from the adjacent wells. The total soluble salt concentration in water of springs south of Najaf averages between 3,000 and 4,000 parts per million, while waters of those springs located north of Najaf show less than this amount.³⁰

Mineral Resources

There has been no comprehensive mineral survey conducted in the study area, except for oil which was started about 1927. A preliminary investigation was undertaken in 1958 by the Site Investigation Company. The Western Desert is underlined by an old shield of igneous rocks and there is a possibility that some metallic minerals exist. The mineral wealth of the entire study area (Fig. 11), however, appears to be primarily in the form of non-metallic substances. At present only a few of these minerals are being exploited, or seem capable of future development. Oil is the most important of the economic minerals now produced. Salt, bitumen, gypsum, limestone, sulphur, and phosphate are utilized on a very limited scale. Other minerals such as ceramic clay, sand, copper, gold,

³⁰Ibid., Vol. X, pp. 64-65.

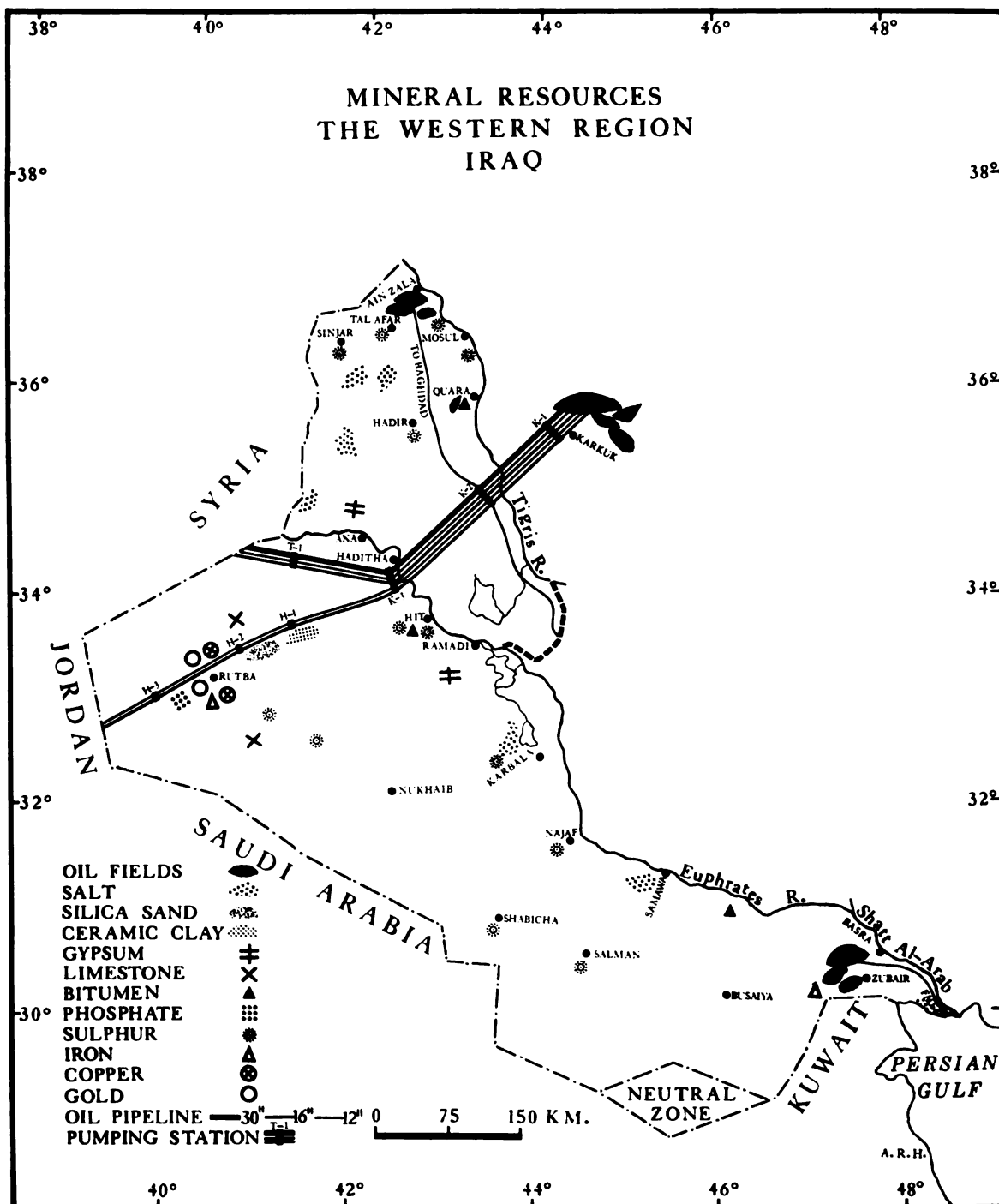


Fig. 11

silver, iron oxide, ammonium sulphates, and about 1,980 lb. of uranium are all known to exist. Some of these soon will be exploited upon completion of projects which have already been initiated.

Oil is found in the Ain Zala and Quara fields in the extreme northern part of the Jezira, and at Zubair in the far southern section of the Western Desert (Fig. 11). The oil at Ain Zala and Quara is recovered by the Mosul Petroleum Company. These fields produce an average of more than one million tons a year. That of Zubair has been owned by the Basra Petroleum Company and is the second most important producing area in Iraq after Karkuk fields. Output amounted to more than eleven million tons in 1960.

Salt of good quality is presently mined by simple methods for the domestic market in five places. Two of these are located in the Sinjar area of the Jezira, while two of the other three are in the eastern portion of the Western Desert, and the remaining one is in Fao at the mouth of Shatt Al-Arab River. The latter is currently producing 10,000 tons of salt a year, and it is believed that production could be increased to one million tons from this area alone.³¹

Some five million tons of pure sands are known to be available at about fifteen meters below the surface in Wadi Hauran near Rutba. This amount is regarded adequate to supply a glass factory employing 1,500 workers. This is already projected in the city of Ramadi, with an initial allocation of \$5,762,400 for construction costs.³²

³¹Republic of Iraq, Ministry of Industry, Directorate General of Industrial Design and Construction, "The Possibility of Development of Salt in Fao and Samawa," (Unpublished Report), in Arabic, January, 1962, p. 13.

³²Republic of Iraq, Ministry of Industry, Yearbook, 1961-1962, (Baghdad: Al-Tamadon Press, 1962), p. 36.

An extensive phosphate vein is believed to exist between Rutba and Aneza Hill in the Western Desert. Large deposits of limestone are found in many localities, but especially in the Rutba area in the Western Desert and in the northern part of the Jezira. Some is quarried and used primarily for building materials. Occurrences of gypsum are also widespread, with the most important exposures in the lower section of the Jezira, north of the Euphrates River. There are probably millions of tons present, but as yet it is used only in nearby cities for the making of plaster.

Bitumen is concentrated in three places, namely Quara in the Jezira, and Hit and Ur west of the Euphrates River in the Western Desert. Often brought to the surface along with gas and sulphur water by natural seepage, it has been used locally in crude form for many purposes such as road surfacing, fuel, and for water-proofing boats.

Suitable clays for ceramics are common in the Western Desert, especially near the village of Rutba. The available quantity is considered sufficient to warrant utilization. A sum of \$2,240,000 has been allocated to build a ceramic factory in the city of Ramadi which is expected to start production during 1965.³³

Sulphur occurs widely in both the Jezira and the Western Desert, mostly found in association with water springs but also as deposits. It is believed that this mineral has potential economic importance. At present, a very limited amount is being exploited from an area near the village of Shabicha in the Western Desert.

³³ Ibid., p. 38.

CHAPTER III

HISTORICAL BACKGROUND AND PRESENT

CONDITION OF THE TRIBES OF IRAQ

The Nomadic Streams in Mesopotamia (Iraq)

Throughout its history Mesopotamia (present-day Iraq) has been the destination, melting pot and eventual homeland for successive waves of nomadic tribes. It has been recognized that Semitic Arabs of different stocks, such as the Hanaians in the middle Euphrates Valley and the Benjaminites in the north and south, as well as tribes by the names of Suti and Amorits, moved from the Syrian Desert into the Mesopotamian Plain around the third millennium B.C., and made their impression on the structure of the Sumerian and Babylonian societies.¹ These nomadic groups were believed to have been organized into clans and tribes, each with its own name. At the head of some of them were Shaikhs (chiefs). It also may be supposed that they lived in tents and camp settlements. These tribesmen robbed strangers, captured herds, and even attacked towns. They were finally influenced by the sedentary people and began to settle with the eventual result that they learned from the existing civilization how to irrigate the land and, above all, the technique of

¹W. F. Leemans, "The Contribution of the Nomads to the Babylonian Population," Journal of the Economic and Social History of the Orient, I (1958), 138-145. See also J. R. Kupper, "Le Role Des Nomades Dans L'Histoire De La Mesopotamie Ancienne," Journal of the Economic and Social History of the Orient, II (1959), 113-127.

writing.²

It is well proven that Arabia was the original home and has been an inexhaustible reservoir of Arab nomadic tribes. Successive waves of these tribes have migrated from Arabia to the other Arab countries of the Middle East. Enormous numbers of archeological sites and historical references indicate that the Arabian nomads for the most part were descended from traders, farmers, and caravan people who took to pastoral nomadism during the early centuries of the present era as a result of business deterioration.³

With the introduction of the camel around 1100 B.C., full-time nomadism became possible, for men could now live out in the desert most of the year and subsist almost entirely on its products. The camel also greatly increased their mobility and their range of wandering. Moreover, the use of the horse after 500 B. C. gave the Arabian nomads an animal from whose back they could fight each other efficiently.⁴ It appears, therefore, that the Arabian nomadic mode of life on the desert was conditioned by the domestication of the camel and the horse.

In fact, the fortunes of camel nomadism in Arabia were also closely connected with the old caravan trade between South Arabia on one side, and the Mediterranean lands and Mesopotamia on the other. The decline of this trade must have been of great importance to the Arab nomads. This decline set in gradually around the fourth or third century

²Philip K. Hitti, History of the Arabs (London: MacMillan and Co., Ltd., 1937), pp. 10-11.

³Werner Caskel, "The Bedouinization of Arabia," American Anthropologist, LVI (1954), 36-46.

⁴The Encyclopedia of Islam, I (London: Luzac and Co., 1960), p. 872.

B. C. when the tolls which had to be paid on the road were constantly increased because of the political division of South Arabia into many small states. Around 115 B. C., when the Strait of Bab Al-Mandab was opened for direct traffic from Egypt to India, the overland traffic between South Arabia and the Mediterranean Sea was greatly reduced in importance.⁵ This must have been a great shock for the rulers of the ancient states of southern Arabia and even more so for the Arab nomads who took part in the overland traffic and sold camels to its merchants.

Moreover, the economic declining of the Mediterranean region, the feudal and religious wars in South Arabia between the third and the sixth centuries A. D., and the constant wars between the Roman and the Persian Empires, all gave rise to great insecurity and unrest in Arabia. Not only did the nomadic groups become more migratory over longer distances in the desert, but also part of the farming population became nomads. It has been pointed out that some oasis areas in Arabia were given up entirely for nomadism. A distinct example is the neglect and eventual bursting of the dam of Marib, the old capital of Saba, and the resultant total breakdown of this town and its oasis economy.

In both Yaman and Uman the strong feudalization of the highland agricultural tribes, in their fortified dwellings, led to an extreme dissipation of power, anarchy, and tribal organization and feuds similar to those of camel-owning nomads. The wars between Rome and Persia for control of the Fertile Crescent no doubt attracted nomads who could not easily sell their camels for the declining caravan trade to serve as camel troops on the side of one or the other opponents.

⁵Ibid., p. 884.

The above mentioned factors, therefore, were among those which caused nomadic tribes to thrust from Arabia toward the north, directed mainly to Mesopotamia and other areas of the Fertile Crescent. The short popular Arab saying, "Yaman is the womb (the cradle) of the Arabs, and Iraq is their grave," already applied in this period. Nevertheless, there have also been migrations to the south, such as that oriented to Hadhramaut in the sixth century A. D., which according to one scholar numbered more than 30,000 men.

Close relations between settled nomads and those still in the desert facilitated trade. Only the nomads could conduct caravans of merchandise across the deserts, and only strong bodies of nomads could guarantee the safe transit of such caravans. In the history of the Roman and Persian Empires, therefore, the nomads appeared in two roles--raiders and traders. Both empires tried in various ways to defend themselves from the predatory encroachment of the nomads. The most practical method was found to be the employment, through their rulers, of the semi-nomadic tribes on the imperial frontiers to guard the settled lands from the raiding activities of the desert tribes. In Iraq this role was played by the kings of Hira, an old kingdom established on the Euphrates near the site of the present city of Najaf, from about 300-600 A. D., while the corresponding role on the Roman frontier was performed by the Ghessanids.

In the seventh century A. D., the last great Arab migration was organized under the banner of Islam. The wave of Arab tribes which was directed toward Iraq defeated the Persian rulers and gave that country some of its predominate present-day characteristics, including the Islamic religion and the Arabic language. Most of the armies of the

Islamic conquest were recruited from the Arab nomads.⁶ There were many factors which motivated this Islamic expansion, but the most important were the religious one and the economic necessities which drove the nomads beyond the confines of their desert to the rich lands of Iraq and the rest of the Fertile Crescent.

The flow of nomadic tribes from the southwestern corner of Arabia (Yaman) and its northeastern section (Najd) to Mesopotamia and the Syrian Desert has continued during the centuries since the Islamic invasion. Tribes such as Rabia, Bani Lam, Tamim, Tai, Muntafiq, Dulaim, Khazail, and sections of Shammar and other tribal groups practiced a continuous process of gradual infiltration, especially from Najd, up to the sixteenth century.

The more recent history of the Western Region of Iraq and the adjacent Syrian Desert may be considered as beginning with the conquest of the area by the Shammar Bedouins of Najd around the middle of the seventeenth century.⁷ Until that time the Ottoman Empire, which dominated the Middle East, had maintained its southern frontier to coincide with the present desert road connecting Baghdad with Damascus. North of this limit the desert tribes were subjects of the Ottoman Sultan and the common law of the empire prevailed. Mesopotamia and the northern section of the Syrian Desert were occupied by different shepherd tribes. Some were of Arab and others were of Kurdish origin, in addition to tribes of mixed race called Moali. The latter were occupying the right bank of the Euphrates River (the Western Desert), while Tai, a pure Arab nomadic tribe,

⁶Hitti, op. cit., pp. 143-144.

⁷The Arab of Mesopotamia, published by the British Superintendent in Iraq (Basra: Government Printing, 1916), p. 138.

were roaming over the Jezira. Subject to these tribes were the Weldi, the Aqaidat, the Jubur, and other minor tribes whose descendents still exist today, but in reduced circumstances, along the valleys of the Euphrates and Tigris rivers.

When the Shammar came from Najd they gained control of the southern frontier of the Ottoman Empire, occupied the Hamad section of the Syrian Desert, defeated the Moali, and reduced the lesser tribes to their bidding. The Euphrates Valley was next swept by them; its flourishing towns were forced to pay tribute to them instead of to the Ottoman authorities and their nomadic law became dominant.

Before the end of the seventeenth century another nomadic tribe appeared on the scene. This was the Aneza from Najd.⁸ Having heard about the rich pastures acquired by their predecessors, they at once sided with the Dulaim and the Moali tribes and together drove the Shammar across the Euphrates River to the Jezira region. In the Jezira, the Shammar tribes found richer grazing land before them than they had left to the Aneza. But the Jezira was already occupied by other nomadic tribes who were eventually overcome by the Shammar and pushed further to the north. The raiding of the Shammar was carried to Mosul and other Tigris towns, and even Baghdad itself was threatened. The Ottoman authorities appeared to lack interest in these events and made little effort to restrain the invaders. The governors of Baghdad and Mosul, contented themselves within the walls of their cities and watched passively the development of these tribal struggles.

The superiority of Shammar in the Jezira and of Aneza in the Hamad

⁸Abdul J. Al-Tahir, The Tribes and Politics (Baghdad: Zahra Press, 1958), in Arabic, pp. 21-27.

of the Syrian Desert has continued since they first appeared from northern Arabia. The enmities and large scale wars which began among Shammar, Aneza, and Dulaim in the seventeenth century continued until the first quarter of the twentieth century. Even at the present time there are occasional fights among these tribes.

The comparative number of tents of the Shammar and Aneza tribes and their allies as given by Blunt in 1879 are shown in Tables 7 and 8. Calculations on the basis of five persons per tent would give a population of 60,000 Shammar to 137,500 Aneza, or a proportion of 1 to more than 2. Tribesmen allied to the former numbered 81,500 and to the latter some 77,000. Thus, there were apparently some 356,000 pure Arab nomads at that time. This figure excludes non-Arab tribesmen.

TABLE 7

SHAMMAR AND ALLIED TRIBES IN 1879^a

Shammar Tribes	No. of Tents	Allied Tribes	No. of Tents
Jerba	2,000	Zoba	5,000
Hathba	500	Haddadin	2,000
Aslan	400	Tai	1,000
Saekh	500	Ghess	1,000
Aleyah	300	Albu Hamid	1,000
Abde	1,000	Jubur	4,000
Chedada	300	Ajuari	1,000
Ghaet	500	Jerifa	500
Drerat	500	Buggara	800
Feddara	700		
Amut	1,100		
Affarit	500		
Sabit	1,000		
Menieh	800		
Lahebi	400		
Sdeyt	400		
Hammara	400		
Other sections	700		
Total	12,000		16,300

^aLady A. Blunt, Bedouin Tribes of the Euphrates (New York: Harper and Brothers, Publishers, 1879), pp. 380-381.

TABLE 8

ANEZA AND ALLIED TRIBES IN 1879^a

Aneza Tribes	No. of Tents	Allied Tribes	No. of Tents
Mhed	1,000	Moali	1,000
Shameylat	1,000	Weldi	1,000
Ajajera	1,000	Afuddli	400
Khryssa	1,000	Dulaim (1909) ^b	13,000
Gomussa	1,000		
Resollin	500		
Abadat	500		
Duam	500		
Mesekha	1,000		
Amarat	500		
Ibn Hadhal	4,000		
Hesenneh	500		
Rwala	12,000		
Wld Ali	3,000		
Total	27,500		15,400

^aLady A. Blunt, Bedouin Tribes of the Euphrates (New York: Harper and Brothers, Publishers, 1879), pp. 381-383.

^bS. S. Butler, "Baghdad to Damascus Via El Jauf, Northern Arabia," Geographical Journal, XXXIII (1909), 519.

Tribal wars and feuds were also common features among tribes of the river banks and those of the plains. The present distribution of the tribes, as it appears on today's map of Iraq (Fig. 12), therefore, did not take place until about the end of the nineteenth century.

The migrations of these nomadic tribes into Mesopotamia have been described as waves. It is more likely that, in their initial stages, these movements were similar in nature to the European migrations to the New World. A few people would start and others would follow; then more would go until the general population was aroused to the idea of moving. Moreover, the nomadic streams of migration to Iraq, as they took place through the centuries, represented a typical dynamic frontier in the sense

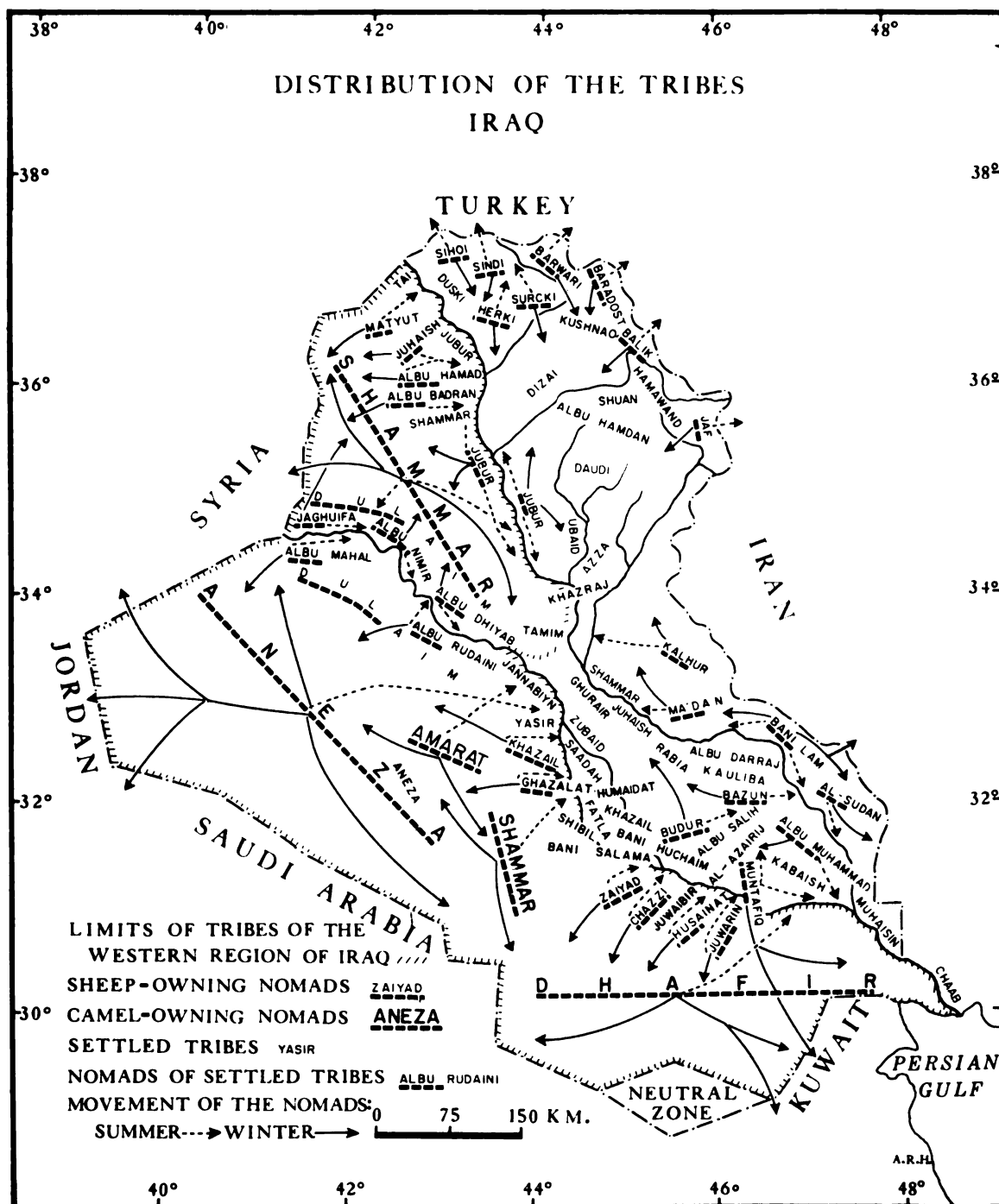


Fig. 12

that no physical or human barriers proved to be serious handicaps to the emigrants. Because of easy accessibility and the presence of good grazing lands, tribal infiltration from Arabia to Iraq and other areas of the Fertile Crescent was not only possible, but it was inevitable.

The Process of Settlement

In this study the term "settlement process" is used to mean the manner by which the tribal groups (the nomads) of Iraq were transformed into either completely or partially sedentary communities, mainly villages. When these tribes approached Iraq, the majority of them were primarily camel breeders who were seeking good grazing areas rather than farming lands. Therefore, the Western Desert west of the Euphrates River, the Jezira, and the river banks were first occupied and have been the special domain of nomads for centuries. Spontaneous tribal settlement first resulted when the tribes moved from these desert areas to the agricultural lands of central and southern Iraq. Successive new waves of nomads replaced the old ones in the desert as the earlier groups became sedentary. This settlement process has been going on in Iraq for centuries, being expedited or retarded by governmental authorities and many other factors, but never stopping entirely.

The historical records of the tribes show only rare instances in which a direct transition from nomadic to a settled life has occurred. It seems, therefore, that when the settlement process proceeds spontaneously or freely there are certain stages of transformation through which the tribes pass before becoming completely sedentary. The following is a brief presentation of the general sequence by which the already settled tribes of Iraq voluntarily transformed from the nomadic life.

The first stage in the tendency toward settlement is the change of camel-raising nomads into sheep and goat-tending nomads by adding these animals and gradually eliminating the camel from the herds. This stage, therefore, represents a mixed pastoral economy, with raiding as a supplementary activity when conditions permit. At this point the range of seasonal migration is reduced because sheep and goats need to be close enough to watering points for frequent use, especially during summer months, and because they are not able to match the camel in traveling long distances.

The second stage usually comes as a result of cultural contact between the nomads and the settled villagers. This contact may take place in different ways. Sometimes it comes through the exchange of commodities between the two groups; other times it may be as a result of raids and the domination of the settled population by the nomadic tribes. Whatever the case may be, the desire to settle is likely to be instilled into the nomads themselves, in spite of the disdain and contempt which they usually hold for settled people.

The third stage is the acquisition of cultivatable land, usually by a powerful tribal group. This can happen either by force, by purchase, or by government grants. In this stage the tribes commonly employ members of subdued and weaker groups to perform the agricultural work. These groups may be from either the same tribe, or from other weaker tribes that need protection. This tendency had been observed among the Khazail, who were at one time largely a camel-breeding group and who controlled cultivators in the middle Euphrates area in 1918. This tribe consisted of several clans, each of which had servants, and cultivators, many of whom

were of non-Khazail origin.⁹ Another tribe that also employed weaker people to work in their wheat and rice fields in 1917 was the Albu Muhammad.¹⁰ The same situation held true among the Sudan and Bani Lam, who were camel raisers and strong militarily. Even as late as 1919 they appeared in the river valleys only for rent collection, after which they returned to the desert with their camels.¹¹

In the fourth stage, increasing numbers of the nomads themselves begin to practice agriculture, mainly the raising of wheat and barley, as a sideline or supplementary occupation for part of the year. They usually stay near their fields during the summer months of June, July, and August. During the autumn season, in the months of September, October and November they drive their herds into the desert where they spend the winter searching for pasture. They then return to the river later in the spring.

Eventually the tribesmen come to realize that, because of the harm by birds, the danger of drought, and the threat of neighbors' animals grazing in their fields, it is to their advantage to remain closer to the planted land. When this conclusion is reached their range of migration is reduced and a smaller number of animals are maintained with the consequence that dependence on wheat and barley cultivation increases. In this stage, however, tents are still mainly used as the dwelling units. At the present time, some members of the Shammar in the Jezira, the Aneza

⁹ Ibid., pp. 112-122.

¹⁰ Arab Bureau, Tribes of the Tigris, published by the British Superintendent in Iraq (Calcutta: Government Printing, 1917), p. 9.

¹¹ John Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960), p. 12. (Used with written permission of the author).

in the Western Desert, and part of the Dulaim represent this stage in the settlement process.

The fifth stage is when the need to store surplus grain in good years in order to hold it for sale at more profitable prices causes the tribe to erect storehouses near the fields. When this is done the tribes have to remain camped near their possessions for a longer period.

The final stage is reached when the nomads settle on the land and become mainly cultivators, with the herding of animals now a subordinate part of their economy.¹² In addition to this transition in means of livelihood there is an accompanying change in dwelling units used. The tent is first sheltered with reeds or brushwood, and then is walled in by mud bricks or matting. The roof of hand-woven tenting is eventually discarded, and finally the tent becomes a mud hut. Therefore, the transition in the mode of living is gradual.¹³

Present Condition of the Tribes

The present-day patterns of living of the tribes of Iraq are dictated by the geographical characteristics of the country. The tribes are thus divided into four major groups according to their environments and the economies they have developed. Since the river plains are fertile, the tribes of this area have developed a predominately agricultural economy. The tribes occupying the marsh areas are also for the most part

¹²Somewhat similar stages of transition have been noted in the case of the nomadic tribes of Egypt and Trans-Jordan. See Mohammed Awad, "The Assimilation of Nomads in Egypt," Geographical Review, XLIV (1954), 240-252; A. S. Kirkbride, "Changes in Tribal Life in Trans-Jordan," Man, XLV (1945), 40-41.

¹³Great Britain, Colonial Office, Special Report on the Progress of Iraq, 1920-1931 (London: Stationary Office, 1931), p. 237.

settled cultivators. Some of the tribes of the Mountain region practice subsistence dry farming, but many of them continue in their semi-nomadic and nomadic states. On the other hand, the tribes of the desert areas (the Western Region of Iraq) practically all practice nomadism.

Settled Cultivators of the Mesopotamian Plain

At the present time, these settled Arab tribes are the most numerous cultural group in Iraq. Formerly, they were nomads and gradually settled on the delta plain of Mesopotamia as cultivators (Fig. 12). Mixed farming, which consists of agriculture and stock-breeding, is their main occupation. Tribal coherence among these people is less marked than among those who are still nomads. Social characteristics and organization which owe their origins to desert life remain among these fallahen cultivators although somewhat modified. They include the emphasis on hospitality, honor, bravery, and other social values.

The cluster village where the fallahen dwell is the typical form of agricultural settlement in Iraq and throughout the Arab world. It is often described as "a classic example of the in-group,"¹⁴ in that, tribe, religion, language, and often even family are the same for each person in the village. This agglomerated settlement is probably the result of a number of interrelated factors, the most important of which are the need for protection, the tribal ties, and the availability of water in certain areas.

The typical tribal village is small and contains about forty

¹⁴John Gulick, Social Structure and Culture Change in A Lebanese Village, Viking Fund Publication in Anthropology, No. 21 (New York: Wenner-Gren Foundation for Anthropological Research, 1955), p. 162.

households with an average of five or six persons each. The fertility of the surrounding agricultural land and the amount of water available set initial limits on its size. Another limiting factor is that the fields must not be farther than a few hours walk from the village, or they will be uneconomical to farm and difficult to protect against animals and outsiders. Clusters of flat-roofed mud huts, each with a courtyard and surrounded by a wall, and narrow, winding streets are common features of most of the villages. Money incomes are too low to support large commercial establishments in rural Iraq; there is usually only a small teahouse and perhaps a small shop selling commodities such as tea, sugar, cigarettes, and the like in the villages.

Marsh Dwellers of Southern Iraq

The marsh dwellers¹⁵ of southern Iraq are settled villagers. They have adapted themselves to the poorly drained swampy lands. Water buffaloes, fishing, and reeds of the marshes are important in their lives. Buffaloes provide these Ma'dan, as they are locally known, with milk, butter, and cream. Some of the animals are bred for sale to merchants in nearby towns. Fish are a major source of food, and fishing is usually

¹⁵ For a detailed discussion of these tribes see Ethel Marnnin, "Journey to the Marshes," Bulletin of the Republic of Iraq, published by the Embassy of the Republic of Iraq in Washington, D.C., III, No. 7 (1962), 7-14; Jacques Dauphin, "Les Ma'dan De Basse-Mesopotamie," Annales De Geographie, LXIX (1960), 34-49; Shakir M. Salim, Ech-Chibayish: An Anthropological Study of A Marsh Village in Iraq (Baghdad: Al-Rabita Press, 1957), in Arabic; Henry Field, "Some Notes on Albu Mhammad of Iraq," Journal of Royal Central Asian Society, XXXVI (1949), 274-277; John Van Ess, "Forty Years Among the Arabs," National Geographic Magazine, LXXXII (1942), 385-420; Freya Stark, East is West (London: Wyman and Sons, Ltd., 1947), pp. 170-176; Gavin Maxwell, A Reed Shaken by the Wind (London: Longmans, Green and Co., 1957); Wilfred Thesiger, "The Ma'dan or Marsh Dwellers of Southern Iraq," Journal of Royal Central Asian Society, XLI (1954), 4-25.

done from small boats which are also the chief means of transportation in this region of few roads. Reed plants are used mainly for fuel, for food for both the people and their buffaloes, and for building material and mats for their huts.

For these sedentary villagers, rice cultivation, fishing, buffalo raising, and more recently, the commercial making of mats from giant reeds are the main occupations. Most families own herds of 20 to 30 buffaloes and a few may have as many as 120 to 200 head. Some Ma'dan dwell in temporary shelters built from reed mats thrown over bundles of reeds. Others live in huts which are more elaborate and permanent. Since there are few natural islands in the marshes, the huts are usually clustered upon small artificial islands - mounds made by piling reeds and reed mats in the swamps. Because the base is constantly sinking, the level is raised by laying down new layers.

From this simple structure of hut has evolved the mudhifs (guest-houses) which form a conspicuous feature throughout the marsh region, especially among the western group of marsh dwellers where the tribes still maintain Bedouin cultural features. Mudhifs vary from 24 to 98 feet in length and from 10 to 15 feet in width.¹⁶ In the marsh they function as social clubs in which tribesmen gather daily to hold their courts of justice and ceremonies and where hospitality to strangers is offered.

¹⁶In 1953 there were about 600 of such guest-houses belonging to 1,604 families, in the village of Ech-Chibayish alone. Shakir M. Salim, "The Role of the Guest-House in Ech-Chibayish Community," Bulletin of the College of Arts and Sciences, Baghdad, I (1956), 83.

Mountain Tribes of Northern Iraq

In the mountain and the foothill regions of Iraq, the Kurds constitute the majority of the population. These mountain people share the Muslim religion, but not the language with the Iraq's Arab majority. Although some Kurdish tribes - numbering about 40,000 persons - are solely pastoral nomads, the great majority are city dwellers and settled cultivators. Both the nomads and the cultivators still maintain tribal organization and social structure in a way similar to the Arab tribes of Iraq.¹⁷ Each subdivision in their tribal hierarchy has its Shaikh. However, the tribal Shaikh has more effective authority among the nomads than among the settled tribes. Detribalization and settlement have been going on here much the same as among Arab tribes in central and southern Iraq.

The settled Kurdish tribes live in small agglomerated villages each containing ten to fifteen households. Generally, these are more substantial than the villages of the settled Arabs elsewhere in Iraq. The houses are built chiefly from stone, wood, and brush.¹⁸ They are often placed so close together on the mountainslope that the roof of one forms another's terrace.¹⁹ The sparsity of population and the abundance of water in the Kurdish region makes for better sanitary conditions and

¹⁷Abbas Al-Azzawy, The Kurdish Tribes of Iraq (Baghdad: Al-Marif Press, 1947), in Arabic, pp. 13-14; also E. R. Leach, "Social and Economic Organization of the Rowanduz Kurds," Social Anthropology, London, No. 3 (1940), pp. 26-27. For interesting discussion on the social life of the Kurdish tribes see Harold Lamb, "Mountain Tribes of Iran and Iraq," National Geographic Magazine, LXXXIX (1946), 385-408.

¹⁸J.P.N. Galloway, "A Kurdish Village of North-East Iraq," Geographical Journal, CXXIV (1958), 361-362.

¹⁹Witold Rajkowski, "A Visit to Southern Kurdistan," Geographical Journal, CVII (1946), 133.

and higher standards of living than is true among the Arab tribes of Iraq.

Members of the Kurdish nomadic tribes engage in a variety of transhumance.. Some tribes such as Surcki and Herki make their seasonal movements with their flocks (mainly sheep and goats) within the limits of the same mountain district from lower to higher slopes. Other tribes, mainly Jaf and Balik, migrate between Iraq and Iran, or Turkey. They summer on the pastoral mountains in Iran and Turkey and spend the winter on the Iraqi side (Fig. 12). A combination of transhumance and some farming is practiced by others who are primarily villagers.²⁰ Living in a humid region with abundant water and pastoral resources, these Kurdish nomadic tribes are much better off economically and socially than the Arab nomads of Western Iraq.

Nomadic Tribes of Western Iraq

The Arab nomads of Western Iraq can be classified into two groups: those whose main herds consist of camels and those who own mainly sheep (Fig. 12). The camel-owning nomads are called Bedouin, a name simply meaning "dwellers of the desert," or the Badiyah. The shepherd nomads are called Shwaya, a word meaning "sheep herders," are the remnants of the now settled agricultural tribes of Iraq.

The most important Bedouin tribes of Western Iraq are Shammar, Aneza, and Dhafir. Each is divided into several smaller sections and subsections. The territory owned by the Shammar, a tribe of about 40,000 people, is located in the southern part of the Jezira (Fig. 12).

²⁰Galloway, op. cit., p. 364.

In the Western Desert there is also a minor tribal section of Shammar whose wandering area is near the Amarat, a section of Aneza. The Shaikhs of the tribal sections of Shammar are members of the Al-yawar family. The Aneza tribe, on the other hand, occupies the middle and northern section of the Western Desert (Fig. 12). This tribe is the largest of the Bedouins and numbers about 60,000. The two major sections of the Aneza tribe are the Gebel and the Dahamsha, which are ruled by Shaikhs drawn from the Hadhal family and the Mjjlad family respectively. The other two, but less important subtribal sections of Aneza are Fedan and Saba. The Dhafir tribe, numbering about 30,000, is one of the famous camel-breeding tribes whose wandering territory is in the extreme southern section of the Western Desert (Fig. 12). It has been weakened by internal strife between its two chief ruling families and by successive raids by nomads from Saudi Arabia between 1922-1925. These three tribes named are the only ones in Western Iraq with extensive territories away from the rivers.

The other Arab nomadic tribes, forming a minority of the nomads, are the sheep-owners. Some of these tribes have small tribal areas located near the rivers. They raise almost entirely sheep and a few goats and use donkeys as burden animals. The Dulaim, who number about 20,000, is the largest sheep-owning tribe of the Euphrates between Quim and Falluja. They range on both sides of the river especially between Ana and Falluja. The Albu Nimir, Jaghuifa, Albu Rudaini, Albu Mahal, and Albu Dhiyab are the chief nomadic sections of the Dulaim tribes. (see Fig. 12). The nomadic tribes and tribal sections along the Euphrates from Falluja to Samawa and those of the upper Tigris are all shepherd tribes and have a combined number of 50,000 people. Among the most

important of these groups are the Khazail, Bani Salama, and Ghazalat. South of Samawa there are Zaiyad and Chazzi sections of the Bani Huchaim tribes. The southern most sheep-owning nomads of the Euphrates are small sections of the larger Muntafiq tribes. These are Juwaibir, Husainat, and Juwarin. Along the upper Tigris River and elsewhere in the Jezira there are a few shepherd nomads belonging to other tribes.

Social Structure of the Nomads of Western Iraq

The division of nomadic society into small social units is conditioned by several factors. Among these is the limitation imposed by the availability of pasture and water. No pasture, at any time, can support a large number of animals for more than several days. Because of the limited grazing and water resources, the nomads are forced to travel in relatively small groups.

The social structure of the nomads, both the camel-owning tribes and the sheep-owning tribes, and the terminology used by them to denote the tribe and its various subdivisions show no significant variations from one to another. For purposes of general orientation it is useful to mention social characteristics which are relevant to the objective of this study.

The family is on the first level of the hierarchy of the social structure of the nomads. It constitutes the smallest social unit and consists of a husband, his wife, and their progeny, up until such time as the latter marry and establish their own separate families. The unit is characterized by great stability and is not easily shaken by dispersal of its members in time and space. Usually each family consists of about five members who live in one tent under strict control of the

father. Married sons in poor families commonly continue to reside in their father's tent, while those of more prosperous families live in a separate tent which is pitched near that of the parent.

The extended family is the nucleus of all Arab tribal organization. It usually includes three generations of parents and children who trace descent in the male line. The typical extended family is comprised of many individuals including parents, grandparents, married sons, their wives and children, and the unmarried sons and daughters. The group may also include dependent relatives and others under the family's protection. Marriage is customarily confined to the lineage or clan.

The clan constitutes the main factor providing the individual with a sense of security, especially with regard to the men who usually spend a considerable part of their lives with this group. The organization and maintenance of the clan is based upon unlimited mutual and individual responsibility. Members of two or three extended families will form one clan. The clan is characterized by strong bonds between its members who usually prefer to reside in a single camp, or at least remain close to each other in their encampment, because they are related by blood ties.

The political unit among the nomads is the tribe. Tribes may become friendly with one another, tied by alliances, or they may be antagonistic and frequently at war. Members of each tribal unit usually base their attachments to their tribes upon accepted kinship principles through their clans or families. The size of each tribe usually ranges from 300 to 5,000 persons. These limits are dictated by the inability of smaller units to defend themselves effectively against outside danger and at the other extreme, by organizational inability of larger units to

control their members effectively.

A group or a federation of many tribes which normally share one common area of origin is called qabila. Its importance is mainly to fulfill political and military functions for the tribes which are united within its structure. Because of its strength, it is better able to withstand external pressure from other groups.

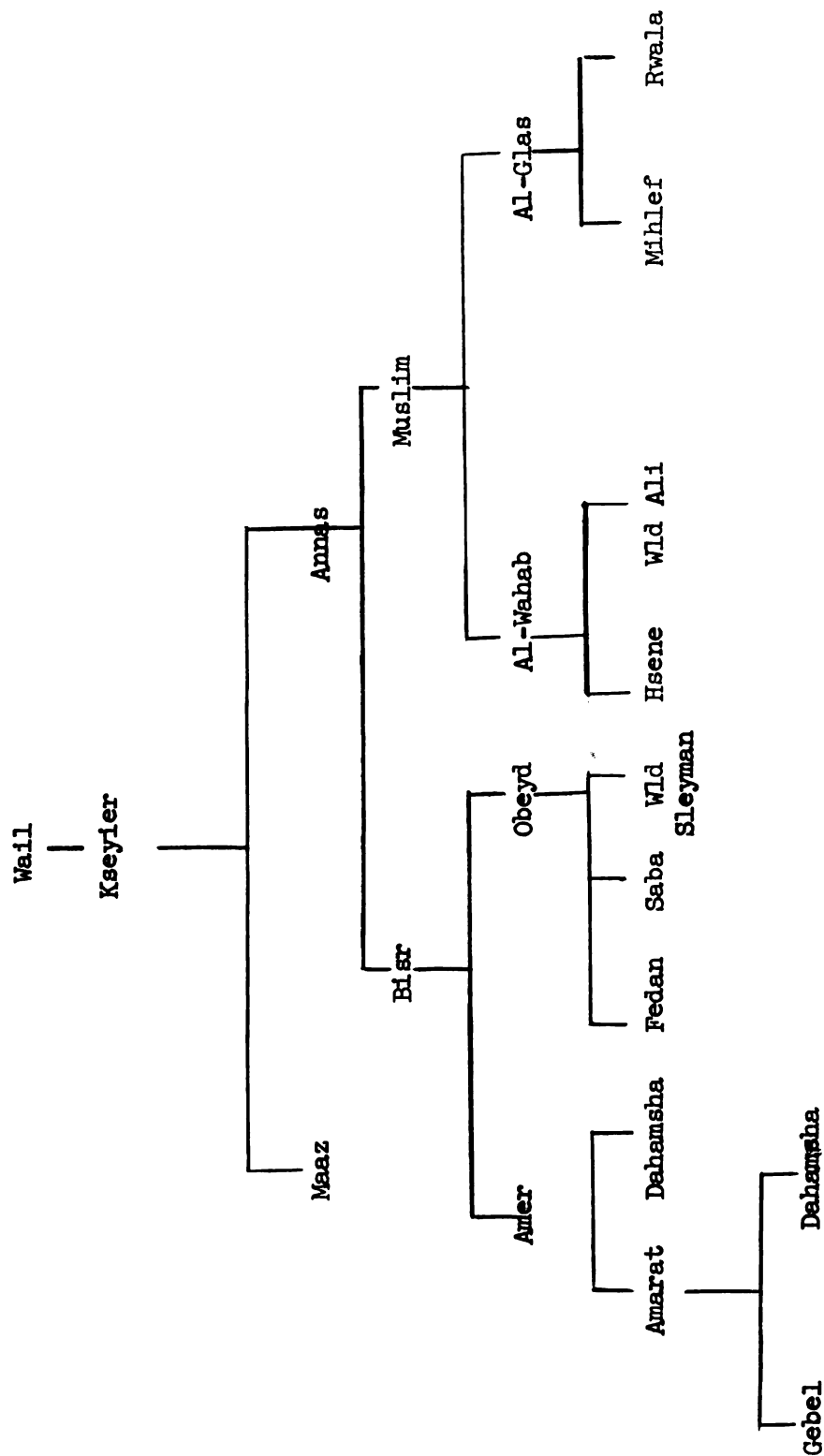
A collection of several tribes or federations of tribes which are in most cases, though not necessarily, related to one common origin is termed a confederation. This union, therefore, stands at the top of the socio-political system of the tribal society, but its political function is much more important than its social function. Tribal confederations such as the Shammar, the Aneza, the Dhafir, and the Muntafiq were originated and crystallized when these tribes entered present-day Iraq, mainly from the need of more security. About the end of the nineteenth century tribal confederations in Iraq were greatly weakened, and at the present time they are completely destroyed. The destruction of these and other tribal confederations will be discussed in more detail in the following chapters.

Not all of the tribal levels listed are always found. Some tribes may be built on two levels and others may show three or four levels.²¹ Table 9 illustrates the hierarchical organization and the strong ties of the social structure of the nomads, as exemplified by the Aneza tribe. A similar table could be constructed for each nomadic tribe. It should be mentioned here that these tribal groupings are highly flexible formations and subject to frequent change. One tribe, for instance, may

²¹George L. Harris, Iraq (New Haven: Hraf Press, 1958), p. 68.

TABLE 9

GENEALOGY AND MAJOR TRIBES OF ANEZA^a



^a Touvia Ashkenazi, "The Aneza Tribes," Southwestern Journal of Anthropology, IV (1948), 227.

attach itself to a group of other tribes and regard itself as being a kindred unit. In another instance, a tribe may detach itself from the larger organization of which it originally formed a part, move into another area, and soon appear as an independent group. The Albu Muhammad, for example, separated from the larger tribe of Bani Lam and became autonomous.

The size of the tribe, the subtribe, and the constituent parts is also subject to considerable fluctuation according to the prestige and control of the Shaikh over the tribe and according to other circumstances. Tribes such as the Shammar²² and the Dhafir were divided into factions among themselves and highly reduced in size during the second half of the nineteenth century.

Each clan, tribe, and other higher organizations is led by a Shaikh who directs its affairs and symbolizes its unity. The social and moral position of the Shaikh is very important in tribal society. Theoretically, the lesser Shaikhs all submit to the authority of the great Shaikh of the tribes, but in practice it is not rare to find that some of the lesser Shaikhs are not always obedient to the great Shaikh. The position of the Shaikh is usually inherited within one family, but there is no strict rule of such inheritance. If the Shaikh has no sons, authority may pass to the hands of one of his brothers. It is the Shaikh's duty to represent his tribe when dealing with others, to rule on grazing rights, to protect the dependent members, to receive guests, to make the first move in changing the camp site, and to defend the honor and the prestige of the tribe. How much use the Shaikh can make of his authority and power

²²Stephen H. Longrigg, Iraq, 1900 to 1950 (London: Oxford University Press, 1953), p. 24.

depends to a great extent upon his personality and his psychological understanding of the members of the tribe.

The Shaikh is often assisted by a majlis (tribal council). This holds frequent meetings as long as the tribe is encamped. It is usually composed of the elders and the heads of the extended families and clans. Matters concerning the political, economic, social, and judicial affairs of the tribe and its subclasses are discussed and settled during the meeting on an entirely informal basis.

Intertribal problems and disputes are reconciled by the formation of a council of judges from other tribes and the decision of such a council is binding. It must be emphasized here that at the present time much of the Shaikhs' and the majlis' functions and powers have fallen into disuse as a result of the increase of the national government's control in tribal areas, but they still maintain a strong influence and are well respected by the tribesmen.

Social Characteristics of the Nomads

The social and moral characteristics which the nomads cherish are no doubt the product of a long adjustment to the precarious life of the desert. Of the many characteristics, several should be mentioned. Hospitality is one of these. This grows out of human helplessness in the desert and from the utter dependence of man upon other men. It thus represents the outcome of adaptation to the hardships of the physical environment, where to refuse food and drink may mean death to the traveler. Therefore, it is considered shameful not to serve several times more food

than the guest can eat.²³ Closely allied with hospitality, is the obligation to defend and protect any person who enters the tent when he is threatened by someone else. An accused man or a whole clan may seek asylum with another.

A good Bedouin is an honorable man, and a brave one as well. He does not permit his honor, as he sees it, to be stained. This is especially true with regard to the chastity of his women relatives. The Bedouin believes that a person's honor comes from the purity of his descent. Bravery, which implies courage and endurance in the face of danger and adversity, is necessary for the survival of individuals in the desert; otherwise, they would not be able to defend themselves and their possessions or to compete with others in wresting a living from the desert environment.

On the basis of subjective statements, made by the Arabs themselves and by foreign observers, it is safe to conclude that these people have among them some highly intelligent persons. They pride themselves on the keenness of their minds and their ability to comprehend things quickly. Certainly they understand nature in the area where they live. Moreover, travelers often describe the Bedouin as a curious and perceptive person.

The family, the meeting place, and the surrounding environment are the main school for education of the individual in nomadic society. In the meeting place the child learns how to behave in his society, the history, and the traditions of his tribe. By actual observation, the nomads gain a detailed knowledge of the geography of their wandering

²³The hospitality of the Bedouins is well illustrated in Carl R. Raswan, "From Tent to Tent Among the Bedouins," Asia, XXIX (1929), 570-580.

territory. Almost all the landmarks and physical features are given special names. They also learn the names of the clouds and the winds and their directions. They are very familiar with the fauna and flora of the desert, their characteristics, and the possible economic and medicinal values of these resources to them and to their animals.

The nomads develop and memorize their own poetry, which relates to all phases of life and is especially inspired by such themes as honor, love, bravery, and hospitality. It is clear, therefore, that these people have their own well developed culture and are not, as described by Forde and some other writers, a "savage people."²⁴

The "ability to assimilate other cultures when the opportunity presents itself is well marked among the children of the desert."²⁵ Moreover, they have proved to possess a high capacity to accept new ideas and to adjust themselves to the changing condition within the limits of their poor environment. From the beginning they have been influenced by such materials as tobacco, coffee, cotton textiles, and firearms. The most recent instance of the susceptibility to innovation from abroad is provided by acceptance of motor cars and tractors. Many Shaikhs possess cars and tractors which they have learned to use. They are currently modernizing their activities as much as such a process is compatible with the conditions of nomadic life.

Living in desert conditions where no central authority existed which could provide protection and security to the individual has caused the tribesmen to give their unconditional loyalty to their clans and

²⁴Daryll Forde, Habitat, Economy and Society (London: Methuen and Co., Ltd., 1956), p. 327.

²⁵Hitti, op. cit., p. 28.

and tribes. A man driven out of his tribe is defenseless, and anyone could plunder or kill him without fear of retribution. The tribe, in other words, has been to the tribesman not only his "country", but his trade union, his insurance policy, and his old age pension. If he were killed by an outsider, the tribe would seek revenge and would feed and care for his widow and children. Moreover, since all the members are related to one another and intermarry within the tribe, the tribe enjoys great advantage over a political state. Being a single family, the tribe can command the services and the allegiance of its members without paying them. Among these people, therefore, the tribe has been the only workable unit and in the past did actually play the part of a miniature state. To change the loyalty of the Bedouins from their tribes to the nation, the authorities must provide these people with all the services and facilities which they can get from their tribes.

Along with loyalty to the tribe, the nomads attach loyalty to the tribal territory or dira. Each tribe has its own customary district, in which it freely moves, laid down by centuries of precedent. Natural features such as hills, wadis, desert trails, and rocks form the boundaries delineating each territory. According to the nomads' traditions, waters and pastures of each dira usually belong to the whole tribe and are communally used. A tribal territory must not be encroached upon by another tribe, except by mutual agreement, for watering and grazing purposes; otherwise war may ensue.

A third loyalty of the individual nomad is that which holds him a faithful follower of the tribal Shaikh and other lesser leaders, since these people are, in effect, the embodiments of the will of the tribes. Loyalty to his tribe may lead him to choose to support one rival claimant

to the chieftanship, rather than any other. Often this conflict of loyalties may divide a tribe either for a few years or forever.

Problems of the Nomads of Western Iraq

The problems of the nomadic tribes of Western Iraq are many and in most cases interrelated with each other. These problems emanate mainly from the poor physical environment, especially the scarcity of water supply and pasture.

The Problem of Water

The shortage of water is indeed the most crucial problem the nomads have to face every year. A water development program therefore, should constitute the cornerstone of any project aimed at improving their condition and facilitating their settlement. The absence of permanent surface water, with the exception of the two border streams, the Tigris and Euphrates, and the low rainfall, unevenly distributed over the area and fluctuating from year to year, impose drastic limitations on the activities of the nomads. In addition to this, there are other problems of water supply in the area.

These are associated with the inefficient use of the available water supply. Being uncovered and unlined, most of the hand-dug wells in Western Iraq are seriously polluted and contaminated. Living organisms, animal waste material, clay, and other foreign matter are often deposited in the water by the wind and surface wash (Pl. V, Fig. 1). This is also true in the case of water obtained from springs in the area and the water supplied from pools and masonry tanks. Sedimentation in the unprotected wells, springs, pools, and masonry tanks is another problem of these

sources of supply (Pl. V, Fig. 2). Because of this, only twenty of the springs and two of the masonry tanks in the area are still in use. Sometimes springs are even damaged purposely, as when the Shaikh of the Aneza tribe plugged several of them in 1950 with stones in order to prevent the Shammar tribesmen from utilizing them.

About 208 wells have been drilled in the Western Region of Iraq. At the present time, nearly half of these are out of use for various reasons. One of these is the frequent transfer of the governmental department responsible for their development between various ministries. Since 1933 the Department of Ground Water Supply has been shifted between six ministries, and besides the time wasted, none of these ministries paid serious attention to the maintenance of the wells. A second reason is that the operation of the pumping machines has usually been left to untrained persons, hired from among the nomads themselves. The result was that many of the machines were broken a short time after installation (Pl. VI, Fig. 1).

In addition, the uneven distribution of the drilled wells over the area has resulted in uneven utilization of the water supply and the grazing lands adjacent to them. The dependence of thousands of animals on too few wells during the summer season and in dry years created overuse of many of them to the extent that some were abandoned because of salinity and low yield. Some wells which were drilled in isolated areas are not utilized to their full capacity. This uneven distribution of wells has resulted not only in a shortage of water in many areas, but in severe overgrazing, erosion of adjacent lands, the death of thousands of livestock annually, and frequent fights among the tribes. In the central and the southern sections of the Western Desert where the shortage of

water is particularly acute, fights between sections of Aneza and Shammar tribes are common incidents.

The shortage of water supply, therefore, is the most important single factor for the continuous migration of these tribes with their herds from place to place. To cope with this problem, some of the tribes are forced to purchase water supplies for themselves and their animals at a very high cost during the dry months of the year. This water is supplied by active wells in the area and conveyed to them in tanks at a cost of one dollar per head of sheep per month (Pl. VI, Fig. 2). For a nomad this cost is impossibly high. It is, therefore, difficult to imagine how these people and their animals exist under such circumstances. In exceptionally bad years the people might be compelled to dispose of large numbers of their animals at a loss.

The Problem of Grazing

We have just stressed the fact that the foremost of the forces which compells the nomads to keep moving is the need for water. Related to this cause and ranking second to it is the search for pasture to feed the animals. A shortage of natural pasture is a common phenomenon in all areas of Iraq, so the animals survive under a severe lack of fodder for several months in normal years. For the nomadic tribes this is an acute problem because their herds depend completely upon natural free range. The quantity and quality of this in turn is determined by the amount and distribution of seasonal rainfall. Consequently, water and grazing may fall short of the optimum requirements of the dwellers of some areas even in the good years. While grass is abundant in the rainy seasons, especially winter and spring, by the end of the dry season it is severely

inadequate. Unfortunately, the nomads are often unable to use all of the grass in any specific area because of their inevitable migration toward permanent water wells. Grass that is left dries out and becomes too fibrous for fodder.

The problem of the shortage of pasture, which results from the erratic climatic conditions of the area, is highly aggravated by early grazing, overgrazing, undergrazing, and shifting cultivation. It is a common practice among the nomads to start grazing when the grasses are barely above the ground, while the usual rule of range management requires that no grazing should be exercised on these plants until they reach 10 to 15 centimeters in height.²⁶ According to Schwan and other observers, plants of Western Iraq are grazed far beyond their capacity to remain vigorous.²⁷

Overgrazing in the area is a result of several factors, the most important of which follow. The instability of the nomads and lack of property rights prevent their having any sense of conservation. The desert and steppe areas have to provide grazing not only for the animals of the local nomadic tribes but also for those belonging to the semi-settled tribes of Iraq living in the cultivated areas. Farmers in the irrigated areas do not care to produce fodder for their animals, in spite of the availability of soil and water, and depend on the natural range of the western part of the country to which they send their livestock. This reluctance for fodder production is a survival of the sharecropping

²⁶H. E. Schwan, "Watershed Protection in Relation to Range Management," Iraq Agricultural Journal, Baghdad, XII (1957), in Arabic, 535.

²⁷Ibid., pp. 534-538; Hugh M. Bryan and H. Wayne Springfield, "Range Management in Iraq," Government of Iraq, Ministry of Agriculture, Baghdad, 1955, p. 5. (Mimeographed Report).

system which was dominant in Iraq before 1958. The system discouraged the cultivation of fodder crops since the landlord did not profit from the animals which were owned only by the tenants.

In addition, nomadic tribes from Syria, Jordan, Saudi Arabia, and Kuwait migrate into Western Iraq every year and use up a considerable portion of the pasture. This is because the Western Region of Iraq is richer in natural pasture than the adjacent areas of these countries. Furthermore, grazing is free in this part of Iraq while certain fees are required to be paid to the authorities of neighboring countries, both from their tribes and from tribes of other countries.

It is commonly agreed that the number of sheep owned by the nomadic tribes of the area, at present estimated to be 4,500,000 head, has considerably increased during the last forty years. This has been partially due to the ending of the formerly incessant tribal warfare and raiding. Moreover, everything which burns is cut down or dug up by the tribes for fuel.

The sporadic shifting of the cultivation of wheat and barley, practiced by some nomads of Dulaim, Shammar, and Aneza tribes, in some parts of the hilly section of the Jezira and the Upper Wadian portion of the Western Desert, has also ruined much land. This pattern of uncontrolled cultivation has exposed these areas to pasture destruction, water runoff, and soil erosion.

Seasonal Migration.--The ever-present search for water and pasture forces the nomads to adopt a pattern of seasonal migration. The general directions of the seasonal migration of the chief sheep and camel-owning tribes of Iraq appears in Figure 12. The sheep-owning nomads move out each autumn and winter, following wadis and depressions in the desert

and steppes, and retire to the land near rivers and canals during the spring and summer (Pl. VII, Fig. 1). The camel-owning nomads also practice seasonal movement and migrate in different directions (Pl. VII, Fig. 2). During the summer many of them graze their animals along the Tigris and Euphrates, and some may penetrate into the agricultural areas further east between the rivers. The Amarat tribe of Aneza at times grazes quite close to Baghdad.²⁸ Other camel-owning tribes migrate within the desert and steppe areas for the entire year. Their movement is usually regulated by the distribution of water wells.

The distance which the herders travel depends largely upon the season, the amount of rain, and the availability of pasture. However, for some of the sheep-owning tribes this distance is estimated to be between six and eight kilometers per day when grazing is fairly good; but when aiming for any particular grazing ground, 16 kilometers a day is considered an average rate of movement.²⁹ Due to the great ability of the camel to withstand the lack of water, the distance covered by camel-owning tribes is greater than that of the sheep-tending nomads. This means that the wanderings of both sheep and camel-owning nomads are extensive.

In addition to these seasonal movements within the political boundaries of Iraq, some tribal sections move seasonally to neighboring countries, mainly for the purpose of shopping and smuggling. Certain

²⁸Carl R. Raswan, "Tribal Areas and Migration Lines of the North Arabian Bedouins," Geographical Review, XX (1930), 494-495.

²⁹Grahame Williamson, "Iraqi Livestock," The Empire Journal of Experimental Agriculture, XVII (1948), 50.

sections of the Muntafiq shepherds move each year to Kuwait;³⁰ those of Shammar go to Syria, and the Aneza go to Saudi Arabia, Syria, and Jordan (Fig. 12).

The nomads, especially the sheep-owning tribes, usually rely on natural grasses along the rivers for summer grazing. The high grazing pressure which they create on the natural pasture, on one hand, and the expansion of irrigation and cultivation in areas along the rivers, on the other hand, are increasingly curtailing the amount of free natural pasture available. Consequently, nomads have to depend increasingly on the fallow fields of the settled tribes near the rivers; and since they cannot offer to pay high rent for this, social problems and severe tribal fights result even in normal years. In dry years, as in 1958 and 1959, the problems became much more complicated. Struggles take place not only between the settled tribes and the nomads, but also among the nomads themselves.³¹

From the above discussion we can conclude that the nomadic existence of these tribes is a forced way of living which will be dropped or modified when its motivations can be replaced by suitable alternatives.

Economic Problems³²

The primary subsistence of the nomadic tribes has been traditionally derived from their animals, mainly camels and sheep. These animals

³⁰H. R. P. Dickson, Kuwait and Her Neighbors (London: George Allen and Unwin, Ltd., 1956), pp. 158-168.

³¹J. P. H. van der Veen, Report to the Government of Iraq on Pasture and Fodder Development (Rome: Food and Agriculture Organization of the United Nations, 1960), p. 4.

³²This point has received the attention of many scholars interested in the future of the Arab nomadic tribes of the Middle East. See

provide the simple, basic needs of food, clothing, and shelter. The few supplies which have to be procured from the settled people are usually paid for by marketing some of the animals and their products such as wool and butter. Formerly, practically all traveling and transportation of commodities in the Arab Middle East was done by camel caravan. For these caravans the nomads not only provided camels, but also protection and guide services. These sources of income have been almost entirely lost to nomads due to the increasing use of motor cars and railways.

In addition to these regular means of income, the nomads in the past engaged intermittently in other less stable and secondary occupations. These included frequent raids against each other and against the settled tribes, and often the exacting of tribute from the oasis farmer. Such activities varied with the extent to which the central authorities exercised control over the tribes. Today these sources of income have been removed through more efficient governmental administration. In the past the development of the petroleum industry in Iraq and the building of railroads provided other job opportunities for some of the nomads, but this was temporary. The Bedouin Legion, which was organized soon after World War I to assist the authorities in keeping law and order in the tribal areas, was another short-term job for some of the Iraqi nomads. In other countries of the Arab Middle East, such as Jordan and

³²C. S. Jarvis, "The Desert Bedouin and His Future," Journal of Royal Central Asian Society, XXIII (1936), 585-593; E. Epstein, "The Bedouin of Trans-Jordan, Their Social and Economic Problems," Journal of Royal Central Asian Society, XXV (1938), 228-236; E. Elath, "The Bedouin of the Negev," Journal of Royal Central Asian Society, XLV (1958), 123-139; Carleton S. Coon, "The Nomads," in Sydney N. Fisher (ed.), Social Forces in the Middle East (New York: Cornell University Press, 1955), pp. 23-41; Adnan Mahhouk, "Recent Agricultural Development and Bedouin Settlement in Syria," Middle East Journal, X (1956), 167-176.

Hadhramaut, this employment has been the main source of income for a considerable number of nomadic tribesmen.³³

The decline of these opportunities for making a living have brought crises upon the tribes' economic conditions. Accordingly, the present-day nomads have for many years been threatened by starvation which sometimes becomes a grim reality. These and other factors which influenced the economic situation of the tribes in Iraq will be treated in more detail in the following chapters.

More recently, a few tribesmen have found a new supplementary source of income, that of gathering salt from certain depressions in the desert and selling it to the settled population. Some of the Shammar tribesmen are exploiting the Sunaisala depression for this purpose, while those from the Aneza gather their salt from the Razzaza area west of the city of Karbala (Pl. VIII, Fig. 1). Some of the nomads are practicing dry-cultivation, especially in the hilly section of the Jezira and in the Upper Wadian of the Western Desert (Pl. VIII, Fig. 2). This activity provides them with some wheat, although the supply is far from being adequate or constant. Such occupations, however, are to be considered subsidiary in comparison to the main source of livelihood which is animal husbandry.

Animal Husbandry.--Official figures on the animals owned by the nomadic tribes of Western Iraq are lacking, but it is safe to estimate that there are 150,000 camels, 4,500,000 sheep, and about 1,000,000 goats. Although animal husbandry is the main concern of the nomads, they raise, keep and utilize their animals in the same manner that their remote

³³A. M. Clark Hutchison, "The Hadhrami Bedouin Legion," Journal of Royal Central Asian Society, XXXVII (1950), 62-65; Wilfred Thesiger, "The Badu of Southern Arabia," Journal of Royal Central Asian Society, XXXVII (1950), 53-61.

ancestors did ages ago. To a nomad the most important thing is to have the largest possible number of animals, regardless of their value or productivity. This has traditionally determined the prestige and social standing of the nomad within the tribe. Another reason why the number of animals is so important is because of the need of a man to pay for his marriage with animals. The more animals one has, the more wives he can marry. The environmental conditions of the nomads at the present do not lend themselves to raising a more productive type of animal. Due to this combination of factors, coupled with the ignorance of the nomads, the standard of their animal husbandry is very low. Camels, the principle animal bred by the camel-owning nomads, are kept as burden animals, for their milk, and for direct sale. Among the sheep-owning nomads, sheep and goats are raised for their products such as milk, clarified butter, wool or hair, and skin. In addition, these animals are frequently bred for direct sale.

The low level of development of animal husbandry among the tribes can be seen in their ways of obtaining and processing the products of their herds. Sheep and camels are milked only during the spring, and the amount of milk obtained is exceedingly low. Furthermore, milk can be preserved only in a sour state, or as clarified butter which can be stored in a skin until it is sold. Due to the primitive methods and the lack of a ready market, even the large sheep-breeding groups are not economically interested in raising the milk yield or in improving their breeds for this purpose. The amount of butter derived from each lambing ewe is reported to be 1 kg. from the Arabi breed and 1 to 1.5 kg. from the Awasi breed per season. The same Awasi breed yields as much as 3 kg. in

northern Iraq.³⁴ This low yield of the Awasi of the nomads of Western Iraq, is most likely the result of low nutrition and poor care.

The nomads consider wool as the least important sheep product, although, as a rule, even its poorest quality has a more ready market than that for meat and butter. The processing of wool, hair, and skins is conducted only by primitive manual methods and generally satisfies only the modest home demands of the nomads. Usually not much meat is eaten by tribesmen, but the entertaining of guests demands as lavish a supply as can be afforded. Thus, from year to year most of the surplus stock is used for home consumption.

Furthermore, since these tribes lack capital, they are often forced to borrow money at more than 100 per cent interest for six months from village and town merchants, in order to develop and maintain their animal husbandry. Such high rates are dictated by the high risk the lenders have to take due to famine in rainless years. This interest is exacted either in kind or in cash.

Camels suffer heavily from diseases like mange and worms. These two afflictions cause a high mortality rate and poor condition of the animals. The desert sheep, on the other hand, do not normally suffer from many infectious diseases. During their seasonal migration towards the marshy areas in the vicinity of rivers, however, such ailments as liver fluke and lung and intestinal worms flourish, and the nomads incur many losses among their flocks. The main problem of desert sheep during the greatest part of the year is undernourishment, due primarily to the lack of good pasture and a protein deficiency in their food supply. For

³⁴Williamson, op. cit., p. 53.

these reasons most of the animals are in a very poor condition. It has been reported that in normal years a mortality rate of at least 50 per cent is being suffered among the sheep herds. In addition to the above, loss in weight and a wastage in the wool of the body is involved. Sheep now average about 25 lbs. dressed weight, although they have a capacity to carry from 45 to 50 lbs. of meat, provided that they are in good condition and free from disease. The loss in wool is also very heavy and is probably up to 50 per cent of the wool which could be produced.³⁵ The detrimental effects of such waste on the nomads and the country is most obvious, and remedial measures should be taken as soon as possible.

Marketing.--In marketing their surplus animals and animal products, and in buying their meager needs, the nomads also face serious difficulties. Due to their isolation and the lack of transportation and marketing facilities, the tribes, especially those in the interior of the desert, are often forced to sell their products at low prices. As they are moving from place to place, they cannot keep their surplus products in good condition for very long. However, the shepherd tribes who live closer to the settled areas near the rivers are more fortunate in this respect. They usually market their products in nearby towns and cities of the Tigris and Euphrates, such as Samawa, Nasiriya, Najaf, Karbala, Ramadi, Baghdad, and Mosul.

The camel-owning nomads, on the other hand, have commonly been exploited by special dealers and the shop owners of desert villages. These dealers often go to the nomads in their summer encampments to buy their products at extremely low prices and to sell them some daily

³⁵J. A. Salter, Development of Iraq: A Plan for Action (Baghdad: The Development Board, 1955), pp. 196-197.

necessities such as coffee, vegetables, and cigarettes at high prices. The nomads do their main shopping once or twice a year. For this they usually go to poorly supplied small villages within and at the fringe of the desert. On their shopping trips, which are normally associated with their summer movement, they come to these villages in large numbers at one time. This often creates a shortage of food supply and high prices.

Social Problems

The social problems of the nomads are dictated by their way of life which in turn is largely the result of their environmental situation. The author feels that most of these problems could be solved, or at least partially solved, by providing an economic climate which would facilitate the settlement of the nomads.

Level of Living.--Backwardness and stagnation are inherent characteristics not only of the nomads' economy, but also of all aspects of their everyday life. Their social organization and structure, tents, household utensils and furniture, clothing, food, and means of travel are all oriented to the main objective - that of adapting themselves to the rigors of a nomadic existence. The life of these tribes is extremely difficult, and it remains stagnant in its traditional form.

In a tribal camp the tents are usually scattered over a wide space. Each group of family tents is about 200 yards from its neighbor where camping ground is broken, and possibly 400 yards away on flat, open surface. This is especially true in winter and spring. In summer, near water points, the camp is more compact. For reasons of sanitation and grazing, the camp site is changed every ten days to two weeks. An ordinary change of ground usually involves moving a distance of about ten

miles, provided that water and grazing are available.

Their very simple clothing barely protects the people from winter cold. Some of their clothes are crudely woven by the nomads themselves, and the rest are bought from the settled people. They go barefoot as a rule, but some use sandals purchased in nearby villages.

The food is quite simple and inadequate for the average human existence. Sometimes, days may pass when a tribesman has nothing other than camel or sheep milk. Bread is often the next main staple food. Meat is a luxury and is used on occasions of honoring a guest, or when an animal has lost its value and has to be killed. Dates and certain edible plants like truffles, as well as locusts, are among the foods that are enjoyed. Coffee and more recently tea, which are purchased from settled areas, are important drinks for the nomad. Tobacco has become one of the luxuries among these tribes.

It is difficult to give an exact budget of a nomad family, but in 1930 a camel-owning family of five persons may have received a total income of about 10 British pounds a year, and a sheep-tending family nearly half of this.³⁶ In 1935, according to Glubb's estimation, the income for a wealthy Shaikh, such as Ibn Hadhal, the Shaikh of Aneza nomadic tribes, who at that time owned thousands of livestock, was 250 British pounds a year. For a typically poor camel-owning family, 8 British pounds a year could be derived from selling two of their ten camels.³⁷ According to Bonne's estimation, a sum of 10-15 pounds per

³⁶Great Britain, Naval Intelligence Division, Iraq and the Persian Gulf (London: The Naval Intelligence Division, 1944), pp. 338-339.

³⁷John B. Glubb, "The Bedouins of Northern Arabia," Journal of Royal Central Asian Society, XXII (1935), 16.

camel-owning family in 1939 was usually obtained under normal circumstances from the sale of two or three camels.³⁸

Insignificant as are the nomad's daily needs and expenses, and much as he must in bad times reduce his requirements still further, he tends towards a display of extravagance far in excess of his means when guests enter his tents. In order to celebrate such an occasion fittingly, he is capable of running himself deep into debt for years to come. This is one factor which has contributed to the continued poverty of the nomads.

These people live in tents which are usually made of goat's hair or sheep's wool. Sometimes they make their own tents, but usually these are purchased from town and village dwellers. An average quality, medium-sized tent costs about \$250 and lasts only for about five years. At this price, the erection of mud huts would be cheaper because they would last for a longer period, if these nomads were settled. Medium and large size tents are usually divided into two parts by a curtain or by piling up bags of food and other household equipment (Pl. VII, Fig. 1). The left side is the men's section, which is also used as a dining place and guest room. The right side is for the women and children of the family. No matter how these wandering people adapt their tents to the environmental conditions, they are still provided with inadequate shelter regardless of the season. In summer the rule is to pitch the tent with the larger portion (the men's section) facing the direction of the prevailing winds. In winter it is heated by an open fire which is also used for the preparation of food. There is practically no light. What little

³⁸Alfred Bonne, The Economic Development of the Middle East (London: Kegan Paul and Co., Ltd., 1945), p. 374.

there is, is admitted into the tent by raising the sides in order to obtain ventilation. The cold and the smoke from the fire is bad for the people's health, especially that of the children.

The nomads' camp consists of a group of tents which may range from about five tents for an individual family, to 200 to 300 tents for a whole tribe. A typical camp will include tents of shopkeepers, blacksmiths, etc. In choosing a camp site the proximity of water and the nature of the grazing ground are essential factors. In summer the camp is as close as possible to the wells. In winter it is usually within 30 miles of water.

It appears from the foregoing analysis that the nomads are insignificant, both as producers and consumers. As producers, their underdeveloped livestock economy falls short of the present requirements in quality. As consumers, they benefit the national economy very little because of the meagerness of their resources and the primitive simplicity of their life, the needs of which can be met with small quantities of the cheapest goods. In both respects they have had a delaying affect on the economic development of the country because of their virtual failure to make any real contribution to it.

Level of Health.--Unfortunately, no reliable statistics exist with respect to the various diseases and the birth and mortality rates among the nomads. In nomadic life, as one might expect, the rate of child mortality is appalling. This is due to several factors. Children in the infancy period are handled very roughly. During the movement of the tribe the child is placed on the camel much like a piece of luggage. In addition, children are constantly exposed to the hardships of nomadic life with its inadequate food and protection from the weather. The

percentage of those who survive and reach an old age is relatively small. With the free-moving life they have in the fresh air of the desert and the hardships to which they have become accustomed, those who survive usually have well, solid, and tough bodies. On the other hand, due to the inadequate diet, the unclean salty water, and the lack of knowledge of modern hygiene, many diseases prevail among these people. And because of their nomadic life, they rarely pay any attention to a disease until it is very acute.

The most prevalent ailments are eye diseases such as trachoma and ophthalmia, diseases caused by the impurity of water and food, varieties of fever, ulcers, smallpox, and tuberculosis. The nomads believe that diseases are willed by God for purification of sins or may be caused by the evil eye. Winds and sandstorms, according to them, are also among the causes of sickness. For treatment primitive and often ineffective methods are practiced. Certain desert herbs, animal milk, and dung are used for curing a variety of illnesses.

These widespread diseases and the primitive methods used for treatment contribute greatly to the low productivity of the nomads. Yet little or no attention has been paid to improving their health. One difficulty is that no effective medical treatment can be extended to them while they are continuously migrating from place to place. Moreover, the uncontrolled movement across the international boundaries by some Iraqi tribes and by those of neighboring countries causes the nomads to act as disease carriers. This has even resulted in jeopardizing the settled population of Iraq.

Level of Education.--The level of education of the nomads is no better than that of their living or health conditions. Schooling and

formal education has not been extended to them, although there is a genuine desire for education among these people. In some of the villages, for instance, it has been reported that requests have been sent to the authorities by Shaikhs of settled tribesmen for establishment of schools, but nothing has been done to satisfy this desire. Some of the villages of the Western Desert and the Jezira are provided with primary schools, but the facilities of these are grossly inadequate.

Thus, it can be safely stated that about 98 per cent of the nomads are illiterate and deprived of the barest elements of a fundamental education. The two per cent who are literate is largely composed of some of the Shaikhs' sons and a few religious leaders. There is no doubt that the lack of education among the nomads is mainly due to their nomadic life. The scattered pattern of their encampments, in small groups at a considerable distance from each other, while they are grazing, especially during the winter, makes their education extremely difficult and expensive. It is not, therefore, astonishing to find a low level of productivity, high incidence of disease, and economic and cultural backwardness among these people.

Administrative Problems

In the past, intertribal enmities, fighting and raids have had a retarding effect on the whole social and economic development of Iraq. At present, although public security in tribal areas is well established and large-scale raids have long since disappeared, the past tribal frictions have not yet been forgotten by the nomads. Disputes over grazing and water rights often revive the old enmities among them and result in struggles on a narrow scale. This, for example, happened between

tribesmen of Aneza and Shammar in the Shabicha area of the Western Desert in 1952.³⁹ This kind of fight was repeated in the Salman area in 1959. Clashes between sections of the same tribe are not unusual. This occurred among the Aneza during 1956 and 1957 in the Nukhaib area, also over water and grazing.⁴⁰ In addition there are still struggles among the Dulaim, Shammar and the Jubur in the Jezira. This situation is most conspicuous in the relations existing between the settled tribes at the edge of the desert and the nomads, who in their summer grazing and in rainless years are forced to graze the fields of the settled tribes (Pl. VII, Fig. 1). In this respect, at least, the nomads still constitute a latent threat to everything which favors order and security in their areas. Furthermore, they periodically present a real administrative problem to the authorities who have to provide expenditures and force to overcome fights among the tribes.

The nomadic tribes have no concept of nationalism, Arab or otherwise, and have little notion of any state or national cause to which they are loyal. A nomad's horizon does not reach beyond his own territory; his only loyalties are to his tribe, to his Shaikh, and to his tribal area. National feeling and very strong tribal loyalty are different and incompatible. The nomadic way of life thus constitutes a tremendous obstacle in the way of establishing national unity in the country.

Many stories are told about the nomads' smuggling activities between Iraq and adjacent countries to supplement their meager income

³⁹According to an unpublished report of the Iraqi Ministry of Interior No. 6544, dated 8/9/1961, (in the files of the Ministry).

⁴⁰According to an unpublished report of the Iraqi Ministry of Interior No. 5230, dated 2/8/1959, (in the files of the Ministry).

from animal husbandry. By this they cause frequent trouble for the police posts in the Western Region and disturb the friendly relations with neighboring countries. The penetration by the nomads of these countries into the territory of Iraq for grazing presents another problem. The grazing of these tribes in Iraq is sometimes combined with the cultivation of small plots of land for which they claim property rights, thereby creating conflicts between the Iraqi administrators and those of the other countries to which the nomads belong.⁴¹

Finally, these tribes, because of their nomadic mode of life and their traditions, do not lend themselves or their animals to any accurate census. Obligations to pay taxes, to participate in the armed services, and other public responsibilities are also unknown to them. It should be realized, however, that these nomads, living as they do outside the movement of modern civilization, cannot appreciate what their real interests are; nor can they envisage the means of achieving higher social and economic standards by themselves. It is therefore, essential that they should have full confidence in their government and its ability to accept its responsibilities toward them and discharge these in a satisfactory manner. Thus, the problem of settling the nomads is a highly complicated one, but marked progress can be made toward its solution if proper steps are taken.

Recent Tendency Among the Nomads Toward Settlement

At the present time, there is a strong tendency among the nomadic

⁴¹According to a letter from the head administrator of the Dulaim province to the Iraqi Ministry of Interior, dated 7/21/1962, (in the files of the Ministry).

tribes of Western Iraq, especially the younger generation, to abandon the traditional way of life and to settle (Pl. IX, Figs. 1 and 2). This tendency is generally stimulated by the tremendous hardships and insecurity of the nomadic life, along with the rapidly increasing social and cultural contacts with the settled communities. Together, these accelerate what is called spontaneous settlement. This willingness to change is shown by the following evidence: (1) Many tribesmen, especially from among Aneza, Shammar, and Dhafir, have requested technical and financial help from the government to enable them to develop their land and animal resources, and have indicated their readiness to settle on the land, even though no constructive help has been forthcoming. (2) There is an increasing tendency among the camel-owning tribes to raise sheep rather than camels. This helps to reduce the range of migration of these tribes and is a step toward settlement. (3) Some of the tribes, such as Shammar in the Jezira and some tribal sections of Aneza in the Upper Wadian area of the Western Desert, are making a good start toward settlement by practicing some dry farming in good years. (4) The readiness for settlement among Aneza and Shammar can also be seen in the fact that the lesser heads of some sections have erected permanent mud huts as dwellings rather than continuing to use the traditional tent, even though often handicapped by the lack of maintenance of wells around which the huts have been built (Pl. VI, Fig. 1). (5) It is obvious that the sheep-owning tribes have reached a more advanced stage toward settlement than have the camel-owning tribes, since raising sheep limits their range of movement.

This trend toward settlement among the tribes can be accelerated and encouraged through guidance and constructive planning. It remains for the authorities to make use of this tendency in order to facilitate a

better adjustment of the tribes to the new economic, social, and political conditions resulting from Iraq's entrance into the world community of nations.

CHAPTER IV
TRIBAL POLICY AND SETTLEMENT DURING THE
TURKISH PERIOD, 1534-1916

In the 16th century, the Ottoman Turks gained control of the territory of present-day Iraq. This they held, with brief interruptions, for nearly four hundred years until 1916. In this study, these four centuries are divided into two periods. The first begins with the year 1534 and ends with 1869, and is subdivided into three intervals; the First Turkish Interval (1534-1749); the Mamluk Interval (1749-1831); and the Second Turkish Interval (1831-1869). The second major period extends from 1869 to 1916. This division of the history of control of Iraq by the Ottomans is based upon the nature of Turkish policy toward the tribes and its effectiveness. During the early period the Turkish settlement policies were ineffective, but the late period saw a reversal of policy and a subsequent large scale settlement of the tribes in Iraq.

The Early Turkish Period, 1534-1869

The Early Turkish Period is characterized by three factors which were constant throughout its three intervals. The first is that the central government could not control the countryside and maintained power only in the cities. The second is that the central government incessantly tried to force the tribes of Iraq to obey it and that this use of force was ineffective. The third is that the tribes not only refused to obey

the government, but increased their military power through the formation of intra-tribal leagues and confederations.

The First Turkish Interval, 1534-1749

The main feature of this interval was the clashes between the tribes and the central government which ensued from the attempts of the authorities to impose high taxes on the tribes. Successive Turkish campaigns and punitive expeditions against the tribes resulted. The main military operations are listed in Table 10; however, there were many others of less importance. To resist Turkish control and to better oppose its military force, tribal confederations were gradually formed toward the end of the 16th century, and eventually these became the dominant power in the countryside. "In some places this meant that settled life ceased--on the Tigris, for example north of Baghdad, and on the Euphrates north of Hilla--; even where it continued, it did so under the protection of the more peaceable and sedentary Bedouin chiefs, not under that of the government."¹

The weakness of the Turkish governors in comparison to the tribal power appeared very clearly when, in 1690, the Muntafiq and other tribes collected some 3,000 horsemen, defied the government, and approached Basra. Since the Pasha could muster only about 500 men, the city fell to the Shaikh of the Muntafiq in 1694.² The same tribes dominated a vast region of southern Iraq, including the sedentary tribesmen and merchants in the settled towns and villages which came under the protection of its ruling

¹Albert Haurani, A Vision of History (Beirut: Khayats Rue Bliss, 1961), p. 41.

²Stephen H. Longrigg, Four Centuries of Modern Iraq (London: Oxford University Press, 1925), p. 120.

TABLE 10

TURKISH PUNITIVE EXPEDITIONS AGAINST THE ARAB TRIBES
OF IRAQ FROM 1546-1872^a

Year	Tribes involved
1546	Tribes of Basra province
1657	Tribes of southern Iraq
1690	Muntafiq
1696	Shammar, Moali, Zubaid, Bani Lam
1705	Khazail, Aneza, Shammar
1706	Shammar, Al-Hamid, Saadah, Al-Rafi, Zubaid
1708	Muntafiq
1724	Bani Jamail, Bani Lam, and the middle Euphrates tribes
1733	Qasham
1736	Shammar
1737-1740	Albu Hamdan, Zubaid, Bani Lam
1741	Muntafiq, Aneza, Dhafir
1747	Tribes of the Tigris River
1757	Shammar
1761	Chaab
1763	Bani Lam
1764	Khazail
1765-1766	Chaab
1769	Muntafiq
1784	Chaab
1797	Zubaid, Rabia
1800	Bani Lam
1804	Shammar
1805	Ubaid
1806	Bani Lam, Rabia
1813-1814	Tribes of Tigris and Euphrates
1815	Khazail
1817	Tamim, Shammar, Albu Musa, Bani Umair
1818	Dulaim, Shammar, Aneza
1819	Dulaim
1843	Shammar, Khazail
1844	Aneza, Khazail
1845	Ubaid
1849	Bani Lam
1869-1872	Tribes of the Dhaghara district

^aCompiled from Stephen H. Longrigg, Four Centuries of Modern Iraq (London: Oxford University Press, 1925), pp. 1-353.

family. Moreover, this same family also maintained its own customs houses on the river to levy tolls on traffic passing from Basra to Hilla and Baghdad.³

The tribal confederations of Shammar, Aneza, and the Khazail joined together and looted Baghdad villages and threatened other cities. Other tribes were in similar positions of power and each maintained its share of supremacy over roads, villages, and nearby urban areas. Travelers and traders therefore, became subject both to heavy governmental taxes and to tolls levied by the several tribes through whose territory they passed. In fact, they commonly had to pay more tolls to tribal potentates than to the Turkish government.

The state of tribal unrest during this early period was aggravated by confusion associated with serious floods on the lower Euphrates in the early part of the 18th century. Towns and villages were isolated or ruined, and tribesmen in the affected areas were swept from their own lands. Meanwhile, several tribal leaders took advantage of this situation to gain control of the river's traffic and of settled areas along its course. To accomplish this, the nomads of the desert were encouraged to press hard and disturb the semi-settled tribes along the river.

Rebellion and tribal upheaval were common features of the time. Among the most important was the disruption caused by the Muntafiq confederation in 1708. The immediate causes of this uprising were matters associated with cultivation of land, rights over Euphrates islands, disputes over taxation, and subsidies claimed by the tribe.⁴ The policy

³Haurani, op. cit., p. 42.

⁴Longrigg, Four Centuries of Modern Iraq, op. cit., p. 125.

followed by the governor to combat the unrest was a combination of punitive expeditions against the tribes, the making of some land grants, and the opening of some irrigation canals to settle the nomads. No doubt these remedies were enacted by local authorities and applied to certain leaders of the more powerful tribes of the Muntafiq rather than being handed down by the Turkish central government, and were intended to provide temporary relief rather than a final solution to the problem.

During the Turkish war with Persia (1727-1747), the tribes saw, as in the other crises, a good chance to raid the settled population, withhold revenue from the government, and form new alliances. Early in 1727, for example, the Bani Lam and Shammar joined with Persian tribes and raided the city of Baghdad.

The Mamluk Interval, 1749-1831

During the period slaves, or Mamluks, from Georgia were able to seize the authority of the Turkish Sultan throughout Iraq and to control all power in the state for eighty-two years. Many of them proved to be vigorous, efficient administrators and military officers. Notably, several of the governors attempted to cope with the formidable tribal problem along somewhat different lines than had the preceding Turkish officials.

The first Mamluk Pasha was one of these. By his quick and very capable officers and by his holding the Shaikhs responsible for tax collection and order in their respective tribal areas, he was able to maintain some measure of security for twelve years. This short period of relative stability was ended, however, by a severe famine caused by drought in the Jezira region. This again brought misery, disease, and crime to the tribes. Moreover, the measures taken by the first Mamluk Pasha were not continued by his successors, who were either too weak to

secure peace among the tribes or so strong that they followed their own distinctive policy regarding the tribes and their settlement.

They deposed, arrested, and hanged outstanding Shaikhs and attempted to deal directly with the tribes, a policy which highly intensified tribal resistance against the central authority and resulted in a strong reaction against the idea of settlement. The great Shaikh of the Ubaid tribe was one who was suddenly arrested and finally hanged, with the result that his sons and his tribe soon raised a force of outlaws and blockaded the city of Baghdad. In 1800 the Shaikh of the Bani Lam was deposed, an interference which plunged the whole region of the lower Tigris into a state of confusion. In another case, the Shaikh of the Khazail, having refused all government control, replied to the army sent by the governor by cutting water canals of the Euphrates to flood the area around his tribal headquarters for protection, but without success. The result was that the Shaikh was defeated and fled to the desert, heavy taxes were taken from his tribe, and much water and cultivated crops had been wasted.⁵

To set tribes against each other and to encourage feuds between rival leaders was a common practice of the governors of this period. When Thuwaini, Shaikh of the Muntafiq tribes, occupied Basra in 1785 and established a tribal government there, the governor asked the assistance of the Chaab tribes and their leader, Hamad Al-Thamir, the eager rival of the Muntafiq and Thuwaini.⁶ The Shamar tribes were similarly used against the Ubaid, Ghurair, Albu Hamdan, and the Dhafir tribes at one time or another. The Arab tribes were also employed against the Kurdish tribes.

⁵Ibid., pp. 173-202..

⁶Ibid., p. 205.

Toward the close of the 18th century, the government and the tribes of Iraq were exposed to the threat of invasion by uneasy neighbors. This created trouble which lasted into the first quarter of the 20th century and greatly retarded the settlement process. The source of this trouble was the new religious reform and the tribal movement of the Wahabbies from Arabia.⁷ The founder of this reform demanded a return to the simplicity of Islam. He gained the tribal military support of Najd and established a local empire in its oases. These Wahabbies began to press on the tribes of Iraq in order to convert them to their belief. They directed raids and successive invasions toward the desert encampments of Western Iraq, especially against the Dhafir, the Muntafiq, and the nomadic shepherd segments of other tribes. The result was that not only the security and grazing grounds of these tribes were disturbed, but also villages and cities along the Euphrates, such as Samawa, Basra, and Zubair, and especially Najaf and Karbala, were plundered and destroyed. In some cases this happened several times. Thus, conditions in the desert and even in the riverine settlements became insecure and relationships of the tribes with the local government deteriorated. This source of danger became a continuing one, with incidents occurring in the early decades of the present century which were as severe as those of the early 19th century.

The Second Turkish Interval, 1831-1869

In 1831 Iraq again became part of the Turkish Empire and the Mamluk power was over. By this time the Turks had adopted a policy of attempting to establish direct control over the countries of their empire. A body of liberal reforms and institutions based on Western principles of government

⁷For more details on the Wahabbies, see John B. Glubb, War in the Desert (New York: W. W. Norton and Co., Inc., 1961).

and civilization was applied.⁸ However, although the Ottomans increased the number of Turkish garrisons, strengthened the army, and appointed new civil administrative officers, the reforms were not put into real effect in Iraq until 1869.

Thus during the years, 1831-1869, Turkish policy toward the tribes was essentially similar to that of previous times. During the last few years of the period, however, a few attempts at improvement were made by some of the Turkish governors, notably Geuzlikli who granted lands, opened some irrigation canals, extended the agricultural area, and gave some security to the tribes in order to encourage their settlement and to increase the government's revenue. Indeed, these important measures provided a hint of what wise tribal policy should be, but unfortunately they were temporary and the ancient methods of dealing with the tribal problem were resumed.

For the most part, the governors of this period were extremely nationalistic, so their primary aim was to destroy the tribes by use of arms and other oppressive measures. Revenues demanded from tribal areas were constantly increased and as constantly rejected by the tribes with violence. Tribal Shaikhs were therefore frequently changed, deposed and replaced by their rivals, and often hanged. Sufuk, the famous Shaikh of the Shammar tribe, was murdered in 1847, for example, and great confusion in the Jezira region followed. In 1849 the Bani Lam rose against the appointment of a Shaikh from the Muntafiq tribe in their territory to

⁸In Syria, for example, the Turkish reform measures were effectively applied by Ibrahim Pasha, the Turkish governor in 1831. Some of the immediate results of these were that not only large numbers of the nomads were settled, but over 300 abandoned villages in the Jezira of Syria and Hauran Plain were re-settled. See Norman N. Lewis, "The Frontier of Settlement in Syria, 1800-1850," International Affairs, XXXI (1955), 53.

collect the taxes of the area. Among the Muntafiq, war resulted because of the change of one Shaikh for another from the same tribe.⁹ This mis-handling of tribal matters caused war and unrest in every tribal area and brought Baghdad and other cities to a state of blockade and danger of looting and destruction.

It seems obvious that the Turkish policy from 1534 to 1869 was to convert the tribes into settled cultivators and obedient citizens by force, without providing them with any incentive which would alter their resistance. That this resulted in complete failure is not surprising. An analysis of the happenings shows several reasons why these policies retarded settlement of the tribes. The authorities in Constantinople were too distant and too indifferent, and their representatives in Iraq too weak and too inconsistent to seriously challenge the powerful Shaikhs, who, therefore, wielded the real power in their respective areas. However, the vast opportunities for self-enrichment offered by the remoteness of Iraq from the Turkish capital soon made appointments there marketable assets for the Turkish governors. Collection of taxes from tribal areas fell to the highest bidder who had to pay for the costly presents necessary to retain his lucrative office. Under such circumstances the governors did little or nothing to promote irrigation and agriculture and provided no other inducement to the tribes to abandon their nomadic existence for a settled one. Instead, they considered the tribesmen to be savages. In the tribal mind, on the other hand, the Turkish rulers were unwanted foreign overlords.

Racially and socially there was nothing in common between the Arab tribes and their Turkish governors whose names, language, customs,

⁹Longrigg, *Four Centuries of Modern Iraq*, op. cit., pp. 290-291.

and very appearance were foreign. With their long past of desert life and freedom, their constant mobility, their traditional impatience under restraint, their patriarchal form of government, their desert code of ethics, and their different social organization, the tribes were opposed to any organized government imposed from outside their own group and preferred the tribal code to any court of justice. Other than accepting the Turkish desires by force, they could consider no alternative since none was given them, so they resisted. The tribes realized the consequences of settled life under the Turkish rule. They knew this would render them subject to high taxes, oppressive treatment, disrespect for themselves and their leaders, and loss of their freedom.

Several possible satisfactory solutions might have been used by the Turks to deal with this tribal problem, "but no government had bidden them (the nomads) cease to live thus, and live in the better way that we shall make possible for you."¹⁰ Sincere solution of the problem could have been accomplished by providing an alternative life which the nomads could accept and would prefer. In the words of one competent observer, who wrote with reference to the governors of the first half of the 19th century, but whose words may be applied with equal validity in all periods, "settle your tribes on the land; help them to irrigate by canals; give them security of hold; tax lightly and justly; allow no trespass against those you have settled; reward generously, punish constructively."¹¹ But no such plan was provided; instead hopeless, time-worn remedies and ancient methods were continued. "The result was to inflame tribal Iraq to worse conditions than any remembered, to drive cultivators

¹⁰Ibid., p. 289.

¹¹Ibid., p. 289.

back to the desert....and to reduce the country to the last weakness and misery.¹²

Finally, the neglect of irrigation systems, the periodic floods of the main rivers with silting and shifting of their courses, the danger and insecurity created by the tribes of Najd from the southwest, the Persians from the east, and the Kurds from the north, all contributed to the reversal of the settlement process in this period.

The Late Turkish Period, 1869-1916

After 1869 the general condition of Iraq was much better than before and for the first time the Turks seriously directed their attention to the importance of developing this country and its resources. The reform movement and its principles were first practically applied by Midhat Pasha, the Turkish governor of Iraq, 1869-1871. These included military and civil reforms, economic reforms, and reforms in the general system of administration. The policies toward the tribes were changed greatly from what they had been. Policy initiated during the first three years (1869-1871) by Midhat Pasha to settle the tribes on the land by constructive means through land distribution and strengthening the great tribal Shaikhs, was especially forward-looking as compared to that ineffective policy which had been followed previously for hundreds of years. Thus, the general tendency during the Late Turkish Period was toward detribalization of the great confederations and toward gradual tribal settlement. Many factors were responsible for this trend. The most important were: (1) a change in methods of administration, (2) the spread of security in the tribal areas, (3) the

¹²Ibid., p. 290.

introduction of new means of communication into the country, (4) the growth of new towns and the expansion of old ones, (5) the land policy followed by the Turks, and (6) the attempt of the Turks to Ottomanize the tribes.

One result of these and other circumstances was the reduction of the nomads from 35 per cent to 17 per cent of Iraq's total population between 1867 and 1905 (Table 11). Concurrently, the percentage of sedentary rural population increased from 41 to 59, while the percentage of urban dwellers remained the same. Significantly, the number of nomads apparently declined by some 57,000 while the total population was nearly doubling, rising from 1,280,000 in 1867 to 2,250,000 in 1905. These statistics, although approximate, provide a useful measure of the general tendency toward settlement and of the success of Turkish efforts to settle the nomads during the period being discussed.

TABLE 11
CHANGES IN NOMADIC-RURAL-URBAN COMPOSITION OF THE POPULATION
OF IRAQ, 1867-1962^a
(Population in Thousands)

Year	Total Population	Nomads		Rural		Urban	
		Percentage	Number	Percentage	Number	Percentage	Number
1867	1,280	35	450	41	525	24	310
1890	1,826	25	433	50	963	25	430
1905	2,250	17	393	59	1,324	24	533
1930	3,288	7	234	68	2,246	25	808
1947	4,816	5	250	57	2,702	38	1,864
1957	6,495	4 ^b	260	59	3,832	37	2,403
1962	6,743	4 ^c	250	60	4,046	36	2,447

^aFigures for the years 1867 to 1947 are from M. S. Hasan, "Growth and Structure of Iraq's Population, 1867-1947," Oxford University Institute of Statistics Bulletin, XX (1958), 344.

^bFood and Agriculture Organization of the United Nations, Mediterranean Development Project, Country Report, Iraq (Rome: By the Organization, 1959), p. 7.

^cAccording to an estimation by the Bedouins Sedenterization Committee of Iraq in 1962.

Change in Administration

During the first three centuries of Turkish control, the local administrators and governors were highly autocratic and their office tenure was mainly planned for their personal advantage. Moreover, there was no limit to their power, and no law providing appeal from their judgements. During the second half of the 19th century, however, Turkish theory and practice of government was profoundly changed. New laws, regulations, and administrative subdivisions, directed by a new class of officers, were introduced to Iraq, and complete control over tribal areas was substituted for mere collection of high taxes as the main objective.

Government authority was gradually extended to the tribal areas and assumed control over the countryside. Tribesmen became aware of the fact that laws and courts had been established which demanded universal compliance and were equally applied. In addition, the authorities became increasingly involved in controlling waters of the great canals to assure permanent settlement for those who already led a settled life, as well as to the nomads whom they hoped to attract.

The first program to settle the tribes was introduced by Midhat Pasha, as previously indicated, and to him is mainly due credit for the expansion of tribal settlement and security which followed during the last quarter of the 19th century. In 1911 the Turkish authorities again, "re-affirmed the policy of settling such tribes as were still nomads...with the least possible delay..."¹³ There is no doubt that there were important changes which influenced the settlement of the tribes both directly and indirectly.

¹³Philip W. Ireland, Iraq: A Study in Political Development (Oxford: The Alden Press, 1937), p. 91.

Security

Security along caravan routes and in tribal areas, provided since the days of Midhat Pasha, was highly significant in promoting the settlement process. Travelers of the caravan route of the Euphrates between Basra and Aleppo were supplied with armed guards. In addition, forts and guardposts were established along the Euphrates River at such places as Deyer Baker, Quim, Ana, Hit, and Ramadi, and in many other locations.¹⁴ Each of these forts contained soldiers supplied with horses. The contribution of these forts to tribal settlement stemmed from their functions. They gave security to the caravans, thereby encouraging trade and at the same time removing one of the nomads' means of livelihood. They protected the settled communities of the Euphrates against raids and soon expanded their activities to check tribal disturbances in adjacent areas. In fact, the increasing settlement of the Dulaim tribes at the end of the 19th century was mainly due to the "chain of police posts which was established to protect the road between Basra and Aleppo."¹⁵

The Impact of Communication

The development of new means of communication, notably river waterways and telegraph lines, also had far reaching influence on the Shaikhs, the tribes, and the settlement process. With establishment of its first telegraph line soon after the middle of the 19th century, Iraq had reserved its place in the world's telegraphic system. Externally, it was connected with India, Turkey, and Persia. Inadequate as the system was internally,

¹⁴Lady A. Blunt, Bedouin Tribes of the Euphrates (New York: Harper and Brothers, Publishers, 1879), pp. 113-114 and pp. 148-149.

¹⁵Stephen H. Longrigg, Iraq, 1900 to 1950 (London: Oxford University Press, 1953), p. 24.

its extension to most parts of the country rendered great service in assisting the administration, in modernizing the society, and in making it easier to control tribal areas and bring them under effective domination by the government.

The natural highways of Iraq for centuries had been its great rivers on which several types of sailing-boats, rafts, and skiffs were in use. But during the second half of the 19th century, steam navigation on the Tigris and the Euphrates rivers was introduced and became increasingly important in the economy of the country. In 1861 the Euphrates and Tigris Navigation Company was established. Several other foreign and domestic shipping companies and individual enterprises were also in operation by the end of the century.

The riverine tribes, particularly those of Shatt Al-Arab, the lower Tigris, and the lower Euphrates were first to be affected by the new river communication. The economic isolation of these and other tribes was broken and their subsistence economy was gradually replaced by a market-oriented one. The settled and semi-settled tribesmen, who were previously wholly isolated, became increasingly dependent upon the world market and sensitive to its attractions and fluctuations with the visits of grain-buying merchants, sales agents, and the steamship. Western manufactured goods and commodities penetrated into every tribal area, and progress and change followed. "Few of the foreign travelers of the nineties failed to comment on the social progress of the last quarter-century and on the greater penetration by government of the outlying regions."¹⁶

The traditional relationship between the tribesman and his Shaikh

¹⁶Ibid., p. 24.

also changed. "The Shaikh, who hitherto had neither the opportunity nor the desire to exploit the tribesmen, began in his new status as Tapu (or leaseholder of land) to view them in a new way as a source of profit. The tribal fallah became of greater worth to him than the fighter-tribesman."¹⁷ Moreover, the unsatisfied tribesman now had more freedom to move to towns and cities for jobs outside his tribal territory, or to give his service to another Shaikh or to the estates which belonged to absent landlords. This meant that big Shaikhs and other landlords began to compete with each other for the service of the tribesmen, because they found it profitable to take more grain from their cultivators in order to export.¹⁸ This high demand for the service of the tribesman had great bearing on encouraging settlement, sedentarization of the tribes, and the destruction of old tribal spirit. Land values rose, resulting in land grabbing practices, and the agricultural area was expanded.

The local market also became more accessible to the tribesman than before, and it became possible for him to ship his share of the produce to this market and to buy his own necessities. Previously, such an exchange occurred only through his Shaikh, and then on a very restricted scale if at all.¹⁹ This change, therefore, meant that the Shaikh's economic and military hold over his tribe was highly reduced.

The Influence of Towns

The expansion of old towns and the growth of new ones along the

¹⁷John Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960), p. 28.

¹⁸Doreen Warriner, Land Reform and Development in the Middle East (London: Oxford University, 1962), p. 136.

¹⁹Batatu, op. cit., p. 28.

rivers was largely associated with the development of river navigation. The river steamers' service made possible cheaper, quicker, and more regular transfer of goods between these towns and between them and the tribal areas. This was undoubtedly an important contribution to the 19th century expansion of Iraq's market. Several new towns and villages were founded and grew rapidly at river-steamer loading points. Such were Aziziya, Swayra, Nomania, Kut, Amara, Nasiriya, Ramadi, Suq Ash-Shuykh (or Suq), and others (Fig. 1). This brought not only economic opportunity, but also a measure of government control to adjacent tribal areas. In the second half of the 19th century these places and others became important centers of administrative areas and were, therefore, supplied with more police in order to maintain better control over nearby tribal districts. City merchants and policemen were able to penetrate these lands with much more courage and security than before.

Land Policy

Already before Midhat Pasha, the process of settlement had been going on spontaneously in spite of the failure of his predecessors to evolve plans for this, or to govern the tribes sympathetically. Thus, "evolution itself was very gradually settling the unsettled, tent by tent. Midhat accelerated these processes by fresh means which deserve careful attention. His contribution was an approach to the problem of settlement from a new side--that of land itself."²⁰

As previously indicated, when the tribes entered Iraq they had no concept of private ownership of land. Each tribe occupied a certain

²⁰Longrigg, *Four Centuries of Modern Iraq*, op. cit., p. 305.

territory (dira) which traditionally became communal land for its members. No tribe had the right to trespass on another's territory, and no tribe could be removed from its lands except by war. According to this concept of land, each individual tribesman had the same tribal right to it as the Shaikh himself. The practice of communal subsistence economy was another principle of the tribal landholding system, the land being used only for the needs of the tribe as a whole.

This idea of ownership, of course, came into immediate conflict with that held by the Turkish government.²¹ The Turkish belief was that, by right of conquest, all lands belonged to the state, and that the authorities had the right to grant the land to any person and for whatever purpose they wished. Theoretically, the actual occupants of this class of land (Miri Land) could hold it only by lease from the state. Absolute privately-owned lands (Mulk Land) were few and were restricted to properties in and near urban centers.

In 1858 a new land code issued by the Turkish authorities introduced a new class of land tenure. This provided a kind of private ownership, with holdings under its terms being known as Tapu Land. This system embodied the concept of Miri Land by providing for retention of the right of ultimate ownership by the state, but granted a legal right of possession to individuals. The primary objective of this code was to settle the tribes on the land and to convert them into cultivators, with the ultimate hope that detribalization would result from making the Shaikhs landholders and thereby strengthening their power over the tribal members.

The actual beneficiaries of free grants of large estates, therefore,

²¹An interesting discussion of this conflict is by Saleh Haider, "The Land and the Tribe in Iraq," Al-Abbath (Beirut), (1956), in Arabic, pp. 401-421.

were certain Shaikhs and a few other individuals, but not the tribesmen. This caused the holders of land to cling to deeds of feudal titles, and land in Iraq became subject to many claims. The changing hands of state land by sale and purchase among individuals, many of them from outside the tribes, had previously continued for a long time outside the bounds of official recognition by the government. Thus, "mere long possession led both villagers and the Shaikhs of wide tribal areas to claim their holdings as de facto 'Mulk'."²² However, the government's denial of such claims along with demands for the payment of high taxes and scant security of tenure, created uneasy conditions fatal to settlement.

The implications of this confusion of titles and claims to landholdings, and the problems it presented to the settlement process were highly important. The absence of secure and firm individual rights to land impeded all kinds of agricultural improvements. These are the basis of any sound, permanent settlement, and without them the tribesmen could hardly be induced to change from their pastoral nomadic life. In addition, the tribes themselves recognized that their settlement on the land would mean their subjecting themselves to different laws, and to a different way of life which included a stricter control of their activities. The price of such an alternative was loss of freedom and the hard, steady work of cultivating the land. To this no serious efforts had been made to attract them; no advantages had been made apparent. From it, the hard lot of the village cultivators, in addition to their traditional social characteristics and desert code, repelled them. This resulted in a wilderness of untilled land and wasted water resources.

²²Longrigg, *Four Centuries of Modern Iraq*, op. cit., p. 306.

The new approach Midhat began in 1869 was to sell tenancy rights (but not ownership) of small and large tracts of state land by auction on easy terms to all the holders of doubtful titles, to those villagers who cleaned a canal or cultivated a tract of land and thereby established a claim, and, most important because of end results, to the Shaikhs for their tribal areas. Small periodic payments were required of these holders to the state. Midhat intended thereby to reclaim large areas of land for cultivation.²³

This policy was formulated by the governor with the great hope of settling and controlling the tribes. The anti-government forces of the great Shaikhs were expected to dissipate as they changed the nature of their control over the tribesmen, and the tribes themselves were expected to weaken under the influence of settled life so that tribal spirit and organization would disappear. Moreover, it was anticipated that under the impact of settled life, many new interests, new relationships, and new viewpoints could be introduced to the tribes, and these would replace the old ones. As an agricultural community, both the Shaikhs and their people would become more accessible to the government. By reason of its control over land and water rights, taxes could be more easily collected and animals could no longer be driven off or crops as readily concealed. Thus, a great gain in state revenue would accompany increased productivity resulting from more intensive use of larger expanses of land.

This solution of the tribal problem by their detribalization and conversion to a sedentary farming society was faced by many difficulties. Some of these were technical in nature, while others were associated with

²³Ibid., p. 306.

the social background and expectations of the tribes to be benefited. The following were the most outstanding:

1. The land registration officials who were employed to carry out this program were, as usual, ignorant, very easily exposed to venality, and were inadequate and unqualified to perform their services in a proper manner. The opportunists were from both urban and tribal communities and were able to acquire large estates which were originally tribal territories.

2. The lack of cadastral survey of the lands that were distributed caused a great deal of confusion, created new disputes among claimants, and made it very difficult to define tribal areas.

3. Some tribes perceived the objective of their detribalization with the result that they refused land grants, preferring to remain loyal to their traditional way of life.

4. Other tribes mistrusted any improvement, however well intended, by the Turkish authorities from whom they had only received ill treatment during previous centuries. Some others, as is always true, were still too well satisfied with their own remoteness and traditional nomadic life to accept any change.

5. The fear of conscription was another significant factor which kept the tribes from accepting the obligations and requirements of settlement. The tribesmen realized that settlement would expose them more directly to this and other government regulations, and, above all, land grants meant in any case, rent to be paid.

6. Those who accepted land grants registered their holdings by the names of their Shaikhs. This procedure ended in destroying the old relationships between the Shaikhs and their tribes. It created a class of

feudal lords from among the great Shaikhs which has adversely influenced the economic development of the country ever since. In this, Iraq differed in no way from other Middle Eastern countries that passed through the same process. In Egypt, for example, a number of the estates of Bedouin Shaikhs were formed during the nineteenth century, when Muhammad Ali, the Turkish governor, adopted a method similiar to that of Midhat in Iraq in his effort to solve the Bedouin problem in Upper Egypt and to settle them on the land.²⁴ To achieve this end, an attractive bait was needed, and it was found in granting ownership rights over all land on which the Bedouin were settled. In practice, the patriarchal structure of Bedouin society and the power and authority wielded by the Shaikhs were such as to give title to the land to them, while the tribesmen became their tenants or hired laborers. A series of disputes over landownership broke out between the Shaikhs and the tribes; this was especially true in the case of Shaikh Ibrahim Al-Aidhi and his tribe.²⁵

7. In Iraq, at least in the beginning, "The majority of tribal leaders feared and shunned the new status; some were forestalled as purchasers by a town-dwelling speculator friendly with the Tapu officials; some gladly acquired rights, but in land far from their own people; others paid a first installment and withheld the rest."²⁶

Yet, in spite of all these difficulties the plan of Midhat Pasha bore notable results, and many tribes began to settle partially, if not

²⁴Gabriel Baer, "Some Aspects of Bedouin Sedentarization in 19th Century Egypt," Die Welt des Islams, V (1957, 84-98.

²⁵Gabriel Baer, A History of Landownership in Modern Egypt, 1800-1950 (London: Oxford University Press, 1962), pp. 56-60.

²⁶Longrigg, Four Centuries of Modern Iraq, op. cit., p. 307.

wholly, during and after his governorship. Sometimes a part of a tribe took up agricultural life while the others preserved their nomadic and pastoral life with no change. Tribes of the middle Euphrates, such as the Saadah of the Shmiyyah district, formed nuclei of settlement in their territory. It was during the days of Midhat Pasha, that tribes of Tamim north and northeast of Baghdad were given lands which since then have formed their home and farms. Shaikhs of Chaab and Muhaisin tribes of Shatt-Al-Arab, who possessed palm gardens and farm land in their areas, were given a firm security of settlement by land titles. Some Shaikhs of the great camel-raising tribes, such as Ibn Hadhal of Aneza, came to possess palm gardens and large strips of land on the upper Euphrates north of the city of Karbala, while Shaikh Farhan of the Shammar tribe was settled on his own lands, along the Tigris River south of the city of Mosul. Sections of the Jubur tribes along the Tigris River became highly engaged in agricultural occupations. Many leaders of the Kurdish tribes in the northern part of Iraq also had lands registered in their names.

But the greatest accomplishment of this land policy was the death blow it gave to the Sadun, ruling family of the Muntafiq tribes. Their Shaikh, Nasir Pasha, himself was at this time an officer in the Turkish government. His family took advantage of his position and made a rush to buy the rights to estates with vague title in their tribal area. Quarrels over ownership began among the members of this family on one hand and between them and their tribesmen on the other hand, but the seeds of settlement were sown in this area.

Sanniya Land System

A new land policy was introduced by Sultan Abdul-Hamid II in 1883

and continued until 1909. This was called the Sanniya Land System. The Sultan acquired by purchase, by reversion of land, and by gift large and highly fertile estates which became his personal property. The special office which administered the estates, under the Sultan's direct control launched a program of land reclamation and improvement by employing engineers secured from the Turkish army and began to utilize the land directly by employing landless tribesmen. At one time, this class of land formed about one-third of the total cultivated area in central and southern Iraq.²⁷ The estates were well managed and the condition of their cultivators was much better than that of ordinary tribesmen by reason of such factors as large production, being outside the Shaikhs control, and free advances of seed from the government.²⁸

It appears that this new land system contributed greatly to the detribalization and the settlement processes by encouraging the separation of tribesmen from their tribes in order to have a better standard of living under direct government supervision. In addition, the government tended to encourage the peaceful and more submissive tribes to settle and cultivate not only the newly reclaimed lands, but lands belonging to more powerful tribes which they could not dare to use without government support. The policy, therefore, had a profound effect in displacing some tribes by others, a condition which caused clashes between tribes in many instances, as among the Khazail, Fatla, and Bani Hasan. Such disputes were a result of the trend toward settlement of tribal peoples.

²⁷Saleh Haider, "The Economic Development of Iraq," Commerce (Baghdad), IX and X (1954), in Arabic, 59.

²⁸Warriner, op. cit., p. 144.

Ottomanization Policy

Another policy which was introduced by Midhat Pasha was that of Ottomanization. This was very closely associated with his land policy, and both were major factors in weakening the tribal spirit, destroying the great tribal confederations, and leading to tribal settlement. Midhat Pasha struck the right chord when he gave some of the more notable tribal Shaikhs official titles, "Pasha" and "Bey", thus recognizing them as civil administrative officials in the machinery of the Turkish government, as well as Shaikhs of their tribes. Nasir Pasha of the Muntafiq confederation and Fahad Pasha, and then Farhan Pasha, of the Shammar tribes are examples of tribal Shaikhs who accepted official titles. The Shaikhs thereby became directly responsible to the government to secure peace, to collect farm taxes, and to settle their tribes on the land.²⁹

To further encourage tribal settlement by enhancing the Shaikh's position, a yearly allowance was often granted in addition to the title of Pasha. Farhan, the Shaikh of Shammar, was given a sum of 3,000 British pounds annually to transform his nomads into "honest" peasants.³⁰ To protect his position with his tribe and to gain at the same time the government allowances and official title, this particular leader gathered together some hundred tribesmen. Some of these were from his own tribe, but the majority were outcasts of the weak tribes of the Tigris. With these tribesmen, the Shaikh made special arrangements to carry on some

²⁹The same method was followed by the Turkish government in controlling the Turkish nomadic tribes of southeastern Anatolia in the 19th century. See Wolfram Eberhard, "Nomads and Farmers in Southeastern Turkey," *Oriens*, VI (1953), 40-42.

³⁰Blunt, *op. cit.*, p. 376.

cultivation along the river valley.³¹ A similar allowance was made to Shaikh Nasir of the Muntafiq tribes, who was willing to settle his people.

Still another method used to solidify the Shaikh's position and to Ottomanize them, was the establishment of a school in Constantinople for the sons of tribal Shaikhs. The above mentioned Farhan of the Shammar and Nasir of the Muntafiq were both examples of those who had been chosen to attend this school and learn the Turkish language. This no doubt helps explain their willingness to cooperate with the government.

Detribalization and Settlement

The main goal of those who followed Midhat Pasha as governors in Iraq was the continued Ottomanizing of the tribes and breaking their unity whenever possible.³² By the end of the 19th century, therefore, detribalization had become the special phenomenon of this stage in the history of the great tribal leagues. In fact, by 1900 many tribes and tribal sections were largely disintegrated and settled. To put it in the words of Longrigg, "in other tribes camel-keeping was becoming more and more a symbol of Shaikhly respectability, less an economic necessity. The Dulaim settled from Ana to Falluja, the Zubaid tribes on the Tigris and round Hilla, the Shammar assumed its familiar contours of today, and the boundary lines of the settled could be ever more confidently drawn. Iraq by 1900 was a country of tribesmen fast losing the old loyalties, less and less able to revert to the old livelihood, attracting local rather than tribal relations, more dependent on order and control"³³

³¹Ibid., p. 376.

³²Ireland, op. cit., p. 92.

³³Longrigg, Four Centuries of Modern Iraq, op. cit., p. 309.

At the time of British Occupation of the southern part of Iraq, these processes of tribal decline and settlement were highly advanced. Englishmen were amazed to find a mixture of tribal fragments from several tribes utilizing lands belonging to absent non-tribal landlords and local Shaikhs. Numerous tribal sections had replaced the old military confederations. In 1918 in the Baghdad district alone about 1,186 sections and subsections which had separated from the main body of their more than one hundred independent tribes were counted.³⁴ This condition very clearly indicates the extent of tribal break up that had taken place by this time. This in turn accelerated the settlement process, because the authorities found it easier to deal with small and weak tribal sections than with large and strong tribal leagues and confederations.

There were several factors responsible for tribal decline. Some resulted from the land registration, the Sanniya Land System, and the Ottomanization policy; others were associated with the policy of the governors who came after Midhat; still others were due to technical changes and outside circumstances.

Tribes of the Lower Euphrates

The attempts at Ottomanization and the land grants which were intended to settle the tribes had one definite result--they split the Shaikhs and the tribes, as in the case of the Muntafiq and Shammar, into groups hostile to each other.

In the case of the Muntafiq tribes, the land grants and the Ottomanization policy not only destroyed the tribal confederation, but also created long lasting disputes between landlord and tenant. The ruling

³⁴Batatu, op. cit., p. 30.

family of Sadun became great landlords under Ottoman auspices. The Muntafiq tribesmen, who had seen their Shaikhs recently receive Turkish titles of office, were now reduced to a tenant condition on what was formally their own communal land and were asked to pay not only government taxes, but also rent to the newly created landlords (the Sadun family). The result was bitter strife, not only between the Saduns and their tenants, but also among members of the Sadun family themselves. The Sadun quarrels among themselves proved their ruin.

Moreover, the acceptance by Nasir and his son of appointment as Turkish officials and their acting as government agents to carry out the Ottomanization policy, created a great reaction among their family and the body of the tribe. The Sadun family was divided into those favoring Ottomanization on one hand and exponents of the old tribal principles on the other. Mansur and his son Sadun led the traditional school of hostility to the Turkish government and to any change in tribal life. The years 1880-1900 form a period of constant struggle between the two factions, wherein personal ambition and hatred joined with a clear issue of policy as causes of the strife. Between the two groups, the Turkish government fluctuated, sometimes favoring one side and sometimes the other.

Having become landlords and being supported by the power of the government, the Ottomanizers section of the Sadun family grew very wealthy on the rents from the land which was originally tribal territory. This rent was continuously collected from the tribes until the end of the 19th century, when the tribesmen acquired adequate numbers of modern rifles to support the refusal of many of them to pay. Moreover, the tribal feeling provoked revolt which was aided by the party of the landless Saduns who opposed the government. A period of bitter strife,

therefore, resulted between the tribesmen and landlords, who formerly had exercised only a Shaikhly position over this tribal confederation and had held none of the land as private property, and between tribesmen and the government. At this point the Saduns divided the opposition by renting the land to agents from the tribal sections who were independent of the sectional Shaikh. These agents, in turn, rented the land to the tribesmen and thus the Saduns indirectly collected land revenue until a few years before World War I when the tribesmen denied payment altogether.³⁵

The influence of all these forces had the effect of dividing the Muntafiq confederation into a number of hostile tribes, which disintegrated into a great number of independent smaller tribal sections. The fear of a strong, united Muntafiq was ended. The process of settlement was advancing.

Tribes of the Jezira

A similar condition existed in the case of the Shammar confederation. This was the result of the reaction of some of the tribal members against the Ottomanizing policies of Shaikh Farhan, who also obediently settled to cultivate land along the Tigris. The high desert spirit of the Shammar deeply resented this, and a leader Faris no sooner appeared among them, recalling to memory the former Shaikh that they had lost at the hands of the Turks, than he was joined by about half the tribe. In this way hostility and fighting developed between the two groups of this confederation. At the end of the 19th century

³⁵ Arab Bureau, Administration Report of the Muntafiq Division, 1919, published by the British Superintendent in Iraq (Calcutta: Government Printing, 1920), pp. 123-124.

and the beginning of the 20th, the Shammar had long passed their great days of strong unity.

Intermittent war with the Turkish Pasha of Mosul and a bitter struggle among the sons of Farhan Pasha, Al-Asi the eldest and Hamudi the youngest, were also important factors in the fragmentation of this confederation. The hostility between the brothers was created by the Turkish authorities. In 1911 the governor of Baghdad appointed the eldest son of Farhan as Shaikh of the Shammar and made him responsible for his fellow tribesmen to the government. The following year, 1912, when the governor of Baghdad was changed, the new governor deposed the former Shaikh and installed his youngest brother in the position. This unjustified action was the immediate cause of a long struggle between the brothers.³⁶ This is a good example of how the policy followed by the Turkish governors in dealing with the tribes often led to the rejection of the favors of the government and to outright opposition.

Tribes of the Middle Euphrates

The drying up of the waters of the Hilla branch of the Euphrates River and the initiation of the new land policy were significant factors contributing to the decline in power of the great tribal leagues of the middle Euphrates, notably the Khazail and others such as the Bani Huchaim, the Shibil, the Fatla, and the Bani Hasan.

In the case of the Khazail, the silting and the drying up of the Hilla branch along which they had much of their cultivated lands, contributed to their impoverishment and the dispersion of the tribal

³⁶Arab Bureau, Arab Tribes of Baghdad Wilayat, 1918, published by the British Superintendent in Iraq (Calcutta: Government Printing, 1919), pp. 154-155.

population. Since a considerable part of them were nomads only recently settled on the land, their response to the fluctuation of the river was predictable. Many of them reverted again to their former life as nomadic sheep herders.³⁷ Others migrated elsewhere and became tenants. Those who returned to nomadism found a Shaikh to reorganize them, but those who stayed behind were left without a Shaikh and bitter strife for the vacant leadership began. This condition made it more possible for government officials to interfere in the affairs of these tribes. In addition the possession of rifle fire power facilitated the tribal warfare and the struggle against the Turkish authorities.

The introduction of alien and hostile tribes such as the Fatla and Bani Hasan to occupy most of the Khazail district, which land was claimed by the Turkish authorities as belonging to the Sanniya Land System, caused a long struggle between these obedient and submissive tribes and the Khazail. Thus, the land system helped the weaker tribes, who accepted Turkish support, to settle at the expense of the strong tribes, and at the same time helped to break the tribal confederations into smaller, less powerful elements.

The Turks also attracted to the Khazail district large numbers of the semi-tribal Saadah. The Saadah soon brought landless tribesmen from other groups to work on their large estates, and in this way helped the Turks accelerate the process of detribalization. The new landholders who displaced the Khazail came to possess vast tracts of extremely fertile land. Holdings were often so large that the owners were unable to look after them, and being uncertain of government policy, which was to lease uncultivated areas to someone else, they commonly parceled their

³⁷Ibid., p. 112.

lands among heads of related families for cultivation. Hence, there arose in the former Khazail district a new demand for cultivators with consequent progress toward settlement.

Another aspect of Turkish policy toward the Khazail tribes at the close of the 19th century was the elimination of their distinguished Shaikhs. Shaikh Dirb was poisoned by Turkish command at Najaf, and one of his grandsons was also poisoned in Mosul.³⁸ Acts such as these contributed to the further disintegration of the Khazail league.

These diverse factors facilitated the gradual settlement of the middle Euphrates tribes. Their records for the late 19th century show the increasing settlement of their shepherd sections, and the gradual introduction of Turkish tax collectors.³⁹ This expansion of the ability of the Turkish authorities to tax the tribes was partly made possible by the need to regulate the waters of the Euphrates for irrigation. Since the government was the only conceivable controller of the river, its help was urgently needed, and the tribesmen gave up some of their traditional rights to gain this.

Tribes of the Lower Tigris

On the lower Tigris, the end of the 19th century also shows tribal disintegration and a high tendency toward settlement. Here, in addition to the weak marsh tribes and the new non-tribal town populations, the dominant groups were those of the camel-breeding, grain-growing Bani Lam and the rice-cultivating Albu Muhammad. The Bani Lam had already lost

³⁸Ibid., p. 112.

³⁹Longrigg, Iraq, 1900 to 1950, op. cit., p. 25.

its domination over the Albu Muhammad, and both engaged in continuing inter-tribal struggles.

The fortune of these tribes, however, was not as disastrous as was that of the tribes of the middle Euphrates. Their welfare ultimately rested primarily on the government assignment to them of lands. This became increasingly important during this period when stronger government control over river navigation prevented the tribes from plundering the traffic and thus deprived them of an important source of income.

After 1883 the agricultural land in this region was included within the Sanniya Land System. When the government became unable to use its large estates, a new arrangement followed. Parcels of lands called mugatas were rented directly to the Shaikhs of the tribes for an annual cash payment. The concession of fertile and productive lands was let to the highest bidder, and there was keen rivalry. This meant that lands became subject to periodical redistribution between members of the ruling families. By this method, the Turks succeeded in weakening the position of the Shaikhs by encouraging competition for the possession of lands and by favoring one Shaikh over the others.

Punitive expeditions by the Turkish army against the Bani Lam and the death of their paramount Shaikh were also important factors contributing to the breakup of this tribe. The position of the Albu Muhammad was weakened by rivalries and feuds within its ruling house.

Tribes of the Middle Tigris

The middle Tigris tribal groups of the Zubaid and Rabia were fully settled and their days of strong tribal unity were in the past by the

end of the 19th century.⁴⁰ In addition, the migration of a large part of the Zubaid to another district had greatly influenced that group. Other tribes such as the Jubur of the upper Tigris and those of the Diyala region were in a similar condition.

Tribes of the Western Desert

The desire of the Turkish governors of this period to detribalize and to break the unity of the great confederations through land grants was clearly apparent in the case of the Aneza and Shammar tribes. The grant of a parcel of land to the Shaikh of the Aneza, which formerly belonged to a tribal section of Shammar, added new fuel to the ancient feuds between these tribes of the Western Desert. Feuds which broke out among different sections of Aneza were more transitory. These were often promoted by the Turks whose purpose was "divide and rule." In many instances the Turkish governors encouraged and gave to one section the right to graze areas which were already occupied by another. Moreover, the paramount Shaikh of this tribe, who had formerly been given the title of Pasha and had become a government officer, was now imprisoned.

The Dhafir tribes in the southwestern section of the Western Desert, lived on continuing bad terms with the nomads of Najd and Kuwait. They were weakened by fighting the invasions of these tribes and by the competition for Shaikhly position among their ruling family.

Tribes of the Mountains

In the Kurdish tribal region of north and northeastern Iraq, the Turkish control and the settlement process varied from place to place

⁴⁰Ibid., p. 26.

according to the strength of the tribes and their nearness or remoteness from central authority. In the foothills, northeast of the Tigris River, government control and tribal settlement were greatest, while they reached a vanishing point in the mountains to the north. After the middle of the century, however, detribalization and the decline of powerful tribal principalities was more rapid and the tendency toward settled life became apparent, especially in the case of sections of the Hamawand, the Shuan, the Dizai, the Barwari, and other tribes. In the case of these tribes the Turks followed the same policy as elsewhere in Iraq. Lands were largely registered in the names of the ruling families and not in the names of individual tribesmen. Land problems resulted. In addition, in 1885 the Turkish government established a special policy which applied only to the Kurdish tribes. Parties of Kurdish horsemen recruited from many different tribes were employed to secure peace and loyalty to the Sultan, especially along the northern frontier of the country.

Factors Discouraging the Settlement Process, 1869-1916

As we have already seen, the settling of the tribes was going on gradually, often being accelerated or again hindered by government measures. At the same time, there were important physical and social factors which slowed the process. Some of these could have been prevented by the authorities of that period, or at least their influence could have been lessened. The most significant obstacles were:

1. The periodic floods and droughts along the two rivers; the variation in amount of water available was an important handicap facing the settlers, causing tribal dislocation from time to time, and the reversion of many tribesmen to nomadism. Basic solutions to these prob-

lems would be the provision of protection against spring flood, storage of excess water for reuse in the dry season, and the establishment of dams to maintain certain water levels. Turkish activities in this respect were rare. The new settlers were left without help from the authorities. They were forced to establish or repair temporary canal-heads of brushwood, and to increase their productivity by other primitive devices which sometimes caused the ruin of fertile land and the waste of water resources.

2. The settlers were discouraged by the primitive cultivation methods and the low standard of living available to them. There was no improvement in the quality and quantity of the limited crops which they cultivated because no one showed them new techniques or conservation measures. Even if the settled tribesman had been assisted by such measures, he probably would not have appreciated them because his social background tended to cause him to reject innovation and sudden change.

3. The lack of security, lack of firm right to the land, high taxation and high rent, and the prevalence of a crop-sharing system which provided a low level of living to the cultivator all contributed to the slowness of settlement. The motive to cultivate land was reduced by the combined grasping of the Shaikhs and the authorities. No Shaikh or landlord was expected to provide capital, guidance, or cooperation in order to improve the land's productivity and the settler's condition. The plundering of physical and human resources were their only perceived objectives.

4. Aggression on settled neighbors and plundering by those who were still nomads, along with severe annual invasions of the locust, were a great menace to crops and threatened the settler's security.

5. With the exception of modern river steamers, transportation

was primitive. Roads were mere tracks, suitable only for camel, donkey, or mule traffic and often impossible to use during the rainy seasons.

"As a result areas remote from the rivers had difficulty in disposing of agricultural surplus. In some of these areas, the sole economic means of using excess wheat, for example, was to use it as fuel."⁴¹ This condition, of course, destroyed any incentive for increasing permanent settlement in such areas.

⁴¹Kathleen M. Langley, The Industrialization of Iraq (Cambridge: Harvard University Press, 1961), p. 112.

CHAPTER V

TRIBAL POLICY AND SETTLEMENT DURING THE
BRITISH PERIOD, 1916-1932

This period includes the time of the British Occupation (1916-1921) and of the Mandate (1921-1932). Since these periods have only political significance and show no important changes in British tribal policy, this chapter will deal with the period of 1916-1932 as one unit. British control represents progress in some respects and retardation in others, not only for the tribes, but also for the whole people of Iraq.

With the exception of the modification introduced by the Turkish administration in the latter part of the nineteenth century, which cannot be entirely denied as a factor in subsequent progress, Iraq had not experienced for long centuries such a measure of public security as the British brought with them, and security is a pre-condition of settled and progressive life. It is also true that the new British ideas and skills in colonial administration, in irrigation, in agriculture, and in other aspects of life helped Iraq and directed it toward a new path. It is also clear, however, that British policy was not inspired alone by the desire to introduce security or progress to backward tribes and people. Rather, this was incidental to the pursuit of other basic ends, which had to do primarily with exploitation of Iraq's rich resources of oil, its agricultural products, and its geographical location on the route to India and Southeast Asia. There was no doubt that for the British the benefits to

their homeland and their empire as a whole came first, and this could not but have in some ways slowed the progress of Iraq and its people. These same ends dictated the British tribal policy and their revival of the power of the tribal Shaikhs.

There were many factors which influenced tribal life and the settlement process during this period. The most important among these were:

(1) the British policy concerning the tribes, (2) the development of traditional type irrigation, (3) the introduction of water-pumps for irrigation, (4) the development of agriculture, (5) the land policy, (6) the development of transportation, and (7) the influence of the oil industry.

British Tribal Policy

Control over the tribes and the establishment of law and order were considered by the British to be an essential step towards development of the country and its resources. The policy followed was, in fact, an adaptation of the Robert Sandeman system which had been so successfully applied in Baluchistan in dealing with the restless Pathan and Baluchi tribes on the Northwestern Frontier of India. When Sandeman first instituted his tribal policy in Baluchistan about 1875,¹ he found the tribal organization in a condition of rapid decay and the power of the tribal chiefs highly diminished. His policy was, therefore, based on the following principles: (1) preservation and strengthening of the ancient tribal system and organization, (2) encouraging self-government in tribal areas, or the so-called "control from within," (3) civilizing the tribes, and (4) strengthening the tribal chiefs and enhancing their positions by various means.

¹Zaki Saleh, Introduction to the Study of Contemporary Iraq (Baghdad: Al-Rabita Press, 1953), in Arabic, p. 10.

In developing this policy, Sandeman believed that no administrator could be successful in dealing with the tribes unless he worked through the tribes themselves. He also recognized the danger of trying to impose a purely Western administration on the tribes. His idea was to build up an administration which would be based on the traditional tribal organization and, at the same time, conform in principle to Western standards.² The keystone of his tribal administration, therefore, was a council of the elders of the tribes. Through this council he granted tribal allowances and privileges. Through the elders he also exacted levies and responsibility for law and peace in their tribal areas and made regulations giving them the means by which these could be put into force. To rebuild the weakened tribal organization, Sandeman worked through the more competent chiefs and tribal headmen, who in turn were advised, assisted, and supervised by British political officers. He realized that the chiefs' personal influence and knowledge would be a great factor for success in dealing with lawless tribes and in preserving the ancient tribal system. Thus, mutual assistance between the British government and the tribal chiefs was an essential element of this policy. If the headmen were expected to support the British administrators, the British, in turn, had to be in a position to support the headmen.

To enforce this policy properly and in order to give adequate backing to the tribal leaders, "control from within" was necessary.³ Having gained this control it would be possible to accomplish necessary plans whether for roads, irrigation, or any other development project which would

²C. E. Bruce, "The Sandeman Policy as Applied to Tribal Problems of Today," Journal of Royal Central Asian Society, XIX (1932), 52.

³Ibid., p. 53.

bring some of the blessings of civilization within the reach of the tribesmen. Without "control from within", it was believed that these measures would be impossible to achieve.

When this policy and its principles were formulated and applied in Baluchistan, its justifications were the restoring of law and order in the tribal areas, the civilizing of the tribes by peaceful penetration at their request and the improving of their economic welfare.

Sandeman's policy subsequently became the fashion for many colonial administrators in dealing with tribes in their areas. In the Sudan, for instance, Lord Kitchener applied these principles to the native tribes for the British. South Africa was another place where the British took proper measures to preserve the authority of the native leaders and to restore the ancient tribal solidarity and discipline. The same was true in East Africa, in Aden, and in other parts of the British Empire. Similar measures were adopted by the French colonial administrators, such as Lyautey in Morocco and the French officers dealing with the native tribes in Indo-China.⁴

When the British took over in Iraq the condition of the tribes was much the same as had been that of those in Baluchistan. The British therefore gave particular consideration to establishing control over the tribal areas by making use of the Shaikhs. Because of the lack of a suitable British staff and the restless nature of the tribes, the British concluded that direct governmental control over the tribes was contrary to their immediate purpose, if not impossible to maintain. Their efforts, therefore, were directed toward a full application of Sandeman's principles

⁴Ibid., pp. 60-61.

especially by the British officers Henry Dobbs and H. R. P. Dickson. For example, "A single leading Shaikh was recognized in every tribe, as in the Suq Ash-Shuykh district where H. R. P. Dickson, Assistant Political Officer, reported that he managed during 1916-1917, more or less to get the power into the hands of one Shaikh in the case of each of the 22 Suq tribes."⁵ All means of solidifying the power of the Shaikhs were then undertaken and regulations for settling tribal disputes were established. Furthermore, extensive studies of the political, social, and economic conditions of the tribes were, at the same time, secretly conducted by well organized British intelligence operatives under the supervision of Gertrude Bell.

The Position of the Shaikhs

The British administrators had the Turkish policy and its limitations in mind when they started to deal with the Iraqi tribes. Not only did they impress the tribes with their strength, but also they adopted strict policies in dealing with them. The key to enforcement of these policies was strengthening the Shaikhs' positions to get their help in controlling tribal areas and towns. As a British report in 1918 put it, "Shaikhs...certainly without government support and backing could do nothing...our policy has been to force (the tribes) to acknowledge their head Shaikhs, refusing to deal with individuals or sections except through the head Shaikh."⁶

⁵Philip W. Ireland, Iraq: A Study in Political Development (Oxford: The Alden Press, 1937), p. 94.

⁶Quoted by William R. Polk, "Generations, Classes and Politics, 1952-1959," Tibor Kerekes (ed.), The Arab Middle East and Muslim Africa (New York: Frederick A. Praeger, Publishers, 1961), p. 109.

Among the several measures taken to enhance the Shaikhs' power were the following devices. The paramount Shaikhs were made responsible for law and order in their tribal areas and for settling all tribal disputes. To support this delegation of authority, The Tribal Disputes Regulation was put into effect in 1916, after British political officers had sought the opinions of the Shaikhs of tribes and villages concerning its content. This regulation provided that in cases of disputes or crimes where either party was a tribesman, the decision would be reached by a tribal court (majlis) according to tribal customs. The purpose of this procedure was to enhance tribal customs by an elaborated Western administrative system.

Since the powerless tribesman did not dare to disobey his Shaikh, who was the only one who could arrive at the real truth of things in his territory, it was apparent that the easiest way of collecting revenue from him was through the Shaikh. Therefore, the Shaikhs were made tax agents in their tribal areas. In order to make the difficult task worthwhile, these dignitaries were permitted to keep a sufficient share of the revenue they collected. In addition, most of the Shaikhs were exempted from both land and income taxes. "Such a scheme, incidentally, fitted effectively into the general system of control of the tribes."⁷

The dignity of the Shaikh's position was enhanced by making possible his participation with the British in administration of the country on both local and national levels. On the local level, the Shaikh was appointed as the government representative. Table 12 shows names and local administrative positions of 21 tribal Shaikhs and other leaders appointed by the British during the period from 1916 to 1920.

⁷Henry A. Foster, The Making of Modern Iraq (Norman: University of Oklahoma Press, 1935), p. 66.

TABLE 12

TRIBAL SHAIKHS AND HEADS APPOINTED BY THE BRITISH AS ADMINISTRATIVE
OFFICERS DURING THE PERIOD, 1916-1920^a

Name of Shaikh or Head	Administrative Position	Year Appointed
Haj Athir	Mudir ^b Nahia ^c of Hartha	1916
Shaikh Farhud Al-Mukhash	Mudir Nahia of Akika	1916
Hamid Al-Khamish	Mudir Nahia of Al-Khamisha	1916
Shaikh Hamid Al-Mir Jahfir	Mudir Nahia of Al-Makina	1916
Shaikh Hamuda Al-Bashira	Mudir Nahia of Al-Hussan	1916
Said Abdul Hussain	Mudir Nahia of Ech-Chibayish	1917
Abdul Karim Al-Hamdani	Assistant of British Political Officer in Shatra	1918
Hamid Al-Suz	Mudir Nahia of Al-Karidi	1918
Ibrahim Al-Habib	Mudir Nahia of Diwaniya	1918
Shaikh Munishid Al-Habib	Mudir Nahia of Al-Batha	1918
Khadhim Al-Hamadini	Assistant of British Political Officer in Suq Ash-Shuykh	1918
Abdul Latif Al-Atrachi	Assistant of British Political Officer in Aziziya and Swayra	1918
Kathim Al-Hamdani	Assistant of British Political Officer in Suq Ash-Shuykh and Albu Saleh	1918
Salman Al-Nasir Allah	Mudir Nahia of Albu Saleh	1918
Taha Al-Zaidha	Mudir Nahia of Shatra	1918
Shaikh Akbashi Al-Said	Mudir Nahia of Qurna	1918
Shaikh Alwan Sadun	Agent to the British Govern- ment in Kufa	1918
Shaikh Salim Al-Kayhan	Mudir Nahia of Ech-Chiliayish	1919
Sajban Al-Ali	Chief of Tribal Guards in Nasiriya	1919
Shaikh Abdul Karim	Mudir Nahia of Kara Tabba	1920
Shaikh Ali Al-Assia	Mudir Nahia of Belled	1920

^aCompiled from Abdul J. Al-Tahir, The Tribes and Politics (Baghdad: Zahra Press, 1958), in Arabic, pp. 9-10.

^bMudir means head administrator.

^cNahia is an administrative subdivision of a province.

On the national level, under the former Turkish rule the Shaikhs had not been privileged to be represented in the only Turkish majlis or governing assembly, that of 1914. Under the British, however, a plan was made in 1920 to have 30 tribal members among those elected to the National Assembly. Of these, 20 were representatives of the 20 largest tribes, and the other 10 were from the smaller tribes. In this connection Gertrude Bell said, "In the course of four general elections held under the Turks no tribesman . . . has been returned . . . An Arab National Government could not succeed unless it ultimately contrived to associate the tribesmen with its endeavors."⁸ Moreover, when plans were made under British auspices for the convening of the Iraqi Constituent Assembly in 1924, the Shaikhs were allotted a considerable number of seats; out of 99 members, 41 were Shaikhs.⁹ These Shaikhs "were insistent on introducing clauses into the Constitution which will provide for full and even more extensive use of the Tribal Disputes Regulation and for the non-alienation of government lands cultivated by themselves."¹⁰

Economic means by which the Shaikhly position was solidified, including changes in land tenure and systems of subsidies and cash gifts, were established by the British. Monthly allowances and presents of cash were especially the privilege of the Shaikhs of the nomadic tribes, although some religious dignitaries of certain cities and notable leaders of settled peoples were not neglected in this respect. These subsidies

⁸Lady Bell (ed.), The Letters of Gertrude Bell (New York: Boni and Liveright Publishers, 1928) Vol. II, p. 579.

⁹John Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960) p. 63.

¹⁰Ibid., p. 63.

were considered rewards for services rendered to the British, particularly for keeping peace and order both in the towns and in the countryside. This was part of British policy from the beginning of their occupation.

In this connection Gertrude Bell wrote, "For the first few days after the capture of the city (Baghdad) the office of the chief political officer was crowded with visitors of all degrees . . . As for the Shaikhs, there came first those of the small neighboring tribes to pay their respect . . . All alike had been nonsubmissive to the Turkish government . . . They were entertained at the guest house of the government, given presents . . ., and sent back with injunctions to keep the peace and busy themselves with their cultivation."¹¹

Again in the words of another writer, "No figures for the whole country are on hand except for the year 1926 when subsidies bore no comparison with the fat rewards of earlier days. In that year they amounted only to 3.96 lakhs (29,700 dinars).¹² Ajil Al-Yawar, paramount shaikh of the nomadic Shammar alone received 1.68 lakhs (12,600 dinars) and Fahad Ibn Hadhdhal of the nomadic Aniza (or Aneza) 1.44 lakhs (10,800 dinars) as a reward for "services rendered" and so that they would 'protect' the overland routes from their own rapacity."¹³ As stated in a previous chapter, starting in the latter part of the Turkish Period the receipt of gifts was considered by many Shaikhs as their natural right. The British did not try to change this.

The Shaikhs of the Aneza and especially of the Shammar were also

¹¹Great Britain, Review of the Civil Administration of Mesopotamia (London: Stationery Office, 1920), p. 33.

¹²Each Iraqi dinar equals one British pound.

¹³Batatu, op. cit., p. 74.

given the right by the British authorities to collect tribute on motorcars and caravans using the roads between Iraq and Syria. Even individual tribesmen in the area were not allowed to take their purchases from towns without written permission from their Shaikhs and payment of a fixed fee per camel load.

Those Shaikhs who were privileged with large agricultural estates were also the main beneficiaries of tax reduction and rents afforded by the British. The most favored among these were the great and loyal Shaikhs of the central and southern provinces of the country, such as Amara and Kut. "It is well known," said the British political officer of Amara in 1918, "That Shaikhs are now rolling in wealth owing to the cheapness of their farm rents under our administration. We have pursued a policy of generosity hitherto which has probably repaid us by inducing the Shaikhs to help us to the best of their ability. But where we reduce, (land rent) the Shaikhs do not always reduce for their sirkals (agents) and fallahs."¹⁴ The same political officer also indicated that, "...if the government took now, instead of the fees they take from the Shaikhs, the total amount collected by the Shaikhs from the sub-farmers, it would be richer by thousands of pounds."¹⁵

The British went to a considerable length to enhance the influence of the Shaikhs by direct support. For example, in 1919 when part of the Albu Sultan tribe opposed the authority of their appointed head, Addi Al-Jaryan, a British force of fifty soldiers headed by a British political officer marched against the dissident tribesmen, destroyed their village, and seized some of their cattle to a value of about \$1,500. In another

¹⁴Great Britain, Reports of Administration for 1918 (London: Stationery Office, 1918), p. 335.

¹⁵Ibid., p. 336.

case the British employed armored cars and airplanes against a tribal section of Shammar when they defied the authority of Shaikh Agil Al-Yawar in 1926.

The British were also in the habit of appointing Shaikhs to those tribes who were either without a recognized strong leader or did not have one at all. When they found the Jubur tribes with a vacant Shaikhly position, for example, three Shaikhs were appointed and became representatives of the British authorities in their tribal areas.¹⁶

From the political and social standpoints, the application of the Sandeman system and other British efforts to restore and strengthen tribal organization in Iraq meant the imposition of feudalism on the rural population. This was contrary to the principles of evolution towards progressive political and social institutions, but it did facilitate British control of the country. By depending on the Shaikh's power and by the application of the Tribal Disputes Regulation, the British succeeded in maintaining law and order in tribal areas. On the other hand, the arbitrary techniques used for restoration of the Shaikhly position led the Shaikhs to abuse their authority and use it for the advancement of their own interests. This not only paved the way for the tribal insurrection of 1920 against both the Shaikhs and the British, but also was a continuing source of dissatisfaction with British rule among the common people. In addition, the national spirit of great Shaikhs was destroyed and their loyalty turned against the national interest. Thus, the great Shaikhs and land-owning dignitaries of Amara, Diwaniya, Hilla, Kut, and Karbala provinces, who were dependent on the British for possession of lands and political position, supported all

¹⁶Abdul J. Al-Tahir, The Tribes and Politics (Baghdad: Zahra Press, 1958), in Arabic, p. 103.

signed declarations for continued British control in Iraq at the end of the Occupation Period.¹⁷ The very men who should have emerged as leaders of an independent nation failed to do so because of their vested interest under the British.

Security

An important contribution of the British to the acceleration of the process of tribal settlement was the security which they introduced both to the settled tribes and to those who were still nomads. In addition to the measures included in the Tribal Disputes Regulation, which were designed to control the tribes in their tribal lands, the British followed several other lines to maintain order in the rural areas. Tribal blood feuds which at one time were exploited by the Turkish governors, were now discouraged wherever possible. For example, the age-long enmities and endless fights among the tribes of Tamim, Khazraj, and Dulaim were brought to an end in 1920 by the British intervention. Intertribal meetings were encouraged and formed to solve disputes, and since then harmony has prevailed among these tribes.¹⁸

Another measure of security followed in tribal areas during the British Occupation was the establishment of tribal guards, or shabana. These were tribesmen who were chosen through their Shaikhs, and paid by the local political officers for performing a host of miscellaneous services in the settled tribal districts, including the maintenance of order and the protection of communication lines. By the end of 1916 there were some 500

¹⁷Ireland, op. cit., pp. 166-169.

¹⁸Mohammed F. Jamali, The New Iraq: Its Problem of Bedouin Education (New York: Columbia University, Bureau of Publications, 1934), p. 122.

tribal guards in the British occupied territory of the country.¹⁹ But later these people were found to be abusing their positions, and because of this they became extremely hated by both tribesmen and city dwellers. The Iraq Levies, organized in divisions under British officers, were consequently established in 1920.

The security measures taken by the British during the Occupation and the Mandate periods also extended to the nomadic tribes in the Western Desert and the Jezira. Before 1922, however, no strong governmental machinery for control of these areas had been developed, although a number of Bedouin tribesmen of the Dhafir, Aneza, and Shammar were made responsible for security and order during the Occupation Period. In addition, among the tribes themselves, the weaker ones had to pay protection fees to the stronger according to special arrangements. For example, the nomadic tribe of Shammar formerly received such protection money from the weaker tribes of the Jubur, Albu Badran, Albu Hamad, and other tribes and villages of the upper Tigris. The Aneza tribe followed the same practice with the riverine tribes of the Euphrates, such as the shepherd sections of the Dulaim and Ghazalat.

Furthermore, not until 1922 did the Iraqi government have a fixed frontier with Najd. Therefore, it was the concern of both Iraqi and British authorities early in the Mandate Period to rectify this deficiency and to put an end to the raiding activities between the tribes of Najd and those of Iraq. As a consequence, the Treaty of Mohammara was signed in May, 1922, by British, Najd, and Iraqi representatives. This treaty included articles

¹⁹Foster, op. cit., p. 208.

in which the nationality of the main nomadic tribes of the frontier area of both Iraq and Najd were defined, and the position of the boundary line between the two countries was established. The treaty also gave the right of any tribe belonging to one country to use pasture land in the other upon payment of a grazing fee.²⁰ In actual practice the Iraqi authorities have not required the payment of that fee since then.

After having agreed upon the boundary and the nationality of the tribes, the other task was to put an end to the tribal raidings from both sides which had increasingly threatened the peace of the desert and the settled life of both countries in the past. In 1925, a second treaty called, the Bahra Agreement was signed by Iraq and Najd, with the help of the British authorities. In this pact a number of issues concerning grazing rights and many administrative problems associated with the seasonal migration of the nomadic tribes between the two countries were settled. In addition, the agreement provided that a special tribunal should hold periodic meetings to study intertribal frictions, to fix responsibility for raids, and to assess damages and losses caused by them. Migration of the tribes across the boundary was prohibited, except when necessary for grazing and in this case a special permit was required.²¹

In the autumn of 1926 an order was issued forbidding all kinds of tribal raids.²² But occasional raiding activities continued between the nomads of Iraq and Najd. As a result, stronger measures were taken by the

²⁰ Great Britain, Colonial Office, Special Report on the Progress of Iraq, 1920-1931 (London: Stationary Office, 1931), p. 35.

²¹ Ibid., p. 35.

²² Of the same sort as the foregoing agreement was that made between the governments of Najd and of Trans-Jordan, the Hadda Agreement of 1925.

British and the Iraqi government to prevent the raids. A most effective role was played by the Royal Air Force. During the years 1924 to 1930, this group assisted by the Iraqi army, was able to secure peace in the Western Desert.²³ In addition, several desert police posts, such as those at the villages of Rutba, Salman, Busaiya, and other smaller stations were organized and subsequently had a profound effect in maintaining order in the area (Pl. X, Fig. 1). On the other hand, these measures created an economic problem for the nomadic tribes. Raiding among these tribes themselves and against the settled tribes, which, especially in time of drought had represented an important means of income, became nearly impossible. The protection fees received by the stronger tribes from the weaker ones were stripped out of their hands. A tendency toward semi-settled life was the result. This was further encouraged by the safety offered by desert police posts which acted as the nuclei for settlements. These in some cases have grown into sizeable villages (Pl. X, Fig. 1).

Land Policy

The British had inherited enormous difficulties concerning landownership and taxation, which lay at the heart of the problem of tribal settlement. Records pertaining to titles and landed property were almost nonexistent. The few land titles were incorrect and indefinite. Moreover, it was found that many deeds had been acquired in manners contrary to law, or were worded with extreme vagueness. Extensive tracts were reported at a small acreage to avoid the larger registration fee. Areas were usually never mentioned. This confused picture of landownership and the lack of

²³C. Reginald, "The Iraq-Najd Frontier," Journal of Royal Central Asian Society, XVII (1930), 84.

security of rights in lands handicapped real progress toward permanent tribal settlement, as previously mentioned. The execution of agricultural development programs caused great difficulties with respect to tax collection and the elimination of land disputes. Moreover, the land registration policy of Midhat Pasha, referred to earlier, was largely responsible for the concentration of big estates, formed from tribal lands, in the hands of the Shaikhs and of townsmen, at the expense of the tribes.

In the last quarter of the 19th century, the breaking up of the tribal system, the opening of world and domestic markets for Iraq's agricultural produce, the greater political security and technical change, and the increasing use of water-pumps gave the Shaikhs strong motives for grabbing tribal lands as their own property, thereby converting the tribesmen into tenants. Possession of large estates became the highest measure of social value for the Shaikhs. "A shaikh without land came to mean in effect a shaikh without a tribe...."²⁴ A very clear and vivid description of one method used by the Shaikhs to acquire land during the late 19th century and continuing into the 20th century was provided by a British political officer who pointed out that, "A common form of land-grabbing was to build towers in a strategic position on the land coveted. In many cases these towers were erected in a night, full preparations were made beforehand, all materials were conveyed to the site, and in the morning the temporary owner of the land upon which the tower had been built found himself the victim of an aggressive neighbour. The next step was either an attempt to drive off the invader, ending up probably by bringing all the tribes (from)round and about into the fight or a retirement from the holding until a favorable opportunity occurred for downing the invader and getting

²⁴Batatu, op. cit., p. 104.

back the land!"²⁵

During the British Period and up to 1958 this practice was a distinguishing feature of the tribal areas in Iraq. Shaikhs, government representatives, dignitaries, and aggressive towns people participated. An example of this is the Shaikh of the Shuweilat, whose tribe in 1919 owned a tract of 37,000 acres along the Gharraf Canal. By using the above mentioned method, the Shaikh, within a period of a few decades, gained personal control of 583,000 acres of land. He thus had control of 620,000 acres of land either directly as the owner or indirectly as Shaikh.²⁶

In addition, during the early Occupation Period the British adopted the already existing land registration policy of the Turks, and they also accepted the Turkish theory of government ownership of land. By the end of 1919, before the Mandate Period, five land registration offices were in operation in the Baghdad district and others were opened in other parts of the country as in Mosul and Basra.. But the main thing was that the activities in these offices were not for the benefit of the individual tribesman, because lands were registered for the Shaikhs of the tribes who were employed to support the British authorities. It was common practice for these authorities to issue, from time to time, special documents concerning particular districts which enabled the Shaikhs to register large tracts of tribal land in their names, a matter which deprived the tribesmen of their rights to the land, and brought firm support to the feudal system of the country.

After the national upheaval of 1920, and during the Mandate Period,

²⁵Great Britain, Reports of Administration for 1918, op. cit., p. 362.

²⁶Batatu, op. cit., p. 106.

the British policy and attitude toward the tribes remained basically the same, but with some modifications.²⁷ The changes were intended to weaken the position of tribal Shaikhs who were against the British during the revolution, while giving easy access to land possession by those who were in favor of their policy. Thus, in 1922, Shaikh Khaiyun of the Abudah came to hold a large area of state land in the south free of rent. The Shaikh of Albu Muhammad was also helped by the British to obtain considerable areas of land in the Amara district.

During the Mandate the British also initiated a policy to encourage lesser tribal heads and individual tribesmen to contact government authorities in order to express their problems. Moreover, certain large estates were parcelled and given to individual tribesmen, especially in Amara and Diwaniya. Small properties in newly reclaimed lands, as along the Yusufiya Canal, were likewise distributed to landless tribesmen. In other districts, Shaikhs who had left their tribes to reside in the cities were no longer supported by the British, since these Shaikhs had lost their usefulness. The authorities also began to respect the leases of landholdings of state lands, except when the holder refused to pay the required taxes or intended to disturb the public security. The rule to renew the rent of land every year was also applied very strictly during the Mandate Period. This procedure helped considerably to stabilize landholdings and to avoid a great deal of confusion in landownership.

In spite of all these late remedies, land disputes, illegal possession of holdings, trespassing on neighbor's territory, and acquisition of

²⁷Abdul S. Alwan, Studies in Agrarian Reform with Special Reference to Iraq (Baghdad: Al-Aswaq El-Tijariya Press, 1961), in Arabic, pp. 135-136.

large estates by great Shaikhs and town merchants continued and remained unsolved problems after the British Period. The accompanying Table 13 reflects only a sample of the consequences of tribal disputes and the Shaikh's greed for land, as measured by loss of human lives.

The complexity of land problems was intensified by the lack, for the greater part of the country, of cadastral surveys, although in some tribal districts air photography and mapping were carried out very rapidly, such as in Hilla province.

Moreover, the introduction of water-pumps by individual tribal Shaikhs, townsmen, Saiyids (religious men of tribes), and by partnership of a Shaikh with a townsman and/or a Saiyid during the Mandate Period aggravated the problem of land in tribal areas (Table 14). Landownership disputes, therefore, occurred between the tribesmen, the Shaikhs, the townsmen, and the Saiyids. Theoretically, the greater agricultural productivity which accompanied the use of pumps should have benefited both the pump owners and tribal cultivators. Practically, it increased the power of the Shaikhs, created a new class of absentee landlords (townsmen), enhanced the process of turning tribal land into privately-owned property, and gradually contributed to the poverty of the settlers. Due to the settlers' lack of market experience, they became subject to easy exploitation by their Shaikhs and other pump owners who were in a better bargaining position. The peasant had to buy his food, clothing and other supplies, through his Shaikh, from the townsmen pump owners; consequently, he became more and more in debt to both.

TABLE 13

TRIBAL DISPUTES OVER POSSESSION OF LAND AND NUMBER OF DEAD
TRIBESMEN FOR THE PERIOD, 1922 - 1952^a

Year	Tribes Involved	Number of Dead
1922	Within the Dulaim	22
1922	Within Bani Khaikan	20
1922	Within Tai	20
1922	Albu Duhaidah and Albu Ardi	9
1922	Within Zaiyad	2
1922	Within Mularrah	27
1922	Albu Humaidi, Albu Hamdan, and Mushairajah . . .	15
1922	Within Tamim	8
1925	Within Zaiyad	20
1926	Within Fetla	10
1932	Al-Afalijah and Al-Amarihaun	12
1939	Al-Azairij and Al-Bazzum	100
1940	Within Adh-Dahawalim	100
1941	Al-Hatim and Al-Mana	49 killed 100 injured
1942	Zaiyad and Shibil and Zaiyad	25
1943	Adh-Dhawalim and Albu Jbash	4
1945	Al-Karshiyyun and Al-Hamman	9
1945	Within Al-Yasin	tens
1946	Matyut and Shammar	144 killed 93 injured
1947	Al-Arid and Al-Jayash	15
1947	At-Tawalih and Albu Hasan	5
1948	Within Al-Sudan	4
1948	Within Tamim	3
1949	Within Aneza	tens
1949	Shuweilat and Ukail	?
1949	Within Al-Aid	?
1949	Within Bani Juhaun	30
1949	Within Adh-Dhawalim	18
1951	Ubaid and Al-Sayih	18
1952	Juwaibir and Al-Tawbah	15
1952	Azza and Ubaid	100

^aJohn Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958"
(Unpublished Ph. D. dissertation, Department of Political Science, Har-
vard University, 1960), p. 108.

TABLE 14

OWNERSHIP OF WATER-PUMPS IN AMARA PROVINCE IN 1929^a

Owner	Number of Water-Pumps
Shaikh	61
Townsmen	30
Saiyid	9
Shaikh-Townsmen Partnership	3
Shaikh-Saiyid Partnership	2
Total	105

^aJohn Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960), p. 143.

During the depression years of 1930 to 1932, when the pump owners found it more difficult to meet their obligations to the pump importers, they increased economic pressure on the settlers who were finally forced to give them whatever share they had in land. Table 15 shows very clearly that three classes of landholders were sharing tribal lands in the province of Amara. The introduction of townsmen to landownership of the Amara province, as shown in this table, was through the installation of water-pumps.

TABLE 15

NUMBER AND SOCIAL STATUS OF LANDHOLDERS IN AMARA PROVINCE FOR THE YEARS, 1918-1951^a

Year	Number	Social Status		
		Shaikhs	Saiyids	Townsmen
1918	33	29	3	1
1921	43	37	5	1
1929	81	55	8	18
1944	181	(148) ^b		33
1951	177	(144) ^b		33

^aJohn Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960), p. 145.

^bIncludes both Shaikhs and Saiyids.

Another example from the province of Amara which indicates the concentration of large landholdings in the hands of a few Shaikhs, as reflected by government revenue (land tax) demanded from them in 1929, is shown in Table 16. This reveals that only five Shaikhs out of the 81 landholders paid 61 per cent of the land revenue of the province.

TABLE 16
DISTRIBUTION OF LANDHOLDINGS IN AMARA AS REFLECTED
BY LAND REVENUE DEMANDED IN 1929^a

Revenue Demanded (in dollars) ^b	Number of Landholders	Social Status			Per Cent of Total Revenue
		Shaikh	Saiyid	Townsman	
Less than 200	8	3		5	22
201-400	3	2		1	
401-1,000	13	6	1	6	
1,001-2,000	14	6	5	3	
2,001-4,000	21	17	2	2	
4,001-6,000	7	6		1	17
6,001-8,000	6	6			
12,000-18,000	4	4			
60,000-80,000	5	5			61
Total	81	55	8	18	100

^aJohn Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph.D. dissertation, Department of Political Science, Harvard University, 1960), p. 139.

^bRevenue demanded was given in rupees (the monetary unit of India). One rupee equals about 20 U. S. cents.

Irrigation

British administrators, while primarily focusing their attention on the achievement of political stability, did initiate some measures which encouraged the process of settlement. They found it desirable to proceed with several irrigation projects and the development of agriculture. This British interest was mainly to provide enough food for their

troops, meet the increasing market for agricultural products in Great Britain,²⁸ and finally to promote the pacification and settlement of the tribal population.²⁹ It appears, therefore, that although the British measures in this respect were only partly designed to settle the tribes, the process of settlement was incidentally encouraged.

For the purpose of extending the agricultural area of Iraq, the Department of Irrigation was organized in 1917 and continued in existence until 1931. During this period it accomplished certain projects which included flood prevention, the completing of irrigation canals left unfinished by the Turks, the construction of new canals and the improvement of old ones, and the undertaking of some drainage work. The most important of these activities was the reconstruction of the Hiniya Canal which branches from the Euphrates below the city of Musaiyib. This project was done by employing some of the local tribesmen under the direction of their leaders, but it was sponsored by the British political officer at Hilla. Some other projects on the Euphrates River that were carried out included the Bani Hassan, Hussainiya, and Saklawiya canals. These waterways were gradually extended and brought under control, with a consequent reduction in the wastage of water resources and an improvement of the soil conditions of the areas irrigated by them. On the Hilla Canal two regulators were installed at its lower reaches in 1928, while the embankments of the Euphrates River in its middle course were progressively strengthened thereby reducing the flood hazard.

Irrigation improvement was then extended to other areas on the

²⁸Bell (ed.), op. cit., p. 497.

²⁹Great Britain, Colonial Office, Special Report on the Progress of Iraq, 1920-1931, op. cit., p. 178.

Tigris and Diyala rivers. Along the Tigris, reconstruction of the Yusufiya, the Latifiya, and the Iskandariya canals resulted in an increase in the area irrigated by them from 103,500 to 200,000 acres between 1920 and 1930.³⁰ In addition, a regulator was built on the Gharraf Canal to control its water level and to revive the former channel of the river. In 1928, control of the principal canals of the Diyala River was accomplished and with this came more careful distribution of their water supply.

One result of these various projects was that many tribal sections were attracted to settle permanently along the canals, causing extension of the settled area and an increase in agricultural productivity. For example, the extension of the Saklawiya Canal attracted many sections of the Dulaim tribes from the banks of the Euphrates as well as from the desert. The Abu Ghraib Canal south of Falluja was settled and cultivated by Zuba and Tamim tribesmen. Moreover, these improvements in irrigation also created resettlement movements among some peoples. For instance, "the canalization for the Shatra area caused tribesmen such as the Khafaja, formerly scattered in other provinces, to reassemble on their own land."³¹

Introduction of Water-Pumps

The availability of oil as fuel which developed during the Mandate Period and the encouragement of the Iraqi government and the British army, caused a great expansion in lift irrigation by water-pumps after 1921. The Iraqi government stimulated the use of pumps by granting tax exemptions on crops produced by this method in 1926, and in 1927 grants of

³⁰Ibid., pp. 183-185.

³¹Ibid., p. 159.

state lands were provided on favorable terms to those who were willing to use pumps. Another ramification of this policy was that customs duties on pumps were removed. As a result, during the years from 1921 to 1929 the number of water-pumps and the total area served by them increased rapidly (Table 17).

TABLE 17
PUMP DEVELOPMENT OF RIVERINE LANDS FOR THE PERIOD
FROM 1921-1929^a

Year	Total Number of Pumps	Index of Increase	Average Horse Power	Approximate Area Served (in Sq. Kms.)	Index of Increase
1921	143	100	10.8	190	100
1922	169	118	11.9	250	132
1923	179	125	12.0	270	142
1924	221	155	14.2	390	206
1925	407	284	18.4	940	495
1926	673	471	18.8	1,580	832
1927	892	624	23.0	2,560	1,350
1928	1,481	1,036	25.0	4,670	2,460
1929	2,031	1,420	29.1	7,380	3,883

^aErnest Dawson, An Inquiry into Land Tenure and Related Questions, Report to the Iraq Government (Letchworth: Garden City Press, 1931).

In 1921, there were 143 pumps on the Iraqi rivers, irrigating an area of 190 square kilometers; by 1929, there were over 2,000 pumps, irrigating about 7,400 square kilometers. By the end of 1930 the number of such pumps reached more than 2,500, representing a total investment of over two million British pounds and irrigating an area of about 9,000 square kilometers. The introduction of the pumps enhanced the opportunity for greater agricultural productivity, both on old cultivated land and on

newly irrigated areas which could not be supplied water by methods used previously.

The installation of the pumps had a great influence on the life of many tribes. Pump owners were mainly tribal Shaikh and town merchants. Some of the more important and more enlightened Shaikhs purchased them and started to cultivate the riverine areas. Widespread settlement on such land was the result and several tribal sections of the nomads and the semi-nomads changed their ancient mode of life and took up agriculture. Tribal sections of Shammar, Rabia, and Bani Lam are good examples. As a consequence, great tracts of land along the rivers, especially in the central and southern parts of Iraq, which had been largely used by semi-nomadic tribes as grazing land, became regularly-cultivated private property by the end of 1932. Moreover, the availability of arable land and the high prices of grain created a big demand for more agricultural labor, so the pump owners competed in employing tribesmen to carry out the agricultural work. Relative to this fact the British Government Report to the Council of the League of Nations for the year 1928 pointed out that, "There is no abatement in the number of applications for pump permits, since up to the present large profits have been made. The supply of cultivators for these lands is inadequate to meet the demand, with the result that pump owners have to compete for labor by means of large cash advances."³² Thus, the use of water-pumps made agriculture more attractive work to the tribesmen at the beginning and induced them to a more permanent life, but later on it contributed to their impoverishment and created disputes about land-ownership in tribal areas, as was indicated earlier.

³²Great Britain, Colonial Office, Report to the Council of the League of Nations on the Administration of Iraq (London: Stationery Office, 1928), p. 153.

Development of Agriculture

The British efforts in Iraq included some agricultural undertakings. These were primarily to supply their army with enough food. This was indicated by the fact that out of the total production of 125,000 tons of grain in 1918, about 60,000 were furnished to the British troops.³³ A Department of Agriculture was established to increase productivity, but unfortunately its budget was small. From 1921 to 1929 its expenditures were only one per cent of the total government spending. An additional 0.7 per cent of the total was used on a locust prevention campaign during the years from 1925 to 1929. The efforts which this department made in the field of agriculture, therefore, were limited and largely experimental. Nevertheless, it encouraged and stimulated the tribal tendency toward settlement by certain measures. These included: (1) the establishment of agricultural research stations where methods for improving seed crops were applied, (2) the carrying on of serious activities to overcome plant insects and diseases, (3) the introduction of agricultural education and the spreading of knowledge of modern farming methods, (4) the creation of a veterinary service, and (5) the supplying of free seeds and advice for the improvement of crop and fodder production to settlers through military units.

The British paid particular attention to the stimulation of cotton cultivation. Experiments were carried out under military supervision near Baghdad and in some other areas of the country. Encouragement by the British Cotton Growers Association and the Department of Agriculture, along with the high demand for raw cotton after the First World War, promoted

³³Foster, op. cit., p. 210.

greater production of the fiber for a period of time. The result was that the cotton export in bales of 400 lbs. increased from 300 in 1922 to 5,200 in 1928.³⁴

The grains of Iraq had been of low quality. By the breeding and selection of superior grades of wheat and barley, and by the introduction of new methods of cultivation, the quality was highly improved and became more acceptable in both the domestic and the world markets. Between 1926 and 1927, the export of wheat and barley was increased from 90,000 tons to 181,000 tons, but during 1930 and 1931 this export was reduced to about 100,000 tons annually.³⁵

Dairy and grass farms were established on a limited scale early in 1918, and some livestock of foreign breeds, especially sheep, was introduced. Moreover, several foreign enterprises such as the Latifiya Estate Project, a British plantation company, and the Mosul Farm Company were launched on ambitious agricultural development programs, but without much success. Nevertheless, they stimulated interest in settlement and better agricultural techniques among some of the tribes.

Development of Transportation

Before 1914 carriages, carts, and pack animals, mainly camels, were the only means of overland transportation used in Iraq. During the British Occupation and Mandate periods, new roads were opened and old earth routes were maintained and improved, such as those between Kut and Amara, Kut and Nasiriya, Baghdad and Ramadi, Baghdad and Basra, and others. Railroad

³⁴Great Britain, Colonial Office, Special Report on the Progress of Iraq, 1920-1931, op. cit., p. 195.

³⁵Ibid., p. 209.

lines, especially those between Baghdad and Basra, Baghdad and Mosul, Baghdad and Kut, and certain secondary branches were also constructed, chiefly for military purposes. There was no civilian motor transport in the country until 1920. During the years from 1927 to 1934, the total number of trucks and passenger cars increased from 2,496 to 5,028 (Table 18).

TABLE 18
NUMBER OF LICENSED CARS IN IRAQ FOR THE YEARS FROM
1927-1934^a

Year	No. of Passenger Cars	No. of Trucks	Total
1927	2,059	437	2,496
1928	2,663	575	3,238
1929	2,949	841	3,790
1930	2,944	797	3,741
1931	3,242	593	3,835
1932	2,979	683	3,662
1933	3,100	727	3,827
1934	4,009	1,019	5,028

^aSaid Hamada, The Economic System of Iraq (Beirut: The American Press, 1938), in Arabic, p. 308.

The expansion of the transportation system and the introduction of new means of transport during the British Occupation and Mandate periods, and during the Independence Period which followed, deeply influenced the life of the tribes in Iraq. The tribal areas were brought within easier reach of government authorities, and travel in them became an everyday matter. But in addition to the regulating effect on the tribes, the transportation lines provided new employment opportunities for both town-dwellers and tribesmen. Moreover, the tribesmen themselves now used automobiles

and trains in their travel to settled areas in the country. One result of this improved contact between the tribes and the settled areas was a high degree of cultural diffusion among the tribes. In addition, the fact that the motor cars and railroads to a great extent took the place of camel transport, caused a reduction of camel prices on the domestic market. This forced some of the nomads to take up an agricultural life; others turned to sheep breeding.

Competition between the traditional camel transport and modern transportation means, also developed after the First World War in the other countries of the Middle East. These had been the main markets for Iraqi camels prior to the War,³⁶ the camel being used for transportation, as meat for local consumption, especially in Egypt, and as riding animals by the army, particularly in Syria, Egypt, and Palestine.³⁷ As a result of the introduction of more modern means of transport the Middle Eastern market for Iraqi camels was much smaller after the War and the well-being of the tribes dependent on camel breeding was adversely affected.

In addition, the rising standard of living in these countries after the War caused a reduction in the demand for camels as a source of meat. Although there are no figures available to indicate the share of Iraq's camels in the Middle East market either before or after World War I, figures presented in Table 19 clearly indicates that the Egyptian market for Middle Eastern camels declined sharply after the War. The average annual import of camels by Egypt during the years 1902 to 1912 amounted to

³⁶Taha Al-Hashimi, Detailed Geography of Iraq (Baghdad: Dar Al-Salam Press, 1930), in Arabic, p. 387.

³⁷Eldon Rutter, "The Habitability of the Arabian Desert," Geographical Journal, LXXVI (1930), 514.

45,847 head, while from 1922 to 1937 it was only 26,566 head. This was a reduction of about 58 per cent after the War.

TABLE 19
NUMBER OF CAMELS IMPORTED BY EGYPT FOR THE
YEARS 1902-1937^a

Year	Number of Camels
1902	41,198
1903	46,640
1904	57,324
1910	34,317
1911	46,619
1912	48,982
1922	23,291
1935	22,628
1936	35,554
1937	24,792

^aCompiled from E. Epstein, "The Economic Situation of the Trans-Jordan Tribes," Journal of Royal Central Asian Society, XXVI (1939), 179.

Furthermore, the average price of an imported camel on the Egyptian market dropped from 12.5 British pounds in 1922 to about 5.6 in 1935. It is, therefore, safe to conclude that the share of the Iraqi camels and their prices in the Egyptian and the Middle Eastern markets were reduced greatly after the War. This caused a decline in interest in camel breeding among the Bedouin tribes. For example, Ibn Hadhal, the great Shaikh of the Aneza tribe who had sold 12,000 head of camels in the year 1927, subsequently turned to the practice of dry farming of wheat and sheep raising in the Western Desert of Iraq. Among the Aneza tribe, this trend has been continued (Pl. IX, Fig. 2). It was reported that in 1952 there were about 280,000 camels owned by the nomadic tribes of Iraq.³⁸ In 1963

³⁸International Bank for Reconstruction and Development, The Economic Development of Iraq (Baltimore: The Johns Hopkins Press, 1952), p. 147.

the number was estimated at only 150,000 head.³⁹ In fact, since 1925 Iraq's Bedouin tribes have become more and more interested in sheep breeding rather than camel breeding.

An outstanding example which illustrates the influence of modern means of transportation on the reduction in prices of camels and the undermining of the nomads' economic base is provided by the decline of the Syrian Desert Route. This was usually called the "Great Caravan Route" and was a short-cut between the Mediterranean Sea and the Persian Gulf on the way from Europe to India and Southeast Asia. For centuries this route, and especially its branch along the Euphrates River from Basra to Aleppo and on to Damascus, was preferred by the European bound caravan merchants and travelers to the long sea passage around the Cape of Good Hope, or the way via the Red Sea and Egypt before the opening of the Suez Canal. "Of the three great routes which have been the main thoroughfares between Europe and Asia -- namely the Red Sea, the Euphrates Valley, and the Caspian -- the Euphrates is the most ancient and most direct. From remotest antiquity it had been the main channel by which the riches of the East flowed to the West."⁴⁰

For centuries, large and small trade caravans, organized by European merchants, made round trips across the Syrian Desert, especially from Basra to Damascus or Aleppo, from Basra to Baghdad, Mosul, and on to Aleppo or Damascus, and from Basra to Baghdad and then west toward Aleppo or Damascus. In addition to the laden caravans, there were also unladen

³⁹Ali Al-Rawi, "The Natural Pastures of Iraq," Report submitted to the Bedouin Sedentarization Committee, Baghdad, 1963, in Arabic, p. 1. (Mimeographed).

⁴⁰Douglas Carruthers (ed.), The Desert Route to India (London: Cambridge University Press, 1929), introduction page.

caravans of camels which were organized in Basra or Baghdad to cross the desert in order to be marketed in Syria, Palestine, and Egypt.

The magnitude of some of these caravans, as measured by laden and unladen numbers of camels, is very clearly revealed in Table 20. Individual merchants also traveled this route with small caravans ranging from 80 to 200 camels.

TABLE 20

A SAMPLE OF THE NUMBER OF CAMELS WHICH CROSSED THE SYRIAN DESERT FOR COMMERCIAL TRANSPORT AND MARKETING, AS REFLECTED BY TRAVELERS' DESCRIPTIONS IN THE 18th CENTURY^a

Traveler	Route followed	Number of Camels
Barker	Baghdad to Aleppo	5,000 laden
Eldred	Baghdad to Aleppo	4,000 laden
Plaisted	Basra to Aleppo	3,000 (400 of which were unladen), plus 1,000 men
Plaisted	Basra to Aleppo	2,000 unladen
Beawes	Unknown	2,000 (400 of which were laden)
Bernardino	Unknown	1,400 laden, plus 800 unladen
Carmichael	Unknown	1,200 (600 of which were laden) guarded by 240 Arabs
Tavernier	Basra to Aleppo	600, plus 400 men
Teixeira	Unknown	150 laden

^aCompiled from Douglas Carruthers, "The Great Desert Caravan Route, Aleppo to Basra," Geographical Journal, LII (1918), 166.

Both trade and passenger camel caravans were also operating over the Arabian Desert routes from Basra, Najaf, and Baghdad to Mecca; the number of camels ranged from 4,000 to 20,000 for each caravan, and had to

be purchased and organized continuously for this purpose.⁴¹ Trade between Iraq and Iran was also conducted by camel caravans. Iraq was, therefore, the focus of caravan routes radiating west, east, south, and north.

The contribution of the caravans to the economy of the nomadic tribes of Iraq was highly important. The tribes benefited in several ways. For one, the nomads looked upon the desert as their own territory, and this feeling not only led them to refuse to pay taxes to the authorities, but caused them to exact tolls as protection money from all travelers and caravans, commercial or otherwise, crossing the desert through their tribal areas. Even modern motor transport caravans, for their own security, had to subsidize the nomadic tribes of Western Iraq for a short time.

The system of tribute which was applied by the nomads to the commercial caravans was very complicated and passed through several stages of development. During the 16th and 17th centuries, each caravan leader had to make a special personal arrangement concerning the safety of his caravan with the individual Shaikhs of the tribes, whenever his caravan set out to cross their territories. The amounts paid for the guarantee of protection varied according to the size of the caravan, the value of its merchandise, and the personal prestige of its leader among the tribes. Some principal Shaikhs claimed the right to charge from three-quarters of a piaster to one and a half piasters⁴² for every kind of load, regardless of its nature. But, unfortunately for the merchants, there were usually

⁴¹Christine P. Grant, The Syrian Desert (New York: The MacMillan Co., 1938), p. 229. For additional information concerning the importance of the Syrian Desert, see Christine P. Grant, "Tracks Across the Wilderness," Geographic Magazine, I (1935), 47-56 and 245-255; D. F. Harford, "Old Caravan Roads and Overland Routes in Syria, Arabia, and Mesopotamia," Nineteenth Century (London), (1918), 97-113.

⁴²A piaster is Turkish money and each equals five English shillings.

a number of Shaikhs encountered more or less accidentally, who also considered themselves entitled to exact a transit fee.⁴³ Some other Shaikhs charged five piasters per camel-load of high value goods and a lower toll on every other kind of load. The Shaikh of Ana, during the 17th century, charged a toll of six piasters on every single load.⁴⁴ Likewise, every village and rest-house (khan or caravanserai) had a fixed rate of charge which usually averaged two and a half piasters per load, in addition to a special tax on both men and animals.

During the 18th century and until the end of the 19th century, a regular understanding was established between the merchants of the caravans and the nomadic tribes through the Agails.⁴⁵ According to this new arrangement, a sum of money was to be paid to the Shaikhs for the pass of a caravan upon demand through their respective tribal areas. The amount was usually based on the number of camels in the proposed caravan without regard to the kind of goods.

At the close of the 19th century and during the early years of the 20th still another system of tribal subsidy by the commercial caravans was evolved. It was called the "brotherhood" system. According to this

⁴³Grant, *The Syrian Desert*, op. cit., p. 155.

⁴⁴Ibid., p. 154.

⁴⁵The Agail is an Arab tribe which was interested in the carrying of desert trade, and providing guards and leaders, as well as camels, which were purchased from various nomadic tribes of Western Iraq, for the commercial caravans. Their kind has been found in Arabia, Syria, Egypt and Iraq. At present, many of the Agails of Iraq are residents of Baghdad; and more of them live in the village of Zubair near Basra. The present occupation of many is the bartering of rice, coffee, sugar, and other commodities for camels, sheep, and other products with the nomadic tribes. Each individual Agail has his special tribe which he usually visits every year for this purpose. See Carl R. Raswan, Black Tents of Arabia (Boston: Little, Brown, and Co., 1935), pp. 135-136.

method, a certain member of one tribe adopted a brother from another tribe. The caravan guide who was usually secured from among the nomads would adopt a brother from each tribe or village on the way which his caravan intended to pass. This brother, upon receiving a sum of money, would conduct the caravan in person to the next tribal area, where he would give up his protection duty to another brother, and so on.

The nomadic tribes also looked upon the pilgrims' caravans to Mecca as a source of tribute. Passage money was claimed by the Aneza tribal sections from the Syrian and the Iraqi pilgrims bound for Mecca. For example, it has been reported that one of these sections took a yearly tribute of about 1,000 British pounds.⁴⁶ Besides passage money, the tribes also received payment from the pilgrims' caravans for the use of well water supplies in the respective tribal areas along the route.

In the past, camels were the only means of transportation across the Syrian and the Arabian deserts, and a large number were needed for this purpose, as was indicated previously (see Table 20). As a result, a second way in which the caravan trade benefited the nomads was from the sale and hire of their camels to the merchants and other travelers along the desert routes. In addition, a large number of tribesmen of the Aneza and Shammar customarily hired out their services and acted as guides for the caravans. The nomads were in fact the middlemen and carriers in this desert trade. Furthermore, in spite of all the arrangements made to insure the safe passage of caravans across the desert, nomadic desert tribes, as well as the settled ones along the Euphrates, habitually directed their raiding activities against the caravans. In this respect, the riverine tribes constituted a stronger source of danger to the caravans than did

⁴⁶Grant, *The Syrian Desert*, op. cit., p. 228.

the nomadic tribes.

Still another benefit was the costly gifts which apparently were always given to the tribal Shaikhs by caravan leaders. These gifts included pieces of expensive clothing, strain gold or silver brocade, saddles ornamented with silver and gold, etc. The gifts varied in value according to the rank of the Shaikh.

The camel has more recently become a minor means of transportation because of the development of the Suez Canal, railroads, highways, and air routes. The Baghdad Railroad linking Iraq with Syria and Turkey through the northern section of the Syrian Desert, had been started building in 1914 and was completed and used in stages before the entire route was finished in 1940. By 1908 the Hejaz Railroad was extended between Damascus and Medina in Saudi Arabia. Pilgrims from Iraq and Iran used the Hejaz Railroad from Damascus after using the overland motor route between Iraq and Syria. This railroad operated for about six years before it was disconnected in 1914 as a result of the War.

After the Suez Canal was opened in 1869, the importance of the Syrian Desert Route as a great camel caravan highway between the Persian Gulf and the Mediterranean Sea declined rapidly, and it was brought to an end after the First World War when several trans-desert motor companies and private freight transport enterprises were established. After 1924 individual truck drivers and several Iraqi, Syrian, and Jordanian freight companies began to operate across the Syrian Desert continuously. In 1930 two large transport companies, namely the Nairn Transport Company and the Eastern Transport Company, were inaugurated to carry both passengers and freight between Iraq and the Levant. Moreover, the old caravan route which connected Baghdad, Karbala, and Najaf with Hail and Mecca was opened to motor traffic in 1930, and the caravans' function was thereby

replaced. The most modern of all desert transport services are the air lines. Since 1929 air lines have linked the large cities of Iraq, such as Baghdad, Mosul, and Basra with Damascus, Aleppo, Beirut, Medina, and Mecca.

Thus, the development of modern transportation facilities, largely subsequent to the First World War, almost entirely displaced the camel as the only transportation means across the desert, and thereby reduced camel prices and deprived the nomads of all the other sources of income which had been associated with the caravans. Although the Nairn Transport Company and the Eastern Transport Company employed some of the Bedouins as guides for their drivers in crossing the deserts, this was only for a short period. The former Company, for example, used Bedouin guides for one and a half years, subsidizing the entire group for about 2,000 British pounds a year. Moreover, dromedary postal service across the Syrian Desert, which for several centuries was carried on by the nomads, and especially the Aneza tribesmen,⁴⁷ came to belong solely to the air and motor services after the First World War. Therefore, after the War, the nomads' economic condition declined greatly. This economic problem accelerated the nomads' tendency toward settlement by forcing some of them to change their interest from camel to sheep breeding, others to engage in alternative occupations, especially crop cultivation. Large numbers of the Jubur tribesmen, for instance, sold their camels after the War and turned to agriculture along the eastern bank of the Tigris north of Baghdad.

Many old caravan towns and villages, such as Palmyra (Tedmor) and

⁴⁷Stephen H. Longrigg, Iraq, 1900 to 1950 (London: Oxford University Press, 1953), p. 34.

other oases in the middle of the Syrian Desert and along its northern margin, which had been dependent on desert travel and trade for their existence as resting places and exchange centers, declined or even became ruins after the disappearance of the caravans.

The Influence of Oil

The development of the oil industry in Iraq started in 1926 when the Iraq Petroleum Company (IPC) opened the Karkuk fields. The construction of pipelines to convey Karkuk oil to the Mediterranean was the industry's primary objective during the years from 1926 to 1934. The two double lines built from Karkuk ran parallel across the Tigris to the Euphrates, and bifurcated at Haditha, 148 miles away. From Haditha, the northern double line (pipes 12 inches and 16 inches in diameter) ran by way of Syria and Lebanon to Tripoli; the southern one of the same size ran across Trans-Jordan to Haifa 620 miles distant (Fig. 11).⁴⁸ The western part of the southern line from station K-3 to Haifa and its stations have been completely closed down since 1948 because of the trouble with Israel (Pl. X, Fig. 2).

In its earliest development, the oil industry set in motion a series of economic and social forces that helped to revise desert standards and accelerate the process of settlement of the tribes which associated with its projects. The magnitude of the construction of pipelines and the ultimate increase of the production of the oil fields obviously created large demands for labor from which the tribes benefited tremendously. From the beginning, the Iraq Petroleum Company realized that all the

⁴⁸In 1956 a 30 inch line was laid paralleling the northern double line between Karkuk and the Syrian coast.

districts through which the pipelines passed were identified with various tribal groups such as Ubaid, Jubur Shammam, Dulaim, especially Albu Mahal and Albu Nimir, and the Amarat and Dahamsha of Aneza. Claims of these tribes to recognition and to benefit from the Company's operations in their respective areas were considered. The different areas of tribal influence were demarcated by the Company and within their limits the tribes were given the opportunity to provide unskilled labor.⁴⁹ It was thoroughly understood by all tribesmen that once construction operations reached the limits of a particular tribal area, the labor of that tribe was paid off and replaced by that of the next tribe. This procedure was regulated by the Company and contributed greatly to tribal peace, administrative convenience, and good relationships between the tribesmen and the Company. In 1933 about 10,000 unskilled Iraqi tribal workers were employed in the construction of the pipelines. The work performed by tribal labor consisted mainly of ditch-digging and earth-work for laying down the pipelines. They also provided local guards at all mid-desert locations to protect the Company's camps, stations, and communications. Because of their social traditions, this work was much more to their liking. In the pumping stations and oil fields, tribesmen were gradually elevated to other higher forms of work.

Undoubtedly, the IPC enterprise was the typical desert tribesman's first intimate contact with Western life and industry. Although his complete reaction has never been determined, it is known that he immediately appreciated the better food, but disliked sudden change and enforced regulations, especially the Company's insistence on haircuts for those

⁴⁹E. A. Kinch, "Social Effects of the Oil Industry in Iraq," International Labor Review, LXXV (1957), 196.

living in construction camps.⁵⁰ The tribesmen usually wear their hair to its full length and are very proud of it. Only group agreement through efforts and mediation of their Shaikhs made compliance with this order possible. In general, however, Company officials established a good rapport by respecting tribal influence and tradition. They permitted Shaikhs to screen their tribes for prospective employees and to select those deemed most capable. In return, the Shaikh normally received one-tenth of the wage paid to the laborer he recommended.⁵¹ It is also certain that tribesmen were impressed by an organization whose seemingly endless wealth provided food, shelter, transportation, telegraphic and wireless equipment, ice, water, and established small towns at the pumping stations in the desert. Apparently, they also realized that the construction of the pipelines was merely a transient occupation. "Company efforts, however, unfolded a new and impressive way of life before the tribesmen. Although at first they reluctantly accepted some of its facets without completely understanding them, experience ultimately broadened their outlook and improved their condition. They learned new skills and adapted themselves easily to the requirements of their new work."⁵² The following statement from the report of the IPC is evidence of this: "The mid-desert, purely nomadic tribesmen, utterly unaccustomed to manual labor, showed itself glad to undertake-and undertook with success-unfamiliar tasks at all mid-desert locations."⁵³ In the early days

⁵⁰ Kathleen M. Langley, The Industrialization of Iraq (Cambridge: Harvard University Press, 1961), p. 76.

⁵¹ Kinch, op. cit., p. 197.

⁵² Langley, op. cit., p. 76.

⁵³ Iraq Petroleum Company, Construction of the Iraq-Mediterranean Pipe Line (London: St. Clements Press, Ltd., 1934), p. 94.

of their employment, they found it difficult to remain under a solid roof for any length of time because of their nomadic life. Those who have remained in permanent service with the Company are now dependable workers.⁵⁴ Their output increased rapidly during the early days of employment, probably as a result of better food and housing, well regulated diet, and improved health. At Company expense, tribesmen received their first scientific medical examination and treatment with modern drugs.⁵⁵

What is more important, these were not transitory vistas. Visible evidence of their permanence lay in the twelve pumping stations built between Karkuk and the Mediterranean (Pl. X, Fig. 2). Of these, seven (including three double stations) lay in Iraq, three in Syria, and two in Trans-Jordan. At each, not only a large-scale pumping plant⁵⁶ and connected installations, but also tankage,⁵⁷ power, light and water, stores, repair shops, housing for all types of staff and labor, usually an elementary school,⁵⁸ and hospital facilities were provided. Each of these stations became a miniature modern town lying either on the fringes of the settled areas or deep in the desert (Pl. X, Fig. 2). The stations were partially populated by tribesmen who traded their hair tents for permanent dwellings. The water available to the pumping stations and to

⁵⁴Kinch, op. cit., p. 197.

⁵⁵See Marcella Hurley, "Dental Service Follows the Pipe Lines," Oral Hygiene, XXX (1940), 36-41; also Marcella Hurley, "The Desert Nomad Sees his Dentist," Oral Hygiene, XXX (1940), 157-163.

⁵⁶Each double station (K-1, K-2, and K-3) had six and each other station three sets of pumps and engines.

⁵⁷Station K-1 was provided with six 97,000 barrel tanks; each of the other stations with one of 30,000 barrels.

⁵⁸In 1957 there were five in the IFC concession area; one at the Karkuk oil fields had an attendance of 137 pupils, and the others at four pipeline stations had an attendance of 55, 83, 166, and 418.

the construction activities along the pipelines was also used by the nomads and their herds. Meat and milk for the employees of the Company's projects were supplied by the tribesmen. Thus the tribes could no longer remain completely isolated from contact with the West.

Old towns and villages located near oil fields and pipelines, such as Karkuk, Baiji, Haditha, Ana, Quim, and Rutba, were also benefited by the Company's operation. These benefits were endowed mainly in the form of employment at high wages with improved security and welfare. Although no precise estimates are available, oil employment undoubtedly increased the population as well as the purchasing power of the affected tribes.

Factors Discouraging the Settlement Process

By the end of the British Period, the nomadic population had been reduced from 393,000, or 17 per cent of the total population of Iraq in 1905, to 234,000, or 7 per cent of the total in 1930. During the same years, the sedentary rural population had increased from 1,324,000 to 2,246,000, or from 59 per cent to 68 per cent of the total population, while the urban population increased from 24 per cent to 25 per cent from 1905 to 1930. Thus, it is apparent that the ten per cent drop in the proportion of nomadic population between 1905 and 1930 was at least partly responsible for the nine per cent increase in the ratio of rural population. These figures have been previously indicated in Table 11.

Table 21 presents approximate figures concerning the composition of the non-urban population of Iraq in 1930. The semi-settled section of the rural population numbered 1,341,000, about one and a half times as many as the 922,000 completely settled agriculturalists. This means that in 1930 the majority of the agricultural population (other than genuine nomads) were still rather mobile and were not permanently settled

on the land. Moreover, they were engaged in both agricultural and pastoral occupations. Among the factors causing this loose attachment to the land, there were several of particular importance.

TABLE 21
APPROXIMATE NON-URBAN POPULATION OF IRAQ AND
THEIR DISTRIBUTION IN 1930^a
(In Thousands)

Province	Nomads	Rural Population	
		Semi-Settled	Settled
Dulaim	59	49	39
Diwaniya	54	101	79
Mosul	45	20	176
Muntafiq	20	295	25
Karkuk	19	78	63
Sulamaniya	15	28	51
Basra	10	100	34
Arbil	3	56	47
Baghdad	2	74	93
Karbala	2	5	83
Diyala	1	160	79
Kut	--	100	60
Amara	--	202	63
Hilla	--	73	30
Total	230	1,341	922

^aErnest Dawson, "Land Tenure in Iraq," Henry Field, The Anthropology of Iraq, Anthropological Series, Field Museum of Natural History, Vol. XXX, (1940), p. 105.

As we have previously seen both Turkish and British land policy, in addition to the introduction of water-pumps for irrigation, resulted in changing tribal lands into private properties belonging mainly to great Shaikhs and city merchants. Under this condition, the tribesmen lost their lands and came under the mercy of large landholders. This meant that many of the tribal population lost interest in agriculture, while others were forced to move in order to give their agricultural

services to those landholders who promised to provide better farming conditions.

Moreover, the lack of security in landownership made the landholders and the settlers extract as much as possible from the land and water resources without any incentive toward resource conservation and improvement. The result was that land salinity increased, leading to impoverishment and frequent mobility of many of the settlers. This was especially true in the central and southern provinces of the country, such as in Muntafiq, Amara, Kut, Diwaniya, Hilla, and Basra (note the relative predominance of the semi-settled population of these provinces shown in Table 21).

The dependence on the traditional methods of cultivation, the lack of education, and the damage by uncontrolled pests, as well as the scarcity of funds available for improvement of agriculture and irrigation facilities were other factors which slowed the process of settlement and contributed to the mobility of the settlers.

The poor economic condition of the settlers during the British Period considerably hampered the course of settled life. In addition to the above mentioned factors, there were many others which contributed to the impoverishment of both the settled and the semi-settled tribesmen. Sharecropping was the prevailing system in paying the fallah in Iraq. Daily wages were practically non-existent. This will be discussed in more detail in the following chapter, but under this system, the fallahen (farmers) received relatively small amounts as their share from the produce of the land. In 1930 the share was as low as 25 per cent in the southern irrigated zone and reached as high as 60 per cent in the northern rain-fed region, as in Arbil and Sulamaniya. In terms of cash value, this share may be estimated to have averaged about \$20 in the south and

\$40 in the north according to the 1930 prices of crops.

As a result of this low share, the majority of the settled tribesmen fell deeply into debt. This was especially true in the pump-irrigated areas, where the pump owners, in competition with each other, offered high advances of money to the fallah which he was unable to pay back, particularly in years of crop failure and in times of low prices. Many of the fallahen, therefore, became indebted for as much as \$300 at that time.

As is obvious, the reduction of the number of nomads in Iraq during the Turkish and British periods was not entirely due to policies of the authorities toward the tribes. Other factors related to the economic development of the country and its resources which changed the environment of the tribes were all important. Real interest in the problem as a human one, however, does not begin until the National Period, when for the first time, Iraqi authorities launched efforts to help the tribes, especially to stabilize the already settled and semi-settled tribes.

CHAPTER VI

TRIBAL POLICY AND SETTLEMENT DURING
THE INDEPENDENCE PERIOD, 1932-1964

The period of Iraqi independence can be divided into two parts. These divisions are political, the first being the period of Monarchal government between 1932 and 1958 and the second that of the Republic which came into existence in 1958 and continues until the present. Neither saw any great change of policy toward the tribes, except for the possible ultimate effects of a radical program of agrarian reform and land distribution initiated during the second period. The two periods are distinguished only to make this study more specific.

As was indicated in the previous chapter, in 1930 there were about 1,341,000 semi-settled tribesmen and 230,000 pure nomads in Iraq (Table 21). When the National government assumed power in 1932 the authorities gave the impression that their objectives were: (1) to solve land problems in tribal areas; (2) to insure permanent settlement of the semi-settled, landless tribes; (3) to try to settle the pure nomads; and (4) to increase the quantity and quality of agricultural production in the country as a whole.

A cadastral survey and the passing of certain laws and regulations concerning land tenure were the principle measures accomplished by the government from 1932 to 1945. Between 1945 and 1958 the main activities included: (1) undertaking of irrigation projects; (2) improvement of

agricultural facilities; and (3) initiation of land reform and settlement projects on state land. These efforts, however, failed to secure either a permanent settlement of the tribes, or much improvement in their living conditions. It was reported that at the end of 1960, there were 1,400,000 semi-settled, landless tribesmen.¹ This was more than in 1930. The number of pure nomads was also greater, there being 250,000 in 1957. Many factors were responsible for the failure to benefit the tribes by the measures adopted by the government from 1932-1958. The two main ones, however, were: (1) the shortcomings of the planning; and (2) the influence of landlords who managed to twist the various measures toward their own welfare.

With the revolution of July 14, 1958, Iraq became a Republic. The most important contribution of the Republic toward the tribes has been its radical land reform policy. In this chapter the author intends to discuss and evaluate the measures taken by the various governments after 1932 to solve the problem of settlement of the tribes. The activities of the Monarchal government will be considered first.

Policy and Settlement, 1932-1958

From 1932 to 1958, the Iraqi Monarchal government followed very closely in the footsteps of the British during their Occupation and Mandate periods in dealing with the tribes. Since the British policy favored the Shaikhs, the Monarchal government did the same.

The Position of the Shaikhs

The Tribal Disputes Regulation was enforced in administering tribal

¹The Higher Committee for the Celebration of the 14th July Revolution, The Iraqi Revolution in its Second Year (Baghdad: The Times Press, 1960) p. 255.

areas until 1958. The Shaikhly position was enhanced by the same means followed by the British, as well as by new regulations initiated in this period. Economically the Shaikhs were supported by grants of large estates. Politically they were given power through a considerable number of seats that were assigned to them in the various parliaments (Table 22). The Shaikhs who held these usually belonged to large tribes, such as Albu Muhammad, Bani Lam, Tamim, Shammar, Dulaim, Rabia, etc., and were also rich landlords. Moreover, some of the great Shaikhs were associated with the executive body of the government. The Shaikh of the Humadat tribe, for example, was made Minister of Agriculture in 1952, and the Shaikh of Albu Sultan was the Minister of Economics in the 1940's.

TABLE 22
SHAUKHS' SEATS IN PARLIAMENT IN IRAQ
1937-1958^a

Year	Total Seats	Seats Assigned to Shaikhs	Percentage to Shaikhs
1937	111	22	20
1951	127	51	40
1954	119	51	42
1958	145	58	40

^aJohn Batatu, "The Shaikh and the Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960), p. 87.

In the political parties of the ruling group, the Shaikhs were also heavily represented. The majority of the great Shaikhs, for instance, were members of the Constitutional Party. The Shaikhs, therefore, were the main beneficiaries of land settlement laws enacted during this period. This

fact will become more clear in the discussion below.

Land Policy

In 1930 the Government of Iraq invited Ernest Dawson, a British land expert, to study the land tenure problem. After his investigation he submitted proposals in 1932 for the initiation of land reform. The government, in line with these recommendations, passed the "Land Settlement Law of 1932" and inaugurated a cadastral survey to be carried out by settlement committees. The functions of the committees were to survey the whole country, to investigate conflicting land claims among the tribes, and to regulate ownership according to the forms of tenure recognized by the law. The survey, started in 1932, was almost completed by 1958 in most of the provinces, except for those parts of the provinces within the Western Region.

Four main forms of tenure were recognized by the law of 1932 (abolished in 1958).

1. Miri Land (or state land), of which there were three kinds:

- a) Miri Tapu-Land held in permanent tenure from the state amounting to absolute private ownership. Proof of such tenure could be supplied by documentary or factual evidence showing the land had been productively used by the holder for at least ten years during which no rent was paid, or showing that the land had been planted with trees. Tapu land could be sold, mortgaged or inherited.
- b) Miri Lazma-Land held under the same general conditions as Miri Tapu, except that a holder was required to prove that he had made productive use of the land during the past fifteen years before the initiation of the law. In contrast to Tapu, the

authorities could reject the transfer of such land under certain conditions.

- c) Miri Sirf-Land which exclusively belonged to the state. The government had the right to grant title to this whenever so doing made it possible to extend the agricultural area.
2. Mulk-Land held in absolute private ownership. Much of this was urban property.
3. Waqf-Land administered for the benefit of religious or other public institutions.
4. Matruk-Land which was unproductive and was treated as state land.

The figures presented in Table 23 show the areas of land under various systems of tenure as classified up to 1958 by the cadastral survey. Over 61 per cent was Miri Sirf, i.e. state land.

TABLE 23
LAND TENURE IN IRAQ AS CLASSIFIED BY THE
CADASTRAL SURVEY UP TO 1958^a
(In Dunums)^b

Kind of Tenure	Area	Per Cent
Miri Sirf	51,306,939	61.4
Tapu	12,894,130	15.4
Lazma	12,298,881	14.7
Matruk	5,975,888	7.2
Waqf	864,462	1.0
Mulk	242,514	0.3
Total	83,582,814	100.0

^aAbdul S. Alwan, Studies in Agrarian Reform with Special Reference to Iraq (Baghdad: Al-Aswaq El-Tijariya Press, 1961), in Arabic, p. 145.

^bOne dunum equals 0.62 acres.

The 1932 law and the classification of tenure bore some good results:

(1) It helped to solve some tribal disputes over land.² (2) It enabled the authorities to know the location and area of land belonging to the state, making it possible for them to rent, lease or utilize large tracts of Miri Sirf lands. (3) It helped the government to regulate the methods of land utilization.

On the other hand, administration of the law was subject to many criticisms. The most important were that: (1) the Shaikhs and other influential people exploited the possibilities of Miri Lazma tenure and registered large areas of this type of land for themselves; (2) owing to the primitive methods of survey, and to the inexperienced officers conducting it, many tribesmen were dispossessed of their land while vast areas were placed at the disposal of a few leading Shaikhs and influential notables; (3) land that was illegally acquired by Shaikhs in the past was automatically registered under their names by this law. A widening of the social and economic rift between the Shaikhs and the tribesmen resulted. Moreover, the main purpose of this law, which was designed to tie the tribes to the land, was not achieved.

In order to better organize land use, the government later legislated the "Law for the Sale of Miri Sirf Land of 1940". According to Hassan Mohammed Ali, this law also accelerated the process of assigning tribal land to large landowners, especially in the flow-irrigated southern region of the country.³

²Mekki El-Jamil, "Settlement of Land Rights in Iraq", Iraq Agricultural Journal, Baghdad, VIII (1953), in Arabic, 300.

³Hassan M. Ali, "Miri Sirf Land Development in Iraq," International Social Science Bulletin, V (1953), 714.

Between 1932 and 1958 several land laws concerned specifically with the settlement of the landless tribes, and which were intended to put an end to land disputes, were legislated. The most important of these related to the land problems of the Amara and the Muntafiq provinces.

In Amara the "Amara Miri Sirf Land Law of 1948," the "Lazma Rights in Miri Sirf, Amara Land Province Law of 1952," and the "Law for the Distribution of State Lands in Amara" were enacted to settle the local tribes, but without success. Actually, they encouraged tribal migration out of the rural areas.⁴ The failure of these laws was due largely to the opposition of the local Shaikhs to giving lands to their tribes. Another reason was that the nature of these laws allowed the Shaikhs to claim most of the arable lands of the province as their property, leaving only the poor tracts to the tribesmen.

In the Muntafiq province large landholdings in possession of the Shaikhs, and especially of the Sadun family, were predominant. About half of the landholdings were of Tapu tenure and the remainder were Lazma. There had been a long-time conflict between the Shaikhs and the tribesmen concerning the Tapu holdings. Several attempts were made to settle these disputes, but with no success. In 1952, a law was passed to insure a permanent settlement of the tribes of this province. Under this, the holders of Tapu title were to be compensated by the government, either in cash or in state land, for giving up their rights, and the landless tribesmen were to receive possession of the released land. Since most of the Tapu holdings of this province were unsurveyed, with their boundaries and areas undefined, the application of the law had little or no effect on

⁴Doreen Warriner, Land Reform and Development in the Middle East (London: Oxford University Press, 1962), p. 153.

on settling the tribes.

Another approach followed by the authorities during this period to tie the tribes to the land was by the enactment of a law called "Rights and Duties of Cultivators, No. 28, 1933." In one of its debt clauses, the law prescribed that when a fallah was dismissed or moved from his farm he had to pay his debt to the landlord immediately, and if he failed to do this, he could not get employment anywhere unless he got a certificate of release from his landlord. This law not only reduced the fallah to a state of virtual servitude, but also caused him to lose interest in cultivation and permanent settlement.

Distribution of Landownership

One definite result of the land policies followed by the authorities through the Turkish Period, the British Period, and during the Monarchal government (1932-1958) is shown in Tables 24 to 28 inclusive. Statistics presented indicate that much of the land was concentrated in large holdings, mainly in the hands of tribal Shaikhs and other notables.

Table 24 shows the distribution of landownership by size of holdings in 1951, when the cadastral survey was about half completed for the 14 provinces of the country.

These figures include the total area of land in private ownership (Mulk, Tapu, and Lazma) and indicate that holdings of 100 dunums or less accounted for only 15.7 per cent of the total number at that time. This evidences the small number of tribesmen proprietors. Over 67 per cent of the holdings were over 1,000 dunums in size. However, the figures do not reflect the full picture. For instance, it is known that of the private holdings in six of the provinces in 1951, those of 10,000 dunums and over

accounted for the following percentages: Amara, 75.8; Kut, 47.5; Karbala, 31.3; Mosul, 27.2; Baghdad, 29.9; and Diwaniya, 20.6.⁵

TABLE 24

AREA OF PRIVATE LANDHOLDINGS ACCORDING TO CADASTRAL
SURVEY IN IRAQ IN 1951^a
(In Dunums)

Area of Holdings	Per Cent of All Holdings
100,001-200,000	1.1
10,001-100,000	23.2
1,001- 10,000	42.8
501- 1,000	6.2
101- 500	11.0
1- 100	15.7

^aInternational Bank for Reconstruction and Development, The Economic Development of Iraq (Baltimore: The Johns Hopkins Press, 1952), p. 142.

Table 25 concerns the number of Lazma grants of state land of over 10,000 dunums in area made up to 1954 in nine of the provinces of Iraq. These figures support the conclusion that large grants of state lands were a significant part of the total area in certain provinces of the country.

Table 26 indicates that 65 of these holdings were granted to single individuals. The other thirty were in the names of more than one person.

At the end of 1958 we have a more complete picture of the distribution of Iraqi land. By then 83,582,868 dunums were surveyed and classified according to kind of tenure. Table 27 reveals that the total number of agricultural landholdings was more than 168,000 and these included some

⁵International Bank for Reconstruction and Development, The Economic Development of Iraq (Baltimore: The Johns Hopkins Press, 1952), p. 142.

TABLE 25

DISTRIBUTION OF LAZMA GRANTS OF STATE LAND IN HOLDINGS
OF OVER 10,000 DUNUMS IN IRAQ UP TO 1954^a

Province	No. of Lazma Grants Over 10,000 Dunums	Total Area of Lazma Grants Over 10,000 Dunums	Per Cent of Total Area
Kut	37	755,964	40.6
Mosul	28	521,252	28.0
Diwaniya	14	240,244	12.9
Hilla	6	143,930	7.7
Amara	3	86,483	4.7
Baghdad	2	38,627	2.1
Diyala	2	37,255	2.0
Arbil	2	21,331	1.2
Karkuk	1	15,442	0.8
Total	95	1,860,528	100.0

^aGovernment of Iraq, Ministry of Development, Miri Sirf Central Committee, Agricultural Reform and Land Development (Baghdad: Al-Rabita Press, 1956), in Arabic, pp. 146-150.

23,327,259 dunums of surface. If we assume that each of these holdings belonged to one person, the holders were only about 2.5 per cent of the total population of Iraq. It is also clear that small holdings, each of which was less than 100 dunums in area, comprised more than 86 per cent of the total number, but only 10.5 per cent of the area of all holdings in the country. Two per cent of the agricultural holdings were one thousand dunums or more in size, but they actually contained 68 per cent of the total area of all holdings. It is also important to note that there were nineteen of these large holdings, each with an area of more than 50,000 dunums, and five others which were 100,000 dunums or more in size.

TABLE 26

LAZMA GRANTS OF STATE LAND OF OVER 10,000 DUNUMS HELD BY
INDIVIDUALS IN NINE PROVINCES OF IRAQ UP TO 1954^a

Province	Individuals Granted Lazma of Over 10,000 Dunums	Size of Individual Grant
Kut	33	10,000-20,000
Kut	4	20,000-30,000
Mosul	13	10,000-20,000
Mosul	2	20,000-30,000
Diwaniya	1	41,871
Hilla	1	13,406
Hilla	1	29,409
Hilla	2	22,098
Hilla	1	21,846
Hilla	1	14,377
Amara	1	18,361
Baghdad	1	21,788
Diyala	2	18,351
Arbil	1	10,351
Karkuk	1	15,442
Total	65	

^a Government of Iraq, Ministry of Development, Miri Sirf Central Committee, Agricultural Reform and Land Development (Baghdad: Al-Rabita Press, 1956), in Arabic, p. 151.

Note: This table does not include holdings (Lazma grants) of state land of over 10,000 dunums in area granted to more than one person.

Table 28 lists the number and the average size of holdings in each of the fourteen provinces of Iraq. It shows that the average area of the holdings in the country was 212.6 dunums, but there were wide deviations from this from province to province. The highest average was in the Kut province, followed by those in Amara, Muntafiq, Arbil, Karkuk and Baghdad.

TABLE 27

DISTRIBUTION OF AGRICULTURAL LANDHOLDINGS ACCORDING
TO AREA IN IRAQ AT THE END OF 1958^a

Area of Holdings (in dunums)	Number of Holdings	Total Area of Holdings (in dunums)	Per Cent of Number of Holdings	Per Cent of Total Area of Holdings
less than 4 dunums	57,958	73,055		
4-30	56,725	696,889		
30-60	18,507	782,301		
60-100	11,612	894,707		
Sub-Total of small holdings	144,802	2,446,952	86.1	10.5
100-600	18,616	3,868,001		
600-1,000	1,510	1,156,735		
Sub-Total of medium holdings	20,126	5,024,736	11.9	21.5
1,000-2,000	1,395	2,012,643		
2,000-10,000	1,748	7,077,633		
10,000-50,000	251	4,554,280		
50,000-100,000	19	1,334,102		
100,000 and over	5	876,913		
Sub-Total of large holdings	3,418	15,855,571	2.0	68.0
Total	168,346	23,327,259	100.0	100.0

^aAbdul S. Alwan, Studies in Agrarian Reform with Special Reference to Iraq, (Baghdad: Al-Aswaq El-Tijariya Press, 1961), p. 149.

Note: An agricultural holding is defined as "a farm or an agricultural estate worked or organized as one unit."

TABLE 28

NUMBER AND AVERAGE AREA OF AGRICULTURAL HOLDINGS
IN THE 14 PROVINCES OF IRAQ IN 1958^a

Province	No. of Holdings	Average Area of Holdings (in dunums)
Kut	2,427	946.8
Amara	296	319.2
Muntafiq	3,922	278.3
Arbil	7,640	258.9
Karkuk	11,112	257.7
Baghdad	6,661	217.4
Mosul	31,247	169.4
Diyala	15,034	167.4
Hilla	15,302	93.2
Diwaniya	24,700	89.0
Sulamaniya	16,831	68.0
Dulaim	9,819	49.7
Karbala	4,721	46.0
Basra	18,634	14.9
Total	168,346	Average 212.6

^aRepublic of Iraq, Ministry of Planning, Central Bureau of Statistics, Report on the Agricultural and Livestock Census of Iraq, 1958-1959 (Baghdad: Zahra Press, 1960), p. 30.

The Condition of the Fallah

The large majority of the fallahen were tenant sharecroppers, whose share of the crops varied widely from place to place in the cultivated area of the country. The factors of whether or not the land was fertile or poor, rain-fed or irrigated by pumps or flow, and whether the landlord provided the seed, water and other elements of production entered into the determination of the fallah's share. In the rain-fed region of the north, his share was higher than in the southern irrigation zone. In the flow irrigated areas of Amara province, the fallahen of the Albu Muhammad tribe received between one-half and one-third as their share of the crops. On

the Euphrates their portion of crops was one-third from fertile lands and one-half from poor lands. In pump-irrigated areas the share was between two-sevenths and three-sevenths of the crops. In the rain-fed region the range was between 70 and 90 per cent of the winter crops. It should be remembered that the fallahen did not receive their shares from the total produce, but from what was left of the crops after various dues had been subtracted.

Until recently, therefore, the fortune of the Iraqi fallah has been a very sad one. In terms of cash money, his income in 1945 was estimated by one writer to have been 10 to 12 dinars in the south and 15 to 20 dinars in the north.⁶ In the same year, another writer estimated income to have been 6 to 10 dinars in the south and 9 to 15 dinars in the north.⁷ In 1952 the average net income was hypothetically calculated to be around 20 dinars for the year.⁸ If we divide this by 5, the assumed average number in the fallah's family, this would bring the annual income to only 4 dinars per person. This small amount barely served to keep body and soul together. In addition to working land allotted to him, the fallah had to perform gratis several duties outside this area. He had to cultivate the reserved land of his Shaikh and of the religious man (or Saiyid) of his village. He was also usually called upon to clear and deepen old canals, or to dig new feeder channels without compensation.

Other aspects which illustrate the depressed condition of the settled

⁶Hashim Jawad, The Social Structure of Iraq (Baghdad: Al-Marif Press, 1946), in Arabic, pp. 51-52.

⁷Alfred Bonne, The Economic Development of the Middle East (London: Kegan Paul and Co., Ltd., 1945), p. 36.

⁸International Bank for Reconstruction and Development, The Economic Development of Iraq, op. cit., pp. 133-143.

tribesmen in Iraq were the low standards of their health and education. Rural areas were characterized by a high incidence of such chronic diseases as trachoma, bilharzia, malaria, dysentery and hookworm. Illiteracy in these areas was higher than ninety per cent.⁹ In 1958 there were only 1,860 primary schools in all Iraq, whereas the number of villages was more than 10,000.

The large landholdings and the sharecropping system contributed not only to the low estate of the fallah, but also to a great waste of the physical resources of the country. Under this arrangement neither the fallah nor his landlord had any incentive to improve the lands. One result was that in recent times an estimated 20 to 30 per cent of the cultivable land in Iraq has been abandoned and yields on the rest have declined between 20 and 50 per cent because of salinization.¹⁰ Furthermore, the humble condition of the fallahen has caused thousands of them to migrate to Baghdad and other large cities of Iraq.

Tribal Migration from Rural to Urban Areas

Tribal migration cityward started during the 1930's, but it has accelerated highly since 1940. Table 29 shows migration to and from the rural areas of nine provinces for the decade from 1947 to 1957. The rural areas of seven of these provinces lost a considerable number of their population. Only Baghdad and Karbala gained, 33 per cent and 6.3 per cent

⁹A detailed discussion of the health and educational condition of the Iraqi fallah is presented in Abdul R. Hilali, Reflections on Rural Reform (Beirut: Dar Al-Kashaff Press, 1954), in Arabic.

¹⁰J. A. Salter, Development of Iraq: A Plan for Action (Baghdad: The Development Board, 1955), p. 193.

respectively. The rural areas of Amara, Kut, Basra, and Muntafiq lost 36.2 per cent, 16.6 per cent, 16.3 per cent, and 11.8 per cent of their population respectively. These provinces were the most feudal and their tribes experienced the most depressed conditions in Iraq. This movement away from the country, particularly in the case of Amara province, has caused considerable concern among the authorities.¹¹

TABLE 29

TRIBAL MIGRATION TO AND FROM THE RURAL INTERIOR OF
NINE PROVINCES OF IRAQ, 1947 to 1957^a

Province	Province Population of 1947 Apart from That of Its Main City	1947-1957 Migration To or From the In- terior of Province, Excluding Its Main City	Per Cent of Increase or Loss of Population
Amara	258,911	-93,726	-36.2
Kut	208,701	-34,644	-16.6
Basra	267,264	-43,564	-16.3
Muntafiq	317,829	-37,504	-11.8
Hilla	224,629	-21,340	- 9.5
Diwaniya	248,240	-23,332	- 9.4
Dulaim	158,064	- 9,326	- 5.9
Baghdad	296,605	+97,880	+33.0
Karbala	105,114	+ 6,622	+ 6.3

^aJohn Batatu, "The Shaikh and The Peasant in Iraq, 1917-1958" (Unpublished Ph. D. dissertation, Department of Political Science, Harvard University, 1960), p. 158.

The main cities receiving the rural immigration in Iraq are Baghdad, Basra, Karbala and Karkuk. The leading factor pulling immigrants to each

¹¹Abdul R. Hilali, Migration of Rural Folk to Towns in Iraq (Baghdad: Al-Najah Press, 1958), in Arabic, pp. 135-177.

is: Baghdad, the capital, has industries, and Basra is the only port; Karbala enjoys religious prestige; and Karkuk possesses a thriving oil industry. In these and in other headquarter cities of the fourteen provinces of Iraq, thousands of rural immigrants have erected camps of mud and reed huts (sarifas) and live under the most unhygienic conditions (Pl. XI, Fig. 1). To be more specific let us focus attention on the condition of the tribal immigrants in Baghdad and especially those in the section called Asima. (Pl XI, Fig. 2).

Tribal Immigrants of Baghdad

The population of the city of Baghdad is slightly more than one million. In 1963 approximately 33 per cent of the total were immigrants who dwelled in sarifas (see Table 30).

This table indicates that tribal migration to Baghdad has been a continuing phenomenon and the number of immigrants has been increasing. In 1951 their number was estimated at 60,000 persons; in 1963 at 310,000. The migrants live within the metropolitan area of Baghdad and are concentrated in five main settlements. These are: (1) the Asima Settlement, just east of Baghdad, (2) the Tel Muhammad Settlement, in southeast Baghdad, (3) the Sarrafiya Settlement, on the east bank of the Tigris, just beyond the north gate of old Baghdad, (4) the Whashash Settlement, in the north-western section of the city, and (5) the Atafiya Settlement, in an area north of Baghdad along the western bank of the Tigris River.

The Asima Settlement

The area occupied by this settlement was formerly used as a dumping ground for waste materials and consisted of pits produced by the excavation

of mud for nearby brick factories. The lack of any sanitation facilities in the site and the congestion of mud buildings creates an extremely undesirable condition for human settlement (Pl. XI, Fig. 2).

TABLE 30
APPROXIMATE NUMBER OF TRIBAL IMMIGRANTS
IN THE CITY OF BAGHDAD DURING SELECTED YEARS,
1951 TO 1963

Year	Number of Immigrants
1951 ^a	60,000 in Baghdad as a whole
1954 ^b	92,000 in Baghdad as a whole
1955 ^c	40,000 in Asima section only
1957 ^d	34,000 in Asima section only
1957 ^e	200,000 in Baghdad as a whole
1963 ^f	310,000 in Baghdad as a whole

^aInternational Bank for Reconstruction and Development, The Economic Development of Iraq (Baltimore: The Johns Hopkins Press, 1952), p. 55.

^bGovernment of Iraq, Ministry of Economics, Principal Bureau of Statistics, Report on the Housing Budget Enquiry in the City of Baghdad and its Environs (Baghdad: Zahra Press, 1954), p. 10.

^cDoreen Warriner, Land Reform and Development in the Middle East (London: Oxford University Press, 1962), p. 181.

^dDoris G. Phillips, "Rural - to - Urban Migration in Iraq," Economic Development and Cultural Change, VII (1959), 412.

^eAbdul J. Al-Tahir, "The Sarifa Dwellers in Baghdad," Report submitted to the Ministry of Social Affairs, Baghdad, 1958, in Arabic, pp. 1-2. (Mimeographed).

^fRepublic of Iraq, Ministry of Work and Housing, "Problems of Sarifa in the City of Baghdad," Report for Afro-Asian Housing Conference, Baghdad, 1963, in Arabic, pp. 2-3. (Mimeographed).

In 1957 Phillips conducted a socio-economic survey of the Asima Settlement.¹² The study was based on a 4 per cent sample of the dwelling

¹²Doris G. Phillips, "Rural-to-Urban Migration in Iraq," Economic Development and Cultural Change, VII (1959), 405-421.

units. In all, interviews were conducted with 259 families consisting of 1,360 people. The sample indicated that 78 per cent of the immigrants had come from the province of Amara. They belonged to the tribes of Albu Muhammad, Al-Sudan, Al-Suwad, Albu Darrage and Bani Lam. Kut province supplied another 14 per cent of the Asima population, while 5 per cent were from Diyala province. The remaining 3 per cent were mostly from the rural parts of Muntafiq and Diwaniya provinces. It appears that the main destination of the rural immigrants from the last two provinces was Basra rather than Baghdad. Basra is reported to have received 20,000 immigrants in 1951.

The high percentages of the immigrants from Amara and Kut indicates the extremely low living conditions of the tribes of these provinces and the effect of feudalism on pushing tribal people out of rural areas. According to Phillips' study, 88.5 per cent of the immigrants of Asima Settlement had been landless fallahen before they moved to Baghdad, and an additional 2.4 per cent were sirkals.¹³ This brings the total of those who had been employed in agriculture to more than 90 per cent, none of them being landed proprietors.

The expectation of better wages and advancement, the lure of city pleasure, and wider employment opportunity in the city for unskilled labor were the main factors attracting tribal migration to the urban areas. The most important forces causing the tribesmen to migrate, as indicated by the Asima sample, were the low level of living in tribal areas, oppression by the Shaikhs, and disputes with the Shaikhs over crop shares. Underlying causes were the decline of soil fertility, the reduction of crop acreage,

¹³Sirkals are intermediaries who were employed by the Shaikhs to supervise the farms and the distribution of water. For this duty they receive a share of the farm products.

the large size of landholdings held by a few Shaikhs, and the low crop share of the fallahen. These combined left the fallahen with a bare subsistence and pushed them out of their former tribal lands.

Condition of the Asima Settlement

The occupations of the labor force of Asima, as revealed by Phillips' survey, are summarized in Table 31. This indicates that only a small percentage of the immigrants have any industrial skills. Simple forms of commercial seem to be an important occupational possibility, for about 20 per cent of them are so employed.

About 65 per cent of the families were receiving an income of less than 10 dinars (about \$28) a month as is shown by Table 32. With 5 persons in each family this would result in less than \$5.60 monthly income per capita. The average number of workers per family is about 1.3 persons.

Table 33 which is based on a "Housing Budget Inquiry in the City of Baghdad and its Environs" shows the monthly income of 55 families of the same settlement in 1954. According to this 85.4 per cent of the families received less than 10 dinars. The inquiry showed the average monthly income per family to be 6.23 dinars (\$17.44), so per capita income must have been only about \$3.50 per month. This is a further indication of the low level of living of the tribal immigrants in Baghdad. The same condition must have prevailed among immigrants in other cities in Iraq. Even though incomes were higher than those received in the past, it is very difficult to see such low incomes could support the individuals, providing them with the bare necessities of daily life. Table 34 shows how the family income was spent. About two-thirds was for food, only a little over one per cent for furniture, and none for rent, since most of the Asima land is owned by the government. Slightly over one-half of the expenditure on food was for cereals, which means that the standard of nutrition was low.

TABLE 31

OCCUPATIONAL DISTRIBUTION OF THE LABOR FORCE OF
THE ASIMA SETTLEMENT, 1957^a

Occupation	Number of Persons	Per Cent of Labor Force
Unskilled Labor	181	55.3
Skilled Labor	32	9.8
Commerce	65	19.9
Army or Police	26	8.0
Unemployed	23	7.0
Total	327	100.0

^aDoris G. Phillips, "Rural-to-Urban Migration in Iraq," Economic Development and Cultural Change, VII (1959), 415.

TABLE 32

DISTRIBUTION OF FAMILY INCOME OF THE ASIMA
SETTLEMENT PER MONTH IN 1957^a

Monthly Income (in dinar) ^b	Number of Families	Per Cent of Families
Less than 5	64	24.7
5 - 9,999	104	40.2
10 - 14,999	45	17.4
15 - 19,999	24	9.3
20 - 24,999	7	2.7
25 - 29,999	6	2.3
30 - or more	6	2.3
Data not available	3	1.2
Total	259	100.0

^aDoris G. Phillips, "Rural-to-Urban Migration in Iraq," Economic Development and Cultural Change, VII (1959), 416.

^bOne dinar equals \$2.80

TABLE 33

DISTRIBUTION OF FAMILY INCOME OF THE ASIMA
SETTLEMENT PER MONTH IN 1954^a

Monthly Income (in dinar)	Number of Families	Per Cent of Families
1-3	6	10.9
3-6	19	34.5
6-9	22	40.0
9-12	8	14.6
Total	55	100.0

^aGovernment of Iraq, Ministry of Economics, Principal Bureau of Statistics, Report on the Housing Budget Enquiry in the City of Baghdad and its Environs (Baghdad: Zahra Press, 1954), p. 546.

TABLE 34

FAMILY EXPENDITURE PER MONTH IN THE ASIMA
SETTLEMENT IN 1954^a

Item of Expenditure	Monthly Average (in dinar)	Per Cent of Total Monthly Average Expenditures
Food	7.986	65.55
Clothing	0.935	7.67
Fuel (Kerosene)	1.240	10.18
Cleaning Material	0.358	2.94
Furniture	0.137	1.12
Rent	-----	----
Miscellaneous	1.528	12.54
Total	12.184	100.00

^aGovernment of Iraq, Ministry of Economics, Principal Bureau of Statistics, Statistical Abstract (Baghdad: Zahra Press, 1956), pp. 132-133.

The sad condition of these immigrants is also revealed in their low standards of housing, education, and health. According to the Phillips'

survey, 94 per cent of the families lived in simple mud and reed huts, of which about 90 per cent had only one room. Dwellings of the remaining 6 per cent were even poorer, being built of either reeds or mud alone. In the whole settlement no house had plumbing, water supply (Pl. XI, Fig. 2), special cooking space, or bathing facilities.¹⁴

The levels of education and health were very low. Only 11 per cent of the males and three young girls had some elementary schooling.¹⁵ No health center was available in the settlement for immigrant use. The result was, and is, widespread incidence of various kinds of disease such as trachoma, tuberculosis and malaria among the inhabitants. The infant death rate per 1,000 pregnancies was found to be 341.¹⁶ Yet, 80 per cent of the families in Phillips' survey indicated that their total income was higher in Baghdad than in their former homes, 90 per cent believed that their present food was better, and 75 per cent indicated that their housing was more favorable than before.¹⁷

It is also interesting to note that surveys concerning Asima and other immigrant camps in Baghdad show that these immigrants tend to group their dwellings according to their tribal origins and that they do not quickly relinquish their tribal ties and traditional social system.¹⁸ The continuence of these ties was the result of the insecurity on the part of the tribesmen in their new environment.

¹⁴Ibid., pp. 416-417.

¹⁵Ibid., p. 418.

¹⁶A. Michael Critchley, "Observations on a Socio-Medical Survey in Iraq," Journal of the Iraqi Medical Professions, IV (1956), 79.

¹⁷Phillips, op. cit., p. 419.

¹⁸Abdul J. Al-Tahir, "The Sarifa Dwellers in Baghdad," Report submitted to the Ministry of Social Affairs, Baghdad, 1959, in Arabic, p. 1. (Mimeographed).

Problems Resulting from Tribal Migration

The heavy movement of the tribal peoples to urban centers has created serious economic, social and planning problems, both in the rural and the urban areas of the country. As might be expected, most of the migrants are young adults. The Asima sample showed that the age group of 13 years and over of both males and females comprised 56.4 per cent of the 1,360 people.¹⁹ This group with a large number of children to support, provides Baghdad with unskilled labor force willing to accept low wages. They compete with the city labor and tend to depress wage rates. On the other hand, their movement out of the countryside has contributed to the reduction of agricultural production. Moreover, the immigrants have aggravated the health, crime and housing problems of Baghdad and have frustrated city planning. The makeshift hut-camp which they have erected has added an element of slums and unplanned growth around and within the city.

Concrete planning as to what can be done with these camp dwellers, particularly of the city of Baghdad, has only begun during the last few years. About 7.3 million dinars has been allocated for resettlement of these people.²⁰ The Ministry of Works and Housing is now planning three new villages outside the metropolitan area of Baghdad for some of them. The total area of these new villages is 9,500 dunums and that of the plot assigned to each family ranges from 144 to 160 square meters.²¹

¹⁹Phillips, op. cit., p. 413.

²⁰Iraq Events, Official Newspaper of the Republic of Iraq, issued by the Ministry of Guidance, Baghdad, in Arabic, December 31, 1959, pp. 121-122.

²¹Republic of Iraq, Ministry of Work and Housing, "Problems of Sarifa in the City of Baghdad," Report for Afro-Asian Housing Conference, Baghdad, 1963, in Arabic, p. 4. (Mimeographed).

Electricity and water have been extended to these villages and the process of the resettlement has already been initiated. The remoteness of the villages from Baghdad, the immigrants' place of work, and the lack of transportation facilities are problems which must be met. The lack of sewage systems and other sanitary measures in these new villages means the health hazards to the dwellers will still exist.

The Development of Agricultural Facilities

In the agricultural sector the main activities of the government after 1945 include the establishment of a system of agricultural credit, the introduction of agricultural cooperatives, and an attempt to adopt the concept of an agricultural extension service. Soon after the Second World War, the State Agricultural Bank was founded to provide agricultural credits to cultivators at 3 to 5 per cent interest. But since the landless fallah could not provide the necessary security required for credit, he was automatically excluded from the benefits of this service. Thus, the main beneficiaries were the big landlords.

In addition, the activities of this bank were hampered by its inadequate capital and the political pressures exerted on it by influential landlords. This is contrary to the mistaken views of some writers who have attached high importance to the bank's influence on the settlement of the tribes during the period under consideration.²² For example, because the fallahen were unable to provide security, they could not take loans, and consequently they had to turn to their landlords or to private

²²A representative example may be found by referring to Abdul J. Al-Tahir, The Bedouins and the Tribes in the Arab Countries (Cairo: Al-Atmad Press, 1955), in Arabic, pp. 25-28.

money leaders for credit. The interest paid the landlord was often in the form of a larger proportion of the crops which concealed the high charges ranging from 100 to 300 per cent.

With the passage of Law No. 27 of 1944, the agricultural cooperative movement was fostered for the first time through state action. During the 1940's, however, only a few cooperatives were established. Due to the inadequate guidance provided, the lack of experience, and the lack of knowledge of the administrators concerning the traditions of the rural society, most of the early cooperatives failed. Then the government tried to encourage the cooperatives by: (1) providing loans to members at a low interest rate (3 per cent), and (2) by obligating the settlers on newly occupied state land to join settlement cooperatives when they were organized. In spite of all these measures, in 1955 there were only 25 consumer and credit agricultural cooperatives in rural areas of Iraq. It appears, therefore, that this measure also did not make any real contribution to the settlement of the tribes.

The concept of an agricultural extension service was next adopted as an aspect of rural reform. One service center was organized in 1956, and by the end of 1957, it had a staff of 11 supervisors. In 1961 the number of rural extension centers in the whole country was 14, with 42 smaller social units and 177 supervisors. But these centers were serving only 231 villages (Table 35). That the service is very inadequate is evident when it is remembered there are more than 10,000 villages in Iraq and an ever increasing need for application of modern techniques.

TABLE 35

SOME COMPONENTS OF THE FOURTEEN
AGRICULTURAL EXTENSION CENTERS IN IRAQ IN 1961^a

Components	Number
Beneficiary Villages	231
Rural Supervisors	177
Vocational Training Officers	14
Nurses	7
Persons Attending Literacy Classes	2,936
First Aid Medical Cases	49,185
Beneficiaries From Milk Distribution	22,963

^a Republic of Iraq, Ministry of Planning, Central Bureau of Statistics, Statistical Abstract, 1961 (Baghdad: Zahra Press, 1962), p. 130.

Development of Water Resources

To develop the resources of the country, the government established a Development Board in 1950 and diverted to it 100 per cent of the oil revenue. In 1952 the Board's share was reduced to 70 per cent of this income. Serious beginnings were made by the Board toward the harnessing of the water resources of the Tigris-Euphrates system. In the first Five Year Plan, 1951-1956, there was 53,374,000 dinars allocated for irrigation projects. In the second plan, 1955-1959, a sum of 107,935,000 dinars was budgeted for irrigation, drainage and flood control. The main objectives of these two plans were: (1) to provide adequate flood control on the Tigris and Euphrates, and (2) to utilize the water stored by the flood control schemes and that provided by irrigation projects for the expansion of irrigated areas from 12,596,000 to 24,810,000 dumms.²³

The Board was abolished after 1958. Some of its projects had been completed, others studied but only on paper and some others are still

²³ J. H. G. Lebon, "The New Irrigation Era in Iraq, Economic Geography, XXXI (1955), 54-55.

under construction (Fig. 13). The irrigation schemes were criticized on the basis that they were provided wholly through public revenue which belonged to the whole society, while their immediate benefits would largely serve the interests of the landlords who did not pay comparable taxes due to their political power.²⁴

Flood Control and Water Storage

The main flood control and water storage projects are:

1. Lake Habbaniya. This facility was completed in 1956 for flood control and storage on the Euphrates. Its storage capacity is about 2.3 billion cubic meters of water. It has raised the summer water supplies of the Euphrates from 280 to 440 cumecs,²⁵ an amount which can be used to bring under cultivation about 2.5 million dunums of new land in the southern part of Iraq.

2. The Tharthar Project. This is the major flood-control work on the Tigris.²⁶ It has been completed and uses the vast Tharthar depression in the Jezira to store the excess flow of the river. Although this depression has a storage capacity of 6.8 billion cubic meters of water, the potentiality of using the water for irrigation has not yet been determined.

3. The Dokan Dam. Located on the Lesser Zab, a tributary of the Tigris, this multi-purpose project was completed in 1958. The storage

²⁴Salter, op. cit., pp. 54-55.

²⁵Cumecs refers to cubic meters of water per second throughout this study.

²⁶A detailed discussion of this particular project is presented by Brad Fisk, "The Wadi Tharthar Flood Control Project," Middle East Journal, V (1951), 366-370.

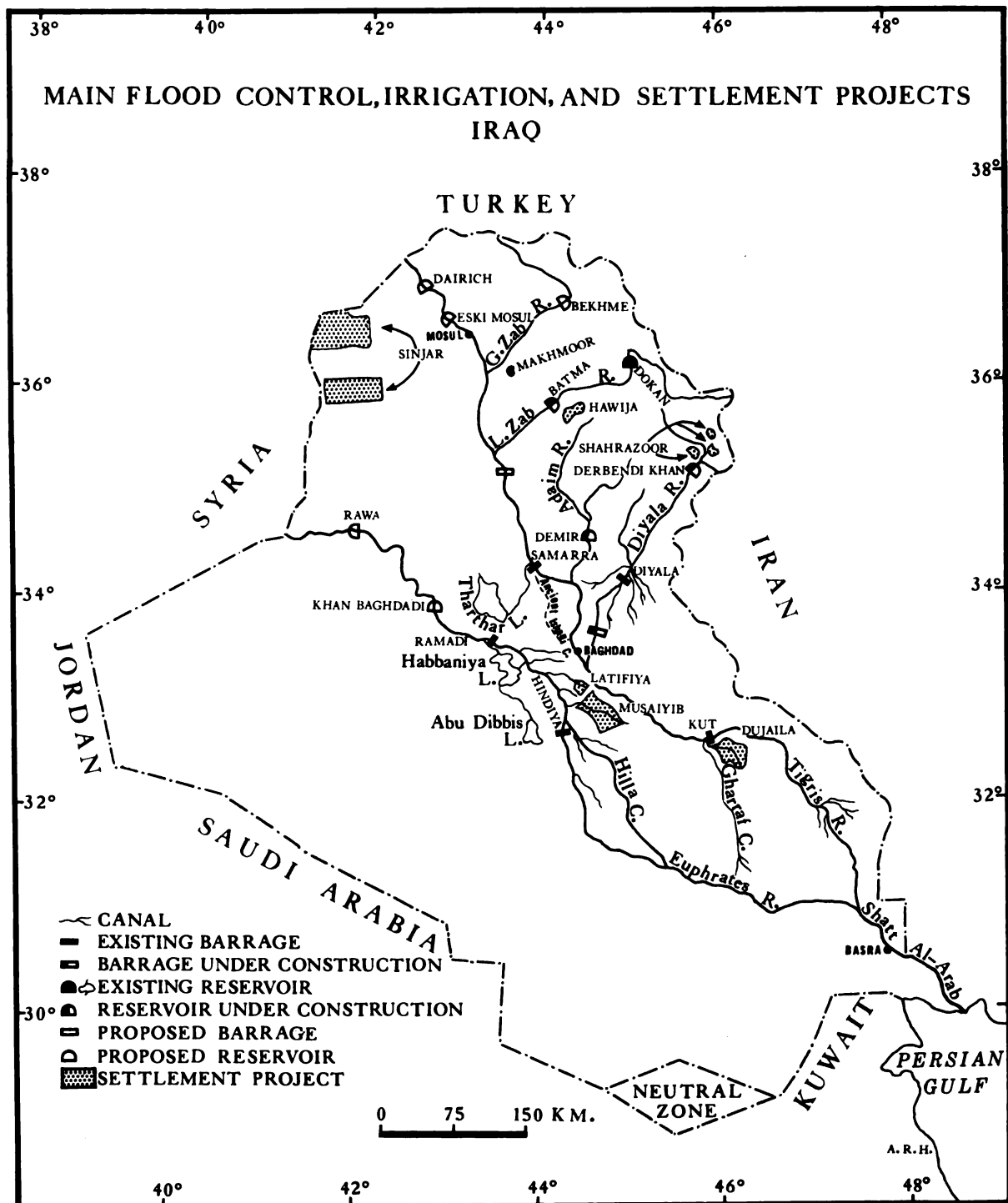


Fig. 13

capacity is figured at 2.8 billion cubic meters of water, enough to irrigate 1.3 million dunums. The project also serves the purpose of flood control, the generation of 170,000 kilowatts of power, and can be used as a resort area.

4. The Derbendi Khan Dam. Like Dokan, this project is a multi-purpose one providing water storage, flood control, and potential generation of hydroelectric power. It is still under construction and is expected to irrigate some 1.5 million dunums.

5. The Batma Dam. Considered as part of the Dokan Dam Complex, the Batma Dam was designed for irrigation of 415,000 dunums of new land. At present it is still under construction.

6. The Demir Dam. Like The Batma Dam, it is also part of the Dokan project and still under construction. It is expected to irrigate 876,000 dunums on both sides of the Adaim River.

7. Other Proposed Dams. The Eski Mosul and Dairich on the Tigris north of Mosul, Bekhme on the Greater Zab River and Rawa and Khan Baghdadi on the Euphrates were studied and the suitability of the dam sites was established, but construction has not begun (Fig. 13).

Irrigation Projects

The most important of these projects are:

1. The Greater Musaiyib. Completed in 1956, this project was designed to bring about 250,000 dunums of new land under cultivation.

2. The Hilla Canal System. Work on this scheme was proposed to include expansion and remodeling of the Hilla Canal to serve 1.8 million dunums of new land. At the present time, part of the project is completed.

3. The Hindiya Canal Project. This is actually the western branch of the Euphrates which has been canalized. In addition to irrigation facilities, a navigation lock is already completed. Further progress on this project will permit irrigation of 750,000 dunums of new land and provide transportation by water.

4. The Gharraf Canal Project. Preliminary studies indicate that canalization and the building of four regulators in this project will bring 795,000 dunums of new land under irrigation.

5. Other Projects. These are projects to be developed in the future. Reclamation of Nahrawan land, located on the eastern bank of the Tigris south of the Diyala River, will add 1.2 million dunums for cultivation. The irrigation of the Ishaqi area on the Tigris south of Samarra Barrage has been studied and an area of 680,000 dunums of land is expected to be reclaimed. Improvement of irrigation and flood control on the Shatt Al-Arab and Lake Hammar, and projects in the northern provinces are also proposed.

Development of Ground Water

In 1933 the authorities started to develop the ground water resources of the country, mainly for the purpose of settling nomadic tribes. A small office was, therefore, established to study the proper sites for drilling water wells, but its activities were handicapped by an inadequate technical staff, the lack of equipment and the absence of scientific studies of the geology of the country. By the end of 1953, a total of only 116 operating wells had been opened.²⁷ Of these, only 36 were for the

²⁷Ahsan Rifat, "The Artesian Wells in Iraq," Iraq Agricultural Journal, Baghdad, VIII (1953), in Arabic, 417.

benefit of the nomadic tribes of the Western Region. In 1955 the Parsons Company was engaged by the Development Board to investigate and report on the ground water of Iraq, and a sum of about 6.5 million dinars was allocated for this purpose. By the end of 1961 some 208 wells had been opened for the nomadic tribes in the Western Region. More discussion will be presented in the following chapter, but it should be mentioned here that these wells have been insignificant as a means of settling the nomadic tribes.

Land Reform and Settlement Projects

Because the same people who owned extensive tracts of land were the controlling body of the pre-revolutionary Iraqi government, it is hardly to be expected that any significant land reform measure would be forthcoming during that time. Such a policy would destroy the economic and social position of the landlords and jeopardize their political power.²⁸ Nevertheless, after World War II, because of inside pressure from the newly formed and agitating middle class and outside pressure in the form of foreign expert advice, fear of communism and more recently, the extensive land redistribution in neighboring Egypt, moderate land distribution programs were initiated.²⁹ The widening of social and

²⁸The attitude of the government toward the peasants in this period is correctly described by Warriner. She wrote, "From 1945 on successive Iraq governments have stated that their aim is to encourage small ownership by distributing state land to cultivators. During the same period settlement of title has proceeded steadily in the opposite direction." Warriner, op. cit., p. 150.

²⁹Rasool M. Hashimi and Alfred L. Edwards, "Land Reform in Iraq: Economic and Social Implications," Land Economics, XXXVII (1961), 75.

economic differences between the Shaikhs and their tribesmen, the continued migration of the tribesmen to the urban centers, and the increase in oil revenue were other essential forces which motivated the land reform movement. Consequently "The Miri Sirf Land Development Law, No. 23, of 1945" was enacted.

This law laid down the principles for distributing state lands to the landless fallahen. In 1951 it was replaced by another law, known as "The Land Development and Settlement Law, No. 43, of 1951".³⁰ Although finally suspended by the revolution of 1958, the main objectives of this law while in force were:

1. Improvement of agricultural conditions from the technical standpoint and the expansion of agriculture.
2. To provide assistance and encouragement to the fallahen in Iraq and to create a class of small peasant proprietors.
3. Full employment of a maximum number of people in agriculture.
4. To provide an opportunity to settle the tribes permanently.
5. The creation of modern rural communities.
6. Reclamation and utilization of all state lands.

It was commonly agreed that, in the long-run, the resettlement of a large number of landless fallahen would reduce the power of the great landowners and challenge their political and social position. Let us first present the relevant provisions of the law, then an analysis of four of the settlement projects that were established, and finally turn our attention to the main problems and achievements of these projects.

³⁰For a detailed treatment of this law see Fahim I. Qubain, The Reconstruction of Iraq: 1950-1957 (New York: Praeger, 1958), pp. 92-95.

The projects were administered by a Central Committee, composed of an agricultural economist, an agricultural specialist, an irrigation engineer and a physician. These members were assisted by experts from England, India, Egypt, the United States' Point Four Program, and the various United Nations' agencies.

The law limited the size of plots to be distributed to settlers to: (a) 20 dunums in mountain lands; (b) 100 dunums in flow-irrigated lands; (c) 200 dunums in low-pump irrigated lands; (d) 400 dunums in rain-fed lands; (e) 500 dunums in high-pump irrigated lands. It also required that the land be distributed free to landless fallahen. Priority was given to inhabitants in the area of the project, followed by those of neighboring areas. No more than one plot was assigned to each settler. Graduates of agricultural schools and retired army and police officers with at least four years service, were allowed all together not more than 20 per cent of the area of each project. Retired civil servants who had no less than eight years service and graduates of religious schools could be allocated up to 25 per cent of each area. A settler received full title to his plot after ten years of continuous occupation. He had to build his dwelling on his land, had to plant an orchard, and had to follow the Committee's recommendations for utilizing the land.

As shown in Table 36, between 1945, when the first law was enacted and applied on the Dujaila project, and 1957 over 2.3 million dunums of state land were distributed. Of this, more than 1.6 million dunums were developed in settlements under government supervision. The rest was distributed without reclamation or assisted development. The areal distribution of the main settlement projects is shown in Figure 13. Table 37 indicates most of the investments which were allocated to land settle-

ment under the Miri Sirf Land Development Committee between 1946 and 1955.

TABLE 36

FACTS RELATED TO DISTRIBUTION OF MIRI SIRF LAND, 1945-1957^a

Project	Persons Living in Project at End of 1955 ^b	Area of Project by 1957 (in dunums)	Units Distributed in 1957	Average Area of Units Dis- tributed (in dunums)
Dujaila	14,320	250,000	1,540	100-200
Hawija	1,595	37,650	462	70
Shahrzoor	2,545	32,500	380	70
Latifiya	2,325	25,000	442	50
Makhmoor	930	7,200	100	68
Musaiyib	875	303,000	431	66
Sinjar	7,480	1,000,000	935	150-300
Sub-total	30,070	1,655,350	4,290	
Karma	3,590	70,671	718	Unknown
Saadah	325	5,200	65	Unknown
Land in other areas	14,680	169,870	2,936	Unknown
Sub-total	18,595	245,741	3,719	
Land distri- buted but unidentified	Unknown	424,210	Unknown	Unknown
Total	48,665	2,325,301	8,009	

^aFigures presented in this table are taken from Government of Iraq, Ministry of Development, Miri Sirf Central Committee, Agricultural Reform and Land Development (Baghdad: Al-Rabita Press, 1956), in Arabic, p. 141; and Warren E. Adams, "The Pre-Revolutionary Decade of Land Reform in Iraq," Economic Development and Cultural Change, XI (1963), 272.

^bThese persons are not necessarily those to whom land was distributed. The official statistics on the number of people who actually received land in these projects are not available.

TABLE 37

FINANCING OF THE MIRI SIRF LAND DEVELOPMENT
COMMITTEE, 1946-1955^a

Year	Iraq Budget (in dollars)	Joint Fund (in dollars)	American Budget (in dollars)
1946	70,000	Unknown	Unknown
1947	100,000	Unknown	Unknown
1948	50,000	Unknown	Unknown
1949	36,000	Unknown	Unknown
1950	30,000	Unknown	Unknown
1951	32,000	Unknown	Unknown
1952	Unknown	Unknown	Unknown
1953	300,000	204,000	123,000
1954	420,000	130,000	90,000
1955	600,000	150,000	88,000
Total	1,638,000	484,000	301,000

^aWarren E. Adams, "The Land Development Program in Iraq with Special Reference to the Dijala Settlement, 1945 to 1954" (Unpublished Ph.D. dissertation, Department of Economics, University of California, 1955), p. 221.

Dujaila Project

This project is located about 10 miles southeast of the city of Kut (Fig. 13). It was the first settlement scheme of the Miri Sirf Land Development Committee and was opened in 1945. The Dujaila Canal (about 51 kilometers long), which receives water from the Tigris River upstream from the Kut Barrage, irrigates the project. Settlers were selected from different local tribes such as Bani Lam, Makasis, Albu Darraj, Al-Yasir, Atamish, Al-Maiyah and Al-Sary.

It was hoped that by settling these tribes together in one community, tribal prejudices would be reduced and national spirit encouraged. The farms of the project, therefore, were laid down in rectangular pattern

and the settlers' houses of mud were situated in clusters of four at the adjoining corners of four tracts. Each cluster included 4 to 12 buildings with 40 to 50 persons. This was a deviation from the prevailing village system in Iraq, which is traditionally a random agglomeration of dwellings.

The project is administered by a main office and several branch offices established in various sections of the settlement. Both Iraqi and foreign specialists in various fields have been employed. From 1945 until 1952, however, very little effort was made by the Iraqi officials to suggest a sound agricultural program, or to demonstrate new crops and techniques, but subsequently the work of the American technicians and the UNESCO team began to show some positive results. The fallow system of cultivation was organized and four demonstration farms, four nurseries and four greenhouses were established. Light rural industries were also instituted by UNESCO to improve the economic condition of the settlers. These included a wool processing plant, a carpentry plant, a blacksmith plant and a simple metal-working operation. A water plant capable of providing 200 gallons of pure water per hour was provided to one section of the project through cooperative effort. The health service available includes two simple clinics and one mobile team.

At the end of 1955 six primary schools were operating with a total of 20 teachers and 702 students. The schools were organized by the Iraqi Ministry of Education and UNESCO under its program for "Fundamental Education". In addition, the UNESCO team had founded three classes to demonstrate more advanced teaching methods, 9 literacy classes, and one of the health clinics mentioned above.

In 1947 the settlers, with government help, were organized into a

general-purpose cooperative with consumer and producer sections. This was liquidated in 1951 owing to inexperience, bad management and lack of adequate capital and guidance. Government aid in the form of loans of 100 dinars repayable in installments over a period of five years were given to the first 300 settlers at official rates of interest which ranged between 3 per cent and 7 per cent. No further loans were provided.

There is no data available to present an accurate picture of the present economic condition of the settlers of this project. However, Fisk estimated the annual cash income of the individual settler's family to be between \$420 and \$1,400 in 1952 (excluding the value of produce consumed at home).³¹ Burns stated that, according to local settlement officials, net return from the sale of crops and animals (including produce consumed at home) averaged \$960 a year per family in 1950. He indicated, however, that the return may actually have been no more than half of that figure.³² In any case, the return to the Dujaila settlers was much higher than that realized before while working for the Shaikhs. It is also believed that the per acre cereal yield on farms of this project during the 1950's was more than that of nearby areas.

Latifiya Project

This project is located about 50 kilometers south of Baghdad (Fig. 13). It occupies relatively flat, poorly drained land which is irrigated by the Latifiya Canal. At the end of 1955 there were 2,325 people living

³¹Brad Fisk, "Dujaila: Iraq's Pilot Project for Land Settlement" Economic Geography, XXVIII (1952), 353.

³²Norman Burns, "The Dujaylah Land Settlement," Middle East Journal, V (1951), 364-365.

in the settlement. About 40 per cent of the beneficiaries of this project were chosen from retired civil servants, military officials, and graduated students of religious schools. The remaining 60 per cent were selected from the local tribes of the area. These included people from the Janna-biyn, Maamra, Bani Ajal, Ubaid, Khafaja, Al-Farun, and Ghurair tribes.

The project was hurriedly opened in 1952 and early settlers were established on their plots before adequate preparations were made. The hasty settlement was due to a political attempt by a new cabinet to show its interest in the public in time of stress.³³ A nursery experiment and demonstration fields were established later as part of the project. No health or educational services were available until about 1955, in spite of the fact that trachoma, malaria and other diseases were, and still are, widespread among settlers.

In 1954 an economic survey was conducted in this settlement by the authorities. It was discovered that the yearly net cash income per five member family was only 33.23 dinars, or less than 7 dinars per person. It was also found that 46 out of 51 farmers were indebted to an average amount of 35 dinars each. As a result, the authorities decided to raise the level of living of the settlers by providing them with supervised credits, but only 69 of them received such financial help in 1955.

A clearer picture concerning the condition of the inhabitants of Latifiya is provided by a socio-economic survey by the Ministry of Social

³³Warren E. Adams, "The Land Development Program in Iraq with Special Reference to the Dijala Settlement, 1945 to 1954" (Unpublished Ph. D. dissertation, Department of Economics, University of California, 1955), p. 237.

Affairs of Iraq during 1959.³⁴ In this study 133 families comprised of 870 persons were interviewed. Some of the results are presented in Table 38. Nearly 34 per cent of the families received an annual income of less than 50 dinars each and another 44 per cent one between 50 and 100 dinars. The average income per person was reported to be not more than 8 dinars a year.

TABLE 38
YEARLY INCOME OF 133 FAMILIES OF THE LATIFIYA
SETTLEMENT PROJECT IN 1959^a

Yearly Income (in dinars)	Number of Families	Percentage of Families
less than 50	45	33.9
50-100	59	44.0
101-150	13	10.0
151-200	7	5.3
201-250	6	4.5
251-300	2	1.5
301-350	1	0.8
Total	133	100.0

^aRepublic of Iraq, Ministry of Social Affairs, "Report on Socio-Economic Survey of the Settlers in the Latifiya Project," Baghdad, 1959, in Arabic, p. 10. (Mimeographed).

Moreover, the survey revealed that about 80 per cent of the families held plots ranging in area between 10 and 60 dunums, 14 per cent between 60 and 120 dunums, and 6 per cent between 120 and 2,400 dunums. This variation in area of holdings indicates the uncontrolled

³⁴Republic of Iraq, Ministry of Social Affairs, "Report on Socio-Economic Survey of the Settlers in the Latifiya Project," Baghdad, 1959, in Arabic, pp. 1-11. (Mimeographed).

distribution of land to settlers and the failure to apply the laws of the Miri Sirf Land Development Committee. Of the 133 families interviewed, 131 lived in mud huts and two in tents. None of these dwellings had electricity, bathroom facilities, or pure water supplies. The settlers relied on water from ditches and irrigation canals for their domestic needs.

Shahrazoor Project

This project is situated in the Kurdish region of northern Iraq. It depends primarily on natural springs and rainfall for irrigation. As indicated in Table 36, a total of 380 plots of 70 dunums each were distributed to settlers from the Jaf and other Kurdish tribes of the area. When the project was established, these settlers were already living in villages on the land of the project; for them, therefore, there has been no relocation.

Simple measures to improve agricultural practices such as a demonstration farm and a nursery were introduced. A health center was maintained at the nearby town of Halabja. Only one area of this settlement has a school, one of six rooms. Other service facilities do not exist. It seems that this project has been the least successful of all.

Two successive years of crop failure in 1953 and 1954, as a result of pest damage, caused the majority of the settlers to have insufficient income to meet family and farm expenses, and brought them heavily into debt to city merchants. It was reported that 124 out of 198 farmers interviewed in 1954 grossed less income than was required for living.

At the same time, 160 of the 198 farmers owed an average of about 67 dinars each. This indebtedness was obtained at 100 per cent interest

per year which had to be returned in produce rather than in cash. Moreover, the way the interest was exacted was to bargain with the cultivator and buy in advance his agricultural produce at one-half the market price of the crops. This high rate of interest and the method of repayment contributed substantially to the poverty of most of the settlers. When the Committee studied this problem in 1954, they recommended the granting of loans ranging from 30 to 100 dinars to 64 of the settlers, yet only 19 actually received the loans.³⁵

Sinjar Project

Located in the northwestern section of the Jezira region near the Iraqi-Syrian border, the area of this project consists of about 1,000,000 dunums north and south of the Sinjar Hill. The land is marginal and sub-marginal and farming depends entirely on rainfall. Before the preliminary investigation of the physical characteristics of the area, which started in 1952, was completed, and while discussion concerning the desirable size of units to be distributed and the type of farming which could be successful was in progress, the authorities hastily opened the project for settlement. In this connection, the land classifier pointed out in 1952 that, "At this time only general impressions can be given. However, at present it appears that extreme care is needed in developing this area because serious repercussions may be had from fostering improper land use. Improper use of these lands will result in making them less productive than at present and will cause extreme undue suffering to the people settled or to be settled in the area. The end result will

³⁵Hassan M. Ali, Land Reclamation and Settlement in Iraq (Baghdad: Baghdad Printing Press, 1955), pp. 115-121.

discredit the affirmed efforts to better the conditions in this area and may defeat the aims of the Miri Sirf Program."³⁶ Obviously, this statement was not taken into consideration by the authorities in developing the project.

It is commonly believed that the hasty settlement action was the result of two pressures. The first was fulfillment of the promise of a nebulous plan of the 1930's by the Iraqi authorities to settle the Shammar tribes of Syria who suffered under the French Mandate and lost their grazing land. The second was the strong desire of the Shaikh of the nomadic Shammar in Iraq to possess land for himself in the better area of the project. The settlers were chosen from various Iraqi tribes, such as the Shammar, Matyut, Jubur, Albu Badran, and Albu Hamad, and from retired civil servants, army personnel and students. The size of plots distributed was usually between 150 and 300 dunums, but there were units as small as 50 dunums in area. Settlers live in a number of scattered small villages established on sites where wells were drilled to supply water for domestic and livestock use.

With the exception of granting the land and providing drinking water, no other necessary aid was extended to the project. The result had been that the economic condition of settlers, especially those in the remote section south of Sinjar Hill (a large percentage of whom were newly settled nomads), has been reported as being wholly unsatisfactory. The following statement illustrated the condition in this southern section in 1954. "Some of these villages were in very badly pauperized

³⁶Quoted by Warren E. Adams, "The Land Development Program in Iraq with Special Reference to the Dijala Settlement, 1945 to 1954", op. cit., p. 244.

condition and the people in one village were near the edge of starvation. They had come to the village with little property and crop failures together with their lack of knowledge of farming had reduced their worldly goods to where they could not buy seed to plant in the 1953 crop season which would have returned them a very good yield. They did not own a sheep or a mule, only a few donkeys and some neighboring village had given them a few head of goats to give milk for their children."³⁷ The report further indicated that, "Government assistance in showing them the best techniques in farming and in improving and managing their sheep herds and in aiding them with some credit to get the necessary capital goods to use in making a living may enable these farmers to stay on the land. Without this assistance, it is very likely that most of the agricultural class 3 land (the area at the extreme southern end of the southern section of the project) will only intermittently be occupied by farmers, and without this assistance, there is a strong possibility that this area will chiefly revert to grazing lands for the nomads as in the past."³⁸ But nothing was done by the authorities to improve the economic condition of these settlers. The result was that many of them were forced to sell everything at their disposal, especially in dry years, and go to Syria or elsewhere to become laborers, or to rent their land to merchants of Mosul.

Problems of the Settlement Projects

From the previous discussion, it becomes clear that these projects

³⁷Ali, *Land Reclamation and Settlement in Iraq*, op. cit., p. 170.

³⁸Ibid., p. 174.

have not achieved as much as they should have in order to improve the living condition of settlers. The projects faced many interrelated technical, social and administrative problems which must be considered in initiating any settlement project for the tribes in the future.

Technical Problems

One of the major problems faced by settlement projects in the past has been the lack of adequate planning and preparation, such as soil surveys, land classification, and provision of irrigation and drainage, before the land was opened to settlement.³⁹ The lack of these essentials created several other difficulties. Let us review some of the problems which beset the Dujaila project. The first settlers were subjected to flood in 1946 because protective dykes were not completed. In 1948, many irrigation canals had already been completed, but the earth removed from the canals was piled along side of them. In 1949 it was reported that one canal, at least, was obstructed, because the wind had dumped the piled earth back into its channel. This caused severe loss to the several farmers dependent on the canal's water and all of the settlers had to contribute to the cost of 700 dinars to reopen it.⁴⁰

Also, the lack of establishment of drainage systems in this settlement caused the destruction of fertility of the soil in many sections,

³⁹The following observation of Adams supports this statement. He wrote that, "In my own experience, I learned of one project manager who had mapped, subdivided, and was preparing to settle a new section of land without ever having seen the area; neither he nor his staff could even tell a visiting consultant whether the area was irrigated." Warren E. Adams, "Reflections on Recent Land Reform Experience in Iraq," Land Economics, XXXIX (1963), 200.

⁴⁰Mohammed A. Al-Soory, Feudalism in the Kut Province (Baghdad: Asaid Press, 1958), in Arabic, pp. 164-165.

eventually forcing the movement of about 300 settlers elsewhere, while others complained of low crop yields. In 1954, nine years after founding, drainage work had been begun on only one section of the project, and, as would be expected, the cost was high, especially after the settlers had established themselves on their land and built houses and other facilities. The cost of providing drainage to this one tract of 25,000 dunums was 40,000 dinars, or an average of over 1.5 dinars per dunum.⁴¹ This amounted to nearly 150 dinars per settler. This illustrates the need for certain basic preparations before opening a project for settlement.

A soil survey and land classification of the Dujaila project was delayed until about 1954. In Latifiya and Sinjar this kind of work was incomplete when the projects were opened while no efforts in this respect have been made in the Shahrazoor settlement. The results have been a great waste of land and water resources and poverty for the settler. For example, in the Latifiya more than 25 per cent of the area was discovered to be uncultivable in 1955.⁴² Failure of the farmers because of this high percentage of waste land could have been avoided by proper soil investigation before settlement.

Another problem of the projects was because authorities opened five of them within four years. The Hawija was opened in 1950, Shahrazoor in 1951, Latifiya and Sinjar in 1952, and Makhmoor in 1953. The launching of several projects in such a short time caused great difficulties in their management because of the distribution of efforts over a wide area and the disadvantages of not being able to transfer experience

⁴¹Warriner, op. cit., p. 165.

⁴²Ali, Land Reclamation and Settlement in Iraq, op. cit., p. 138.

gained from one project to the others.

The isolation resulting from the lack of roads and communications between different parts of the same project and between the projects and other settled areas in the country posed other problems. As Adams puts it, "More fortunate projects were located near good secondary roads, but others were more isolated, and all internal roads on the projects became virtually impassable from mud during the rainy season or hard-baked ruts in the summertime."⁴³ This created difficulties with regard to the marketing of the products and the maintenance of agricultural machinery, vehicles and other equipment. It also handicapped proper working of the social agencies, technicians, and administrative staff associated with the undertaking. The lack of good roads in the Dujaila settlement, for example, slowed the work of the UNESCO team there and was considered one of the main reasons for their dropping fundamental education efforts in 1956.⁴⁴ Moreover, the rigours of travel between these projects and the large cities caused the refusal of many foreign and Iraqi personnel to continue their services in the settlements.

The settlement of newly independent fallahen and people who had no previous experience in cultivation created trouble which made success difficult to attain. Old crops and traditional methods of farming had to be re-examined and fit to the background of the settlers. In addition, research which was carried out in connection with these projects required expert ability and continuous supervision. This demanded time and effort,

⁴³Adams, "The Pre-Revolutionary Decade of Land Reform in Iraq," op. cit., p. 274.

⁴⁴Government of Iraq, Ministry of Education, "Report on the Fundamental Education Project in Iraq," Baghdad, 1957, in Arabic, pp. 2-3. (Mimeographed).

but the results gained from the experiments were often used to serve private interests, and their unjustified high cost reduced their usefulness to the settlers.

The attempts made by some foreign experts to rapidly change existing ideas and methods of cultivation to new, locally untested ones (for example, replacement of the prevailing labor-intensive method of agriculture by a highly mechanized system) were unsuited economically and socially to the local conditions and raised problems. In addition, competition between local and foreign experts on the one hand, and among the foreign experts themselves on the other, for the establishment of good reputations often resulted in poor organization of efforts and hasty advice to settlers.⁴⁵

An obstacle at the Duajila project related to the pattern of settlement. Locating the settlers at considerable distances from each other in a sparsely populated area has created many hardships. For one thing, it has prevented the settlers from enjoying the social relationships which were available in their old village communities. For another, it has presented difficulties in bringing the settlers together for educational purposes, cooperative meetings and demonstrations. In addition, it has caused high costs in providing settlers with adequate health care, schooling, pure water and other facilities.

Social Problems

The proper functioning of settlement projects already founded has been handicapped by several social and cultural problems. The attitude

⁴⁵Adams, "The Pre-Revolutionary Decade of Land Reform in Iraq," op. cit., p. 279.

of the settlers toward the government has been one of these. To the settlers the government and its representatives were considered as exploiters, not interested in the tribes beyond tax collection and army conscription. The settlers, therefore, failed to act in good faith with much that was attempted. The result was that they paid little attention to cropping instructions, farm demonstrations and other official efforts to raise their level of production.

The lack of a genuine impetus for tribal development was obvious in another quarter. The Shaikhs and rich landlords, who constituted the majority of the parliament and the governing class, exerted a great influence against reform. In the case of the Dujaila settlement, for example, the local Shaikhs were against the project from the beginning. Later, they dominated most of the good land and in the case of one it was reported the authorities reserved an area on which they spent thousands of dinars for reclamation.⁴⁶ Moreover, in 1946 some of the Shaikhs threatened to break dykes in order to flood the entire settlement and thus prevent the movement of fallahen from their estates.⁴⁷ In the Sinjar settlement, also, most of the best land was given to the Shaikh of the Shammar nomadic tribe, Ahmed Al-Yawar.

The considerable lack of attention to certain needs of the settlers of these projects is illustrated in other ways. In the Dujaila, disputes over water rights between settlers were not unusual.⁴⁸ Some of the social services offered to settlers ignored their tribal social system. For

⁴⁶Al-Soory, op. cit., p. 162.

⁴⁷Burns, op. cit., p. 365.

⁴⁸Adams, "The Pre-Revolutionary Decade of Land Reform in Iraq," op. cit., p. 283.

example, the activities of the extension services were based on the values of the individual and not on the family, which is the main decision making unit in tribal society. The settlers' participation in project activities from the beginning is essential, yet all Iraqi administrative officials at the Dujaila project were appointed; none were elected by the settlers.

The unequal and inadequate supply of facilities and services such as schools, cooperatives, extension services and credit, not only among the different projects, but also within each project, created social gaps and problems between settlers. The Dujaila and, to some extent, the Latifiya settlements were provided with complete programs of development, while in others such as the Sinjar, the authorities simply made land grants without further assistance. Even where facilities were provided, they were inadequate to meet the settlers' needs. The lack of credit forced many to secure loans from city merchants, according to a system called "selling green." In this system, not only must high interest be paid on loans, but the marketing of products and the buying of goods must be done through the moneylenders.

Inadequate credit given to settlers has contributed to a deficiency in the quality and number of livestock which they own. The animals ought to be considered an integral part of the economy. The problem facing the settlers of Sinjar in this respect has already been indicated. In the Shahrazoor project it was reported in 1954 that 144 farmers out of 198 were buying their fat from outside; 133 farmers had no sheep and 136 had no goats, in spite of the fact that the availability of pasture would indicate strong possibilities for raising a large number of these animals.

In Sinjar and the Latifiya projects the problem of tenants and sharecroppers under absentee landholders has developed. This is the

result of having given land to retired policemen, soldiers and students who preferred to live elsewhere either leasing their plots to cultivators or hiring others to do the work for them. This is contrary to what the law originally intended. In Sinjar, tenant cultivators were introduced mainly because of the financial inability of the settlers to utilize their land for themselves; therefore, they find it more profitable to rent to merchants from nearby urban centers. The large plots given to the Dujaila settlers, which they could not handle, caused them to employ assistant farmers and seasonal immigrants from the southern part of Iraq. This resulted in social differentiation between two distinct classes of people in the settlement. Children of the season workers and hired hands are less often sent to local schools, thus perpetuating the lack of education of this lower class.

Administration Problems

The settlement projects have also suffered from many administrative problems. The frequent transfer of the agencies responsible for administration from one Ministry to another and the lack of cooperation and coordination between these agencies has caused serious difficulties. As a result, the agencies have been unable to properly assist the settlers. This situation is well illustrated by Warriner when, with reference to the Dujaila project, she states that, "The weaknesses in organization result from a lack of coordination between local needs and the central authorities. The original conception was sound, but there has obviously been no sustained interest at the top level. Several different Ministries - Agriculture, Irrigation, Education, Health - are responsible for different activities, and neglect them, since there is no organization

at the settlement itself to co-ordinate their spheres or to urge action on the authorities."⁴⁹ Moreover, the highly centralized power, and the hierarchical system of administration has resulted in great waste of time and effort on paperwork and payment of very little attention to planning and rational decisions.

The shortage of experts and technicians has also been a serious problem to these projects. Iraqi officials often have avoided work in rural areas, mainly because of inadequate facilities such as recreation, medical service, etc. . . . This has caused high reliance on foreign experts for running the projects and providing the impetus for their development. The problem arises as to what will happen if the foreign agencies and staff leave the country. In the case of the Dujaila, for example, the Fundamental Education Program collapsed immediately after the UNESCO team left. This indicates that in the long-run the success of any project should come through the active participation of the people of the country.

In spite of all these problems which face the projects, there is no doubt that those in operation have yielded some good results. In the Dujaila, for instance, the settlers have been better clothed, housed and fed than they were before. Settlers of these projects also enjoy a greater sense of security than they formerly had. Almost without exception, they do not wish to return to their former life under the Shaikhs. The projects have in general indicated the possibilities of creating a well-trained, small land owning class out of landless peasants. Many of the settlers have become familiar with new crops and new techniques of

⁴⁹Warriner, op. cit., p. 167.

cultivation.

Most important have been the benefits realized from the efforts of foreign experts associated with the projects. The Iraqi officials have come to recognize the advantages resulting from their working with the foreign agencies in the fields of local research, experimentation on new crops, irrigation and drainage, the use of proper methods of farm management, etc. Moreover, the problems and difficulties faced by the authorities in developing projects in the past indicate what must be done in the organization of such schemes for success. If bad decisions and mistakes made before can be avoided in the future, then this will certainly result in the saving of a great deal of time, money and effort.

Tribal Policy and Settlement, 1958-1964

The New Agrarian Reform

As we have previously seen, the dominant results of the proposals for tribal settlement and agrarian reform initiated during the Turkish Period, the British Period, and the National Period before 1958 were the strengthening of feudal influence in tribal areas of Iraq and the exploitation of the tribesmen. These were among the main factors which led to the change in the political regime on July 14, 1958, the establishment of the Republic, and the subsequent introduction of a new "Agrarian Reform Law, No. 30, 1958."⁵⁰

This law was designed to serve three main objectives: (1) to abolish the feudal system and the political influence of the feudal class;

⁵⁰Republic of Iraq, Agrarian Reform Law and the End of Feudalism (Baghdad: University Press, 1958), in Arabic.

(2) to raise the standard of living of the major segment of the people, particularly the peasants; and (3) to raise the level of agricultural production in the country, as a main component in strengthening the national economy. To arrive at these objectives there would be: (1) a limit on size of landownership; (2) distribution of land to the peasants to ensure a minimum decent standard of living for the fallah family; (3) establishment of cooperative systems in agriculture; and (4) regulation of the agricultural relations.

The maximum size of a personal holding of land according to the law is 1,000 dunums in irrigated areas and 2,000 dunums in rain-fed areas. Agricultural cooperatives are permitted to hold more than the maximum limit in non-cultivated lands for the purpose of reclamation. The government was given the right to seize all excess land within five years, beginning in 1958, and the owners of seized lands were entitled to fair compensation. Seized lands and previously state-owned lands were to be distributed to the fallahen so as to provide each with a holding of 30 to 60 dunums in irrigated land, and 60 to 120 dunums in rain-fed areas. The recipient of land must be an Iraqi farmer by occupation. First priority is given to those who formerly cultivated the redistributed lands. The second most favored group is that of the agricultural workers of the same area who support the largest families with the least income. Finally the law includes non-residents of the area.

The organization for agrarian reform reserved the right to retain part of the land for public use, for pasture, and for certain other purposes. The law also provided that all lands granted by Lazma and Tapu rights will be considered as state land without compensation. What the new landholder pays for his share of land is to be paid off in

installments within a 20 year period. After this, landowners will have absolute rights over their plots.

By the enactment of the new Land Reform Law of 1958, the following laws were abolished: (1) Law No. 23 of 1955 regarding the distribution of lands in the Amara province, (2) Law No. 40 of 1952 regarding the settlement of disputes over state lands granted by Tapu in the Muntafiq province; (3) Law No. 43 of 1951 for the development of Miri Sirf Lands; (4) Law No. 28 of 1932 concerning the duties and rights of farmers, and (5) the Tribal Disputes Regulation of the British Period.

The new landholders are required to join the agricultural cooperatives which have the following functions: (1) to supply members with money advances; (2) to provide them with seeds, cattle, agricultural equipment and storage facilities; (3) to market the principal crops for the members; and (4) to render all other agricultural and social services. These cooperatives are also required to be under the supervision of the government.

The existing tenancy relations between the landlords and the fallahen are regulated by the law. The landlord has to provide the land and supply it with enough water. The fallah is responsible for plowing, harvesting, threshing and transporting the crops. The landlord has no right to move or dismiss the fallah or the farm laborer from the land against his will, provided that he has performed all of the prescribed duties properly.

Each year the wages of the agricultural workers will be determined by a special five-member committee formed by the Minister of Agriculture. In addition, the agricultural workers are granted the right, for the first time in the history of Iraq, to form unions in order to defend their interests.

Implication of New Agrarian
Reform to Settlement of
the Tribes

Several criticisms have been made of this new agrarian reform law and its operation. The most important are:

1. Except for classification of land into rainfall and irrigated land, no explicit consideration is given in the text of the law to differences in fertility of soil, location, and/or different levels of management skill.

2. The land distribution was started before any necessary studies and surveys relating to the physical characteristics of the land, the kind of soil and its productive capacity, irrigation and drainage condition of the areas and other basic features had been initiated. The distribution also proceeded without socio-economic studies of the recipient people. Information concerning the living condition of the new landowners, number of persons in their families, their monthly expenditures and required income should have been available to the authorities to aid them in assigning the proper sized plots to be distributed.

3. Lack of proper maps, well trained personnel, and transportation facilities presented serious difficulties in the process of land seizing and distribution, especially during the early years of the reform.

4. It is commonly agreed that the repayment within 20 years of the costs of land and related structures is not enough time and should be extended to 35 years, and that no payment should be required for the first 5 years of tenure, during which the farmer should be able to establish himself on the land.

5. Since proper decisions in farming problems should not be

expected to come from poor peasants, more governmental supervision and guidance are needed. Otherwise, the productivity of land, the raising of the income of the fallahen and their permanent settlement will not be ensured.

6. In one of its provisions, the Agrarian Reform Law of 1958 provides that the recipient of land must be an Iraqi farmer by occupation. This means that the nomads are automatically excluded from acquiring rights to land. It is necessary, therefore, that this law be redefined to benefit these tribes if they are to be settled.

Some of the results of this agrarian reform between 1958 and 1963 are indicated in Table 39. By 1963, the area of both state land and seized land under the supervision of the Agrarian Reform Organization amounted to more than 5.5 million dunums, and a total of 193,395 peasants had been benefited by land distribution. There is no doubt about the potential contribution of the new reform law to the permanent settlement of the landless tribesmen. It should be remembered that the redistributed land is in areas which were under cultivation before the initiation of the 1958 agrarian reform law. The processes of land seizure and redistribution are still continuing and more land will be available for more settlers.

Another advantage of the law is its creation of small owner-cultivators who receive the benefits of their own labor and thus have more incentive to increase output. This means that in the short-run they will have higher economic and social status. In the long-run this will probably lead to a further increase in their efficiency and productivity, and result in still higher incentive and standard of living.

A result that the new reform has already achieved is the

TABLE 39

LANDS UNDER THE ADMINISTRATION OF THE AGRARIAN REFORM
ORGANIZATION OF IRAQ AND NUMBER OF FALLAHEN
BENEFITED UP TO 1963^a

Province	Area of State Land (in dunums)	Area of Seized Land (in dunums)	Total Area (in dunums)	Number of Fallahen Benefited
Mosul	1,052,166	915,641	1,967,807	42,138
Arbil	148,422	250,230	398,652	5,933
Karkuk	255,065	85,503	340,568	11,437
Sulamaniya	53,189	57,292	110,481	4,299
Baghdad	552,201	233,148	785,349	25,454
Diyala	222,030	165,967	387,997	8,077
Hilla	1,032	14,809	15,841	634
Karbala	40	13,121	13,161	564
Dulaim	102,835	7,227	110,062	4,166
Kut	24,000	395,310	419,310	5,896
Amara	636,093	33,132	669,225	50,980
Muntafiq	377,490	17,340	394,830	25,324
Diwaniya	58,398	95,158	153,556	4,977
Basra	23,021	6,077	29,098	3,516
Total	3,505,982	2,289,955	5,795,937	193,395

^aData obtained from the Ministry of Agrarian Reform of Iraq, in 1963.

destruction of the feudal system in the rural areas and the reduction of the economic and political power of the great Shaikhs. Large holdings and severe exploitation of the cultivator tribesmen no longer exist. The traditional sharecropping system has been abolished and the law is operating in determining a fair share of the return for each element required for agricultural production, such as land, and water, capital and labor.

CHAPTER VII

RECOMMENDATIONS FOR SETTLEMENT AND IMPROVEMENT OF THE NOMADS

The present nomadic tribes of the Western Region of Iraq are faced with many economic and social problems. That their difficulties cannot be solved effectively without eliminating the underlying causes is obvious. In the pages which follow suggestions and recommendations are made which, if followed, it is believed would provide partial or complete solution of the problem of the nomads and assure their settlement. This advice is based on study of: (1) the past experience in the settlement of the tribes in Iraq, (2) the physical characteristics of the area, (3) the immediate needs of the tribes and the requirements for their future development, and (4) the experience of other nations in dealing with the same problem. The technical aspects involved in implementing the suggestions are beyond the field of this study and should be investigated in detail by specialists.

Objectives

Since these tribesmen live in arid and semi-arid land, the combination of stock breeding and some form of cultivation is the most desirable occupation for most of them, apart from the possibility of some settlement dependent upon industrialization. This agriculture, whether based on dry farming or irrigation, must be largely on a

subsistence level and remain secondary to stock raising. The idea of encouraging some form of a mixed economy for these nomads, accounts for the recommendations made. Nevertheless, because the physical environment makes this type of economy impossible in some areas, while in others the people will not accept this way of life, nomadism will remain the occupation of some tribes.

The transition from nomadism to a mixed economy should be a gradual one. Such a course will make it easier to accomplish a complete change to settled agriculture where that is possible, and at the same time it will enable the continuance of pastoral pursuits in suitable areas. The combination of stock breeding and a subsistence type of farming also represents a way of life which is more acceptable to the nomads than pure farming (Pl. IX, Fig. 2). This type of economy, when rationally guided and encouraged, will assure the tribes the highest and safest possible standard of living. In fact, the economy of already settled tribes in Iraq is characterized by the combination of agriculture and stock breeding, although in this mixed economy agriculture is the primary economic activity, rather than animal husbandry.

Before 1933 Soviet attempts to settle the nomadic Kazakh in Central Asia, demonstrated that these tribes did not consider pure agriculture to be a higher and more profitable form of occupation than stock breeding. Consequently, the Russian policies since 1933 have been based on combining cattle breeding with agriculture in a collective farm economy for the Kazakh. This new arrangement, called a "roving cattle economy," consists primarily of cattle breeding.¹

¹Irene Winner, "Some Problems of Nomadism and Social Organization Among the Recently Settled Kazakhs," Central Asian Review, II (1963)

The idea of a mixed economy may be further illustrated by the 1938 British shift of policy in dealing with the tribes of Trans-Jordan and by the recent policy of Israel toward its nomads. In Trans-Jordan the original British Mandate design was to convert the nomads into settled cultivators. The first program, formulated in 1933 by the Trans-Jordan Department of Agriculture, provided a tract of land for each of the Bedouin tribesmen. In addition it called for the distribution of the necessary requirements for successful agriculture. Yet the nomads refused to give up animal husbandry and become cultivators. Consequently, the settlement policy was shifted from full cultivation to a mixed economy in which agriculture provided only a supplementary income for the tribes.² The new strategy was stated this way: "The objects of the encouragement of Bedouin cultivation are briefly (a) to broaden the basis of their economy and to prevent the whole of their livelihood from depending upon one somewhat fickle form of capital, and (b) to give them a fixed stake in immovable property in the country, which will be not only an economic insurance but also a social anchorage."³ As a result

¹Part I, 250-258. For comparison between the nomads of Southwest Asia and Central Asia the reader is referred to Catesby T. Jones, "A Comparative Study of Northern and Southern Pastoral Nomadism in Asia" (Unpublished Ph. D. dissertation, Department of Philosophy, Johns Hopkins University, 1952); Raphael Patai, "Nomadism: Middle Eastern and Central Asian," Southwestern Journal of Anthropology, VII (1951), 401-414; Elizabeth E. Bacon, "Types of Pastoral Nomadism in Central and Southwest Asia," Southwestern Journal of Anthropology, X (1954), 44-65.

²Benjamin Shwadrin, Jordan A State of Tension (New York: Council for Middle Eastern Affairs Press, 1959), pp. 195-196.

³Ibid., p. 198.

of this policy change, the 1938 annual Mandatory Report expressed great satisfaction that by the end of that year not only every tribe, but also every section of every tribe in Trans-Jordan had been put into a position to carry out some cultivation.⁴ According to Glubb, by 1939 one could hardly find a nomadic family in Trans-Jordan that did not own its field of grain in addition to its flocks.⁵

The experience of Israel's settling of the nomads of the Negev is similar. There, despite the increasing tendency of the tribes to adopt a settled farming occupation, livestock breeding, mainly sheep, still remains a very important and growing element in the economy. Therefore, every encouragement is provided to those tribes which desire to expand this segment of their occupation.⁶ It is further estimated that approximately 60 per cent of the total incomes of those tribes is derived from this source, and the rest comes mainly from the sale of surplus crops.⁷

Principles to Guide Any Settlement Project

The need for a logical and comprehensive body of settlement principles for Iraq's nomads is shown by the past experiences not only in Iraq, but in other nations such as Saudi Arabia, Iran, and Russia.

In Saudi Arabia, in 1912, a combination of political and religious motives prompted Ibn Saud to implement a program for the

⁴Raphael Patai, The Kingdom of Jordan (New Jersey: Princeton University Press, 1958), p. 195.

⁵John B. Glubb, The Story of the Arab Legion (London: By the Author, 1948), p. 170.

⁶E. Elath, "The Bedouin of the Negev," Journal of Royal Central Asian Society, XLV (1958), 135.

⁷Ibid., p. 135.

settlement of Bedouins in Najd around a number of old water wells. By 1927, the program had grown to include about 100 villages with a total population of 100,000 people. Many of these villages demonstrated immediate failures, and ultimately the whole scheme was handicapped for several reasons. The primary one was that the wells did not yield as much water as had been expected. Secondly, the concentration of the nomads into small areas, and the lack of proper sanitation and medical facilities, resulted in the spread of various kinds of diseases among them. The social standards of the nomads which prevented them from accepting cultivation as a way of life, inadequate financial aid, and the lack of such technical assistance as needed in land clearing and development of water resources also contributed to the failure.⁸

During the 1930's the Shah of Iran attempted to settle the nomadic tribes of his country and to break down their tribal organization by force, without any substitute plan. The results were disastrous. One writer described the situation: "...in the course of half a dozen years or more many hundreds of them died from the effects of disease or famine, and (that) their health and morale, especially of the younger generation, were radically impaired."⁹

Early Soviet settlement programs for the Kazakh cattle-breeding nomads provide a third example of the need for sound principles. Since the Soviets believed that nomadism works against the spread of socialist ideas and that farming is a higher level of economy than herding, the

⁸Menahem Kapeliuk, "Settling Bedouin in Saudi Arabia: the Story of An Experiment," New Outlook, Tel Aviv, I (1958), 16-21.

⁹Oliver Garrod, "The Nomadic Tribes of Persia To-Day," Journal of Royal Central Asian Society, XXXIII (1946), 34.

nomads were forced to settle in limited areas in large numbers. The results were the death of thousands of animals, social disruption and poverty among the tribesmen, and an eventual return to nomadism.¹⁰

The author believes that the following guiding principles are essential in carrying out any settlement or improvement program for the nomadic tribes of Western Iraq:

1. The plan should provide for a gradual change, involving transitional stages, rather than a radical shift from a nomadic to a settled life. It must be remembered that these tribes represent a very old cultural group with a long history. Consequently, they have developed a clearly crystallized social pattern with a definite set of attitudes and behaviour principles toward a peculiar type of natural environment. Transforming them from nomadism to settled communities is a major operation involving time, patience, tact, money, planning, and education. As one authority states with reference to the nomadic tribes of Syria, "Settlement on a fixed plot of land will not in itself turn the Bedouin into a farmer or an artisan, for sedentarization is a process of gradual social development and not one of social will or action,"¹¹ Slow development, then, is the safest, most logical, and most practical approach.

2. The obtaining of voluntary cooperation of the tribes concerned should be the basis of any measure proposed for their settlement or development. Success cannot be guaranteed without gaining their full support and participation. Centralized planning and administration of

¹⁰"Stabilization of the Nomads," Central Asian Review, VII (1959), 226-227.

¹¹Adnan Mahhouk, "Recent Agricultural Development and Bedouin Settlement in Syria," Middle East Journal, X (1956), 176. See also Afif I. Tannous, "The Arab Tribal Community in a Nationalist State," Middle East Journal, I (1947), 12-17.

projects are necessary; but the needs, the desires, and the experiences of the tribesmen should be taken into serious consideration in such planning. A special effort should be made to convince the Shaikhs and subleaders that the proposed measures are for the benefit of their people, and that their cooperation is essential to ensure success.

3. The program should take into consideration not only animal husbandry and farming in the narrow sense, but also all elements of community life. It is obvious that pastoral nomadism is a total way of life, as is settled farming. To transform these people from one to another is a tremendous task which involves change or modification of almost all aspects of living. A settlement project, therefore, should not concentrate on one of these aspects to the exclusion of the others. In addition to those supplying enough water, land, implements, and other factors required for agriculture, any plan should contain provisions for housing, credit facilities, schooling, community welfare and a total coordination of the proposed settlement's activities. In other words, the problem calls for comprehensive planning. Absence of this will create a troubled community, constituting more of a national liability than an asset. The transformation of the already settled tribesmen of Iraq from free desert nomads into peasant sharecroppers with no improvement of living standards, underlines the dangerous consequences of the lack of comprehensive programming.

4. An enlightened project should be based on the follow-up concept. The granting of basic services and facilities for tribal transformation is fundamental, but it is also necessary that from the start a long-term program of extension services should be devised. This should be designed to perform several essential functions. It should assure

that the services and facilities granted to settlers are being effectively utilized, altering the old patterns of behavior to better ways of doing things. In addition, it should keep the authorities and experts in constant touch with the problems which arise in the new settlement and prevent these from becoming critical in the life of the settlers.

5. The project should be inspired and tested at every stage by the ultimate objective of raising the nomads' standard of living and thereby their economic contribution to the nation. In initiating any measure, the question should be asked: does the proposal actually aim at bettering the welfare of the tribes concerned and assure improvement in their health, food, housing, education, and other amenities of life? Considering the physical environment and their present pastoral occupation, the second question that should be asked is whether the proposed scheme offers the nomads a sound basis for long-run progressive settlement.

6. Any measure for tribal settlement must remain the concern of the government. Only on very rare occasions can initiative be expected from the nomads themselves. This must come from the government which should carry the responsibility of providing and supervising all possible technical, material, and moral aids. Furthermore, without adequate administrative control by the authorities, it would be extremely difficult, if not impossible, to attain success.

Practical Steps Toward Settlement and Development of the Nomads

Keeping in mind the previous discussion and the principles enumerated above, the author believes that a beginning for the settlement of the nomadic tribes of Western Iraq can be made by taking the following steps.

Establishment of a Research Organization

It is clear that the problem of settlement of the nomads is very complex, and its solution requires overcoming diverse physical and social difficulties. To deal with all aspects of the problem must be the responsibility of a team of experts drawn from all the relevant fields, such as climatology, hydrology, soil science, botany, animal husbandry, agriculture, engineering, economics, and sociology. The division of responsibility of these experts, if carefully planned within a research institute, would assure cooperative work and eliminate both duplication of effort and the overlooking of any part of the problem. Through their integrated efforts, this research group could accurately determine the suitability of the soil for different uses, the available water supply and natural vegetation, and the potential of other physical elements which affect settlement. In such a broad development as arid lands require, Cressey claims that it is the responsibility of the geographer to correlate the data and introduce suggestions.¹²

In both Egypt and Israel, for instance, settlement of the nomadic tribes has been aided by the establishment of such Desert Research Institutes. These institutes are assisted by other agencies. The Cairo Institute for Desert Research in Egypt is aided by the Department of Sociology and Social Anthropology in the Egyptian Universities, and by government agencies such as the Department of Desert Irrigation. These institutions have coordinated efforts to study the economic and social conditions of the nomads of the Western Desert of Egypt, and the

12

George B. Cressey, "Water in the Desert," Annals of the Association of American Geographers, XLVII (1957), 124.

possibility of their transformation to settled people.¹³ Consequently, several tribal settlement projects such as Wadi Al-Natron, the Qattara, and the Ras Al-Hikma in the Western Desert have been established. These projects are intended to develop ground water resources, to preserve the rain for irrigation, stock watering and domestic purposes, to increase the cultivated area of the desert, to improve the pastoral resources in areas where agriculture is not practical, to improve the existing primitive crafts of the tribes, and to establish new industries.

In Israel also, settlement of the nomads of the Negev has been accelerated by the combined efforts of experts of the Israeli Desert Research Institute and research workers drawn from various agencies. Among these are the Ministry of Agriculture, the Ministry of Development, the Government Department of Antiquities, the Department of Meteorological Service, the Hebrew University, and the Weizman Institute of Science.¹⁴ These agencies are carrying on extensive research to encourage the Bedouin tribes of the Negev to change their nomadic and semi-nomadic life into that of permanent settlers.¹⁵ The measures adopted include increasing the supply of water for irrigation and other uses, introduction of modern agricultural techniques, leasing of land to Bedouin families, and development of the pastoral and animal resources of the tribes. In addition, the settlers are provided with long-term loans, the benefits of agricultural cooperatives, and medical and

¹³A. M. Abou-Zeid, "The Sedentarization of Nomads in the Western Desert of Egypt," International Social Science Journal, XI (1959) 550.

¹⁴Michael Evenari and Dov Koller, "Desert Agriculture: Problems and Results in Israel," Gilbert F. White (ed.), The Future of Arid Lands (Washington, D.C.: The American Association for the Advancement of Science, 1956), pp. 391-392.

¹⁵Norman Bentwich, "Development in the Negev," Journal of Royal Central Asian Society, XLII (1955), 176-183.

educational services.¹⁶ In spite of the scope of aid provided the nomads in Israel, many writers feel that even more attention should be devoted to the problem.¹⁷

The efforts of experts in both Egypt and Israel have resulted in considerable improvement in the material life of the tribes and in promoting a spontaneous tendency toward settlement. According to Abou-Zeid, the nomads of the Western Desert of Egypt numbered about 68,000 in 1947. By 1959 this had been reduced to about 24,000 people.¹⁸ In Israel, the nomadic population was reduced from 103,000 in 1922 to only 27,000 in 1961.¹⁹ Other sources indicate the number of the nomads of the Negev Desert alone was about 90,000 in 1946,²⁰ during the British Mandate Period, and were estimated to number only 14,000 to 1959.²¹

Development of Surface Water Resources

There are, in the region under consideration, possibilities for the development of and better utilization of water resources. Where

¹⁶Elath, op. cit., pp. 131-140. See also Israel Hertz "The Bedouin of the Negev," New Outlook, Tel Aviv, III (1960), 30-31.

¹⁷Mussa Al-Atawna, "What the Bedouin Want," New Outlook, Tel Aviv, III (1960), 15-18.

¹⁸Abou-Zeid, op. cit., pp. 551-552.

¹⁹D. H. K. Amiran and Y. Ben-Arieh, "Sedentarization of Beduin in Israel," Israel Exploration Journal, XIII (1963), 162.

²⁰Sami W. Dajani, "The Enumeration of the Beersheba Bedouins in May 1946," Population Studies, 1 (1947-1948), 301.

²¹H. V. Muhsam, "Sedentarization of the Bedouin in Israel," International Social Science Journal, XI (1959), 541.

these exist it is obviously desirable to efficiently utilize water for domestic purposes, for livestock watering, and for the cultivation of fodder crops. The fodder so produced should be used to build up dry-season reserves for the animals, and should be the basis of a settled form of animal husbandry. The production of fodder reserves, of course, depends upon the optimum development of water resources.

Water Supply of the Tigris and the Euphrates

During a normal year the water supply of the Tigris-Euphrates rivers amounts to 73,414 million cubic meters of water (Table 40). Of this amount 64 per cent (47,004 million cubic meters) is supplied by the Tigris and its tributaries, and the remaining 36 per cent (26,410 million cubic meters) by the Euphrates. In a dry year, the water supply of the two rivers is estimated to be about 50,000 million cubic meters.

A great part of the water supply of the two rivers is withdrawn and consumed in the Mesopotamian Plain. This region uses about 65 per cent (47,675 million cubic meters) of the average yearly water supply of both rivers (Table 40). Nearly all of this water is being used for irrigation. The remaining 35 per cent (25,739 million cubic meters) of the yearly supply, flows to the Persian Gulf, where it is wasted (Table 40). During dry years, a shortage of water occurs in the Tigris basin in all months except January and February, whereas in the Euphrates basin, about half of the minimum supply is sufficient for the required consumption and the rest is dissipated.

It is proposed that, when the flood control schemes are completed, an amount of 7,700 million cubic meters of water out of the annual 25,739 million cubic meters which now flows to the Persian Gulf without use will be reserved for irrigation. Nevertheless, there will still be

TABLE 40

THE PRESENT YEARLY WATER BUDGET OF THE TIGRIS AND THE
EUPHRATES RIVERS^a
(In Million Cubic Meters)

River	<u>Yearly Supply</u>		<u>Yearly Use</u>	<u>Dissipated Yearly</u>	
	Average	Minimum		Average	Dry Year
Tigris	47,004	31,000	38,068 ^b	8,936	-7,000
Euphrates	<u>26,410</u>	<u>19,000</u>	<u>9,607</u>	<u>16,803</u>	<u>+9,593</u>
Total	73,414	50,000	47,675	25,739	+2,593

^aCompiled from Wafiq Hussain Al-Khashab, The Water Budget of the Tigris and Euphrates Basin (Ph. D. dissertation, Department of Geography, The University of Chicago, Chicago: By the Author, 1958), pp. 80-81.

^bThis estimated amount, theoretically exceeds the minimum yearly supply. This gives the impression that in dry years all the water available in the Tigris is consumed. This is not the case because some farmers during dry years give up the idea of cultivation.

18,039 million cubic meters of water wasted each year. Of this, 13,603 million cubic meters will be from the Euphrates River supply.

Another way water is wasted is through inefficient irrigation methods and especially by uncontrolled water diversion. It has been stated that efficient irrigation of crops requires only about 6,000 million cubic meters per year.²² The amount of water actually applied through irrigation canals totals 46,000 million cubic meters. Thus, a waste of 40,000 million cubic meters of water occurs every year. Some of this can be considered as economically justified, but unjustified waste is calculated by Al-Khashab to be 36,000 million cubic meters of

²²Wafiq Hussain Al-Khashab, The Water Budget of the Tigris and Euphrates Basin (Ph.D. dissertation, Department of Geography, The University of Chicago, Chicago: By the Author, 1958), pp. 86-87.

water annually.²³

Much of the water wasted through inefficient irrigation methods raises the water table, or works its way either as surface or sub-surface flow to the swamps of central and southern Iraq. Most of the underground water comes from the unlined irrigation canals and deep percolation from the flood-irrigated fields. Although this water eventually is either evaporated or returns to streams it creates certain problems in the process. Seepage water, raising the water table, has caused an increasing concentration of harmful salts in the soil, with result that a considerable area of land has been abandoned in central and southern Iraq because of salinization. The saline condition of the soil, in turn, forces the farmers to use excessive amounts of water to wash out the salt in order to cultivate the land, but at the cost of raising the water table again. Consequently, high expenditures on drainage projects are required to reduce the danger of salinization. About \$84 million for drainage works in the presently irrigated lands of Iraq was allocated in 1961. Moreover, the swamps constitute a source of many epidemic diseases affecting the people living in the marshy, irrigated areas. Approximately 90 per cent of the bilharizia cases, 75 per cent of the ankylostomiasis cases, and over 70 per cent of the malaria cases in Iraq are found among the people living south of Baghdad, where most of the swamps are located.²⁴

The excess water resources of the Tigris and Euphrates rivers, instead of being wasted, could be used to irrigate considerable areas of

²³Ibid., p. 87.

²⁴Republic of Iraq, Ministry of Planning, Central Bureau of Statistics, Statistical Abstract, 1961 (Baghdad: Zahra Press, 1962), pp. 364-366.

the Alluvial Plain, the Western Desert, and the Jezira. First priority should be given to the irrigation of the Alluvial Plain. In the author's opinion, the following possibilities should be considered in supplying water to these areas.

Utilization of the Tigris Water Supply

Eski Mosul Dam.--Studies of the Development Board have proved the possibilities of erection of two dams on the Tigris River north of Mosul; namely the Dairich and the Eski Mosul Dam (Fig. 13). However, it appears that the government is not interested in the initiation of these projects. The author feels that both should be reconsidered and a start made to erect at least the Eski Mosul Dam. This would permit reclamation of a considerable area of fertile land in the northern section of the Jezira for settlement of nomads.

There are several advantages favoring completion of the Eski Mosul project. It will make possible irrigation of about 1,000,000 dunums of good (first and second class) land near the city of Mosul.²⁵ The soil here is both irrigable and not salinated. Its proper utilization would facilitate conservation of soil and grazing resources. The dam would help to nourish the ground water through percolation. It would also protect the city of Mosul and other downstream areas against the flooding of the Tigris River. It has been stated that present flood control schemes, including the Dokan, Derbendi Khan, and Wadi Tharthar, do not promise adequate protection against Tigris flow of more than 75 per cent

²⁵Food and Agriculture Organization of the United Nations, Mediterranean Development Project, Country Report, Iraq (Rome: By the Organization, 1959), Chapter III, p. 8.

of the probable maximum flood peak.²⁶ Finally, construction of Eski Mosul will provide jobs to the tribes of the area.

The Ishaqi Project.--This project may be initiated to irrigate the southeastern section of the Jezira, which is one of the most promising areas for development in the whole Western Region. If watered, the alluvial soil of the area can provide much opportunity for cultivation and settlement. The water could be diverted to the area by utilizing the high level of the Tigris River north of Samarra Barrage. When this project is completed an area of 680,000 dunums can be reclaimed.²⁷

The Tharthar Project.--At the present time this facility is used to store excess flow of the Tigris in the flood season. A great deal of the water is lost as seepage through cracks in its bed. This has raised the water table and created a large area of swamps in formerly cultivated lands south of the project. Even some localities near Baghdad have been affected by the seepage, especially during flood seasons. In addition, a great amount of the stored water is lost through evaporation. It seems, therefore, that it might be possible to utilize the water of this project to irrigate the surrounding areas of the Plain of Jezira, especially those areas southeast of the project, by the use of pumping methods or pipeline. Electricity generated by the dam could operate a water pumping complex, thus making irrigation possible. If part of the reserved 6.8 billion cubic meters of this water is used for irrigation, it will bring large areas of desert land under cultivation; however,

²⁶Ibid., Chapter III, pp. 6-7.

²⁷Ibid., Chapter IV, p. 11; also J. A. Salter, Development of Iraq: A Plan for Action (Baghdad: The Development Board, 1955), pp. 180-181.

much investigation is needed to test this possibility.

Utilization of the Euphrates Water Supply

Khan Baghdadi and Rawa Dams.--As shown in Table 40, at present more than half of the annual water supply of the Euphrates River is wasted during both normal and dry years. The Habbaniya reservoir is the only storage unit on this river. Consequently, additional projects must be initiated to get maximum benefit of its water resources. There are some possible dam sites within the Iraqi Border. Most important are the Khan Baghdadi north of Hit and the Rawa near the town of Rawa (Fig. 13). The development of these sites to store excess water of the Euphrates for the irrigation of adjacent areas may provide advantages similar to those of the Eski Mosul and Tharthar projects.

Habbaniya Project.--This reservoir presently is not capable of capturing all the excess water of the Euphrates. Its capacity is 2.3 billion cubic meters of water. Surplus water is relieved to the Abu Dibbis depression, about 60 kilometers north of the city of Karbala, where it is wasted (Fig. 13). Much of the excess is lost during the spring flood. The Abu Dibbis depression contains too much salt to be usable as a water storage area. It has been reported that in the spring of 1955, the salt content of the water of this depression was 9,000 parts per million.²⁸ In addition, the depression's water storage capability is not favorable because of its shallowness. It might be feasible to spread the excess water of the Habbaniya project to adjacent lands without using the Abu Dibbis depression. This possibility should

²⁸P. Buringh, Soil and Soil Conditions in Iraq (Baghdad: The Ministry of Agriculture, 1960), p. 202.

be studied.

Bahr Al-Najaf Project.--Bahr Al-Najaf is a broad depression with an area of 20,000 acres, located just west of the city of Najaf (Fig. 3). It can be supplied with water from the Euphrates River. The economic and technical feasibility of this project has been determined by the Development Board. It has been reported that its initiation may cost 274,000 dinars, but its benefit is estimated at about 3,620,000 dinars. The ratio of the benefit to the cost was calculated to be 13.2.²⁹ The project has the merit of reclaiming about 15,000 acres of land.

In addition to the above mentioned projects, there is a great possibility of irrigating the Alluvial Plain along the west bank of the Euphrates River. However, in doing this, great attention should be devoted to the drainage problem because the water table is high and the land is low.

The Use of Pipelines

There are many ways to convey available water. The use of pipes is one. At present, in the arid and semi-arid regions of the United States irrigators are relying more and more on the use of concrete pipes for water distribution. Thousands of miles of these lines are being used in the western states.³⁰ Most of the irrigation system in Israel also depends on this method. The Israelis have built several pumping stations which lead into a spectacular series of canals, tunnels, and

²⁹Government of Iraq, Development Board, Development of the Tigris-Euphrates Valley (Baghdad: Al-Ani Press, 1954), p. 24.

³⁰Orson W. Israelsen, Irrigation Principles and Practices (New York: John Wiley and Sons, Inc., 1958), pp. 164-165.

concrete pipelines up to nine feet in diameter to carry water from the Sea of Galilee to the new settlement in the barren Negev Desert 150 miles to the south.

The use of pipes for conveying irrigation water has several advantages over the use of open canals. Pipes are better adapted to irregular topographic conditions and their use makes possible better control and regulation of the quantity of water that is delivered to the fields. Moreover, this method prevents loss of water through evaporation and seepage. True, the initial installation cost of a pipe system can be expensive, but it might be worthwhile to try this method in supplying Tigris and Euphrates water to some carefully selected areas of the Western Region of Iraq. Experience in Israel shows that it is economically feasible to lift water by pipes up to an elevation of 600 feet above the source. If this method is applied to the Western Region of Iraq, certain areas within such elevation limits might be provided with water.

Even though installation of a pipeline system is costly, the method could easily be experimented with by using already existing systems. There are two unused oil pipelines with diameters of 12 and 16 inches, which pass across the Euphrates and over the northern section of the Western Desert; there are also four pumping stations along these lines. The stations, K-3, H-1, H-2, and H-3, are shown in Figure 11. The pipelines and the stations are located near Wadi Hauran. Since 1948 the pipelines and three of the pumping stations (H-1, H-2, and H-3) have been unused (Pl. X, Fig. 2).

The author feels that the use of these pipelines to convey water from the Euphrates River to the Western Desert should be investigated. Since fuel could be supplied from nearby oil fields, the cost of pumping the water should not be prohibitive. Furthermore, the inherent fertility

of the area justifies irrigation if this is possible.

The Use of Sprinklers

Although this aspect of irrigation has never been tried in Iraq, its consideration should not be excluded. Recently, this method has come into more frequent use for irrigating arid lands and also for providing supplementary irrigation in the humid regions of the United States and other countries. The widespread use of sprinklers is mainly due to the invention of inexpensive light-weight aluminum pipes. The sprinkler system, when properly installed and operated, has several advantages. It can be used on all soil types, on land of widely different topography and slopes, and for various kinds of crops. This method is especially desirable for irrigating soils having high infiltration rates, shallow soils whose topography prevents proper leveling for surface irrigation methods, and areas having steep slopes and erosive soils. Consequently, application this way saves water and labor, protects soils, and usually increases crop production over any other method.³¹

Under these conditions, the sprinkler irrigation concept might well be applied to the hilly subregion of the Jezira. It may also be used successfully in the northern section of the Western Desert in combination with the now unused pipelines, and in irrigating the sandy soil of the Dibdibba subregion. The cost of installing sprinkler systems in these areas may be high, but the possible benefits would no doubt justify such expenditures.

The economic feasibility of a pilot project in the northern section

³¹Tyler H. Quackenbush and Dell G. Shockley, "The Use of Sprinklers for Irrigation," *Water*, the Yearbook of Agriculture, 1955 (Washington, D.C.: Government Printing Office), p. 267.

of the Jezira has been explored by Al-Khashab.³² He believes that one of the immediate benefits which would result is the saving of water. He states that in order to irrigate a square meter of land in southern Iraq by the conventional canal method, an average of 1.2 cubic meters of water is consumed. However, an average of only 0.7 cubic meters would be consumed irrigating a square meter in the Jezira by the sprinkler method. Therefore, for every acre of land in the Jezira irrigated with sprinklers, instead of by canals, 2,000 cubic meters of water could be saved. The cost of installing such an irrigation system for one acre in the south is about \$86; in the Jezira it would range from \$75 to about \$87.³³ Use of sprinkler irrigation in the Jezira would improve the quality and quantity of the ground water through deep seepage of unmineralized water. In addition, return flow from the water diverted for irrigation of this area could possibly be used again in the lower parts of Iraq, depending upon its quality. Year round cultivation in the Jezira would be possible. More specific study and perhaps the initiation of a pilot project are needed to determine the validity of these benefits.

Increased Use of Natural Precipitation

Water Spreading

Although rainfall in the Western Region of Iraq, and especially in the Western Desert, is scarce, the sudden downpours, the limited percolation of water in the soil, and the resulting excessive runoff, often cause tremendous flash floods in the wadis. In the Negev Desert of

³²Al-Khashab, op. cit., pp. 95-100.

³³Ibid., p. 99.

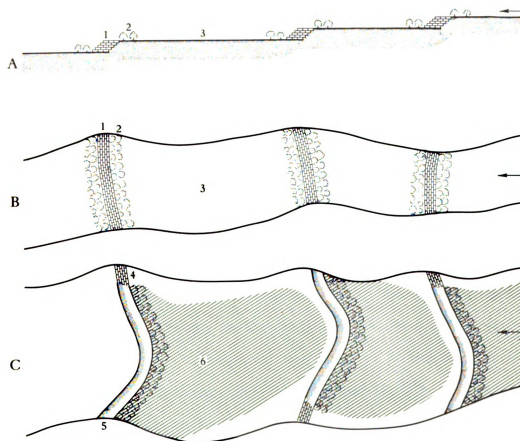
Israel, for example, it is not unusual after a rainfall of as little as 10 millimeters on the watershed, to have 30,000 cubic meters of water per hour crash through a wadi.³⁴ Although no measurements of runoff are available for Western Iraq, in the Upper Wadian subregion of the Western Desert, it has been stated that within a few hours, runoff in wadi beds often reaches a depth of about one meter during the rainy seasons. These great quantities of water are lost, but not until after they have caused extensive soil erosion. Possible answers to this problem are the erection of various types of dams, dykes, terraces, and all other workable water spreading techniques to slow the movement of the water (Figure 14). In order to effect successful water spreading, the topographical characteristics of each locality must first be studied.

In this respect, the Israeli experience in the Negev is worth discussing. The steep narrow tributary wadis of this desert are altered by constructing a series of broad terraces across their courses (Fig. 14). The terraces range in height from 25-50 centimeters and become plots for wheat and pasture.³⁵ The stone edges are reinforced by planting bushy vegetation on their front. The plants resist flood flow, slow the movement of water over the surface, thus encouraging the accumulation of soil, and eventually provide grazing resources. Due to the stronger flow and larger amounts of water in the main wadis, they have been treated differently. Small earth dams are built across the course of each wadi following the contour. Each dam is terminated by a spillway which is located at the opposite ends of successive dams (Figure 14). This

³⁴Evenari and Koller, op. cit., p. 403.

³⁵Ibid., p. 404.

FLOOD WATER IRRIGATION IN TRIBUTARY AND MAIN WADIS (SCHEMATIC)



- A. TRIBUTARY WADI (SCHEMATIC)
- B. TRIBUTARY WADI (PLANE VIEW)
- C. BROAD FLAT WADI (PLANE VIEW)
- 1. STONE SHELF ON CONTOUR LINE
- 2. BUSH REINFORCEMENT
- 3. CULTIVATED TERRACE IN WATER COURSE
- 4. STONE SPILLWAY
- 5. EARTH DIKE ON CONTOUR LINE
- 6. PONDED AREA IN WATER COURSE
- DIRECTION OF FLOW

MODIFIED FROM: MICHAEL EYENHART AND DOV KOLLER, "DESERT AGRICULTURE: PROBLEMS AND RESULTS IN ISRAEL," GILBERT P. WHITE (ED.), THE FUTURE OF ARID LANDS (WASHINGTON, D.C.: THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, 1956).

Fig. 14

artificially creates a much gentler slope, slowing the velocity of the runoff considerably and spreading it over a larger area of the wadi bed. Soil erosion is thus reduced, and the water has more time to percolate and moisten deeper layers of the ground.

The problem of water conservation in broad wadis characterized by deep channels was solved by the ancient Nabataeans and Byzantines in the Desert of Negev.³⁶ They built series of dams across the deep channels to raise the water level so that it would spill over terraces along the sides. Stone conduits were also built upstream from the dams to divert flood water to high cultivated terraces downstream.

Basic ideas and techniques similar to those used in the Israeli experiments for utilizing surface runoff have been employed in the Eastern Desert of Jordan, in Western Pakistan, in the Western Desert of Egypt, in the Libyan Desert, and in the Western arid and semi-arid regions of the United States, especially in Arizona, Texas, and California. The water spreading methods applied in these countries have yielded successful results, particularly with respect to the production of grasses for pasture. In Jordan, for example, 63 earth dykes with a total length of 65 kilometers were constructed in 1954, affecting an area of 17,000 dunums in the Eastern Desert close to the Iraqi boundary. Each dunum produced 4 tons of green grass in rainy seasons which was used as fodder for the animals of the nomads.³⁷

³⁶Michael Evenari and Dov Koller, "Ancient Masters of the Desert," Scientific America, CLXLIV (1956), 39-45.

³⁷Mohammad I. Al-Hindi, "The Modern Methods of Utilizing Runoff Water and the Development of Pasture Resources for the Settlement of the Bedouin Tribes," Arab League, Department of Health and Social Affairs, Fourth Social Seminar of the Arab States, Baghdad, May 6 to 21, 1954 (Cairo: Dar Al-Hana Press, 1954), pp. 288-289.

In West Pakistan, in 1963, water spreading was conducted on 3,000 acres of the Dera Ismail district, near the Suleman Hills.³⁸ The project was sponsored jointly by the Forest Department of Pakistan and the United States Agency for International Development. More than 200 small dams and dykes were erected to store and spread runoff water to nourish starving grass roots. The cost was only \$20 per dam. The test area soon became rich pasture land, in spite of the small amount of rainfall. The native grass grew 30 inches high and provided fine hay. It has been reported that during the fall of 1963, villages of the project harvested an extra one million pounds of hay with a cash value of about \$10,000, as a result of this technique. This is an example of what can be accomplished in arid lands when the local authorities, the inhabitants of the area, and the personnel of foreign agencies work as a team on a development project.

In Iraq, none of the water spreading techniques discussed have been attempted. Since the Wadian section of the Western Desert and much of the Jezira are characterized by suitable topography, the author feels that such an approach should be tried, if on only an experimental basis. The construction of even a pilot project may produce enough pasture land to induce some of the nomadic tribes of the area to settle. The initiation of such schemes, however, requires a detailed survey of the physical conditions to select proper sites. This should be the responsibility of irrigation planners.

Enlargement of Natural Depressions

Another possible measure which could be carried out in Iraq is the

³⁸The State Journal, (Lansing, Michigan), June 7, 1964.

enlargement and deepening of carefully selected natural depressions, which during rainy seasons form rain-pools (Pl. I, Fig. 1). With a little effort these could be turned into reservoirs impounding runoff water for domestic use and the watering of animals during and after the rainy months. These should be sited near water spreading projects so as to be used in conjunction with the grazing lands as watering points for the livestock.

This practice had been tried in the Eastern Desert of Jordan and in the Negev of Israel. In Jordan, where four depressions have been enlarged and improved, one million gallons of runoff water was contained and used for stock watering in 1954. Because of the success of this project, additional ones have been planned.³⁹ There is a great possibility for such improvement in arid areas, although the high evaporation losses may act as a deterrent. On the other hand, recent investigations in Australia for the reduction of evaporation losses by using cetyl alcohol and related compounds, to form a thin film on the water surface, raise new hope for the conservation of water in arid lands. These experiments have proved highly successful. Tests in Victoria showed an average of 50 per cent reduction in evaporation for a period of eighteen months.⁴⁰

Repair of Water Tanks

Cleaning and repairing the previously mentioned 17 artificial masonry tanks in the Western Desert is another possible measure to increase the water supply of the area and thereby improve the condition of

³⁹Al-Hindi, op. cit., p. 289.

⁴⁰Frank Dixey, "Variability and Predictability of Water Supply," Gilbert F. White (ed.), The Future of Arid Lands (Washington, D.C.: The American Association for the Advancement of Science, 1956), pp. 131-132.

nearby nomads (Pl. I, Fig. 2). The benefits will justify the cost, since each tank was originally capable of holding 30,000 cubic feet of water. In Jordan where the authorities have realized the usefulness of such tanks, four masonry ones have been repaired and 5 million gallons of water have been thereby made available for domestic and livestock purposes.⁴¹ Judged by the Jordan experience, if repaired, the 17 tanks in the Western Desert of Iraq will store more than 20 million gallons of rain water. If renovation of the old tanks proves successful, it may be desirable to build others in the area, each of which could serve as a nuclei of settlement. Since the existing tanks are relatively small, it might be feasible to cover them in order to reduce evaporation, and at the same time protect the stored water against pollution and contamination (Pl. V, Figs. 1 and 2).

Development of Ground Water Resources

As previously indicated, ground water is the main source of water supply in the interior of Western Iraq. In the full development of this resource lies another hope of increasing water available in the area. Water obtained from underground must, apart from any question of economics, satisfy two conditions: (1) it must have a quality, judged by its dissolved mineral constituents, acceptable to man for his own drinking, for watering his livestock, and for the irrigation of his crops, and (2) it must be produced in sufficient quantity.

The quality of ground water in Western Iraq is shown in Figure 15. This map delineates the areas within which the ground waters are of equal

⁴¹Al-Hindi, op. cit., p. 289.

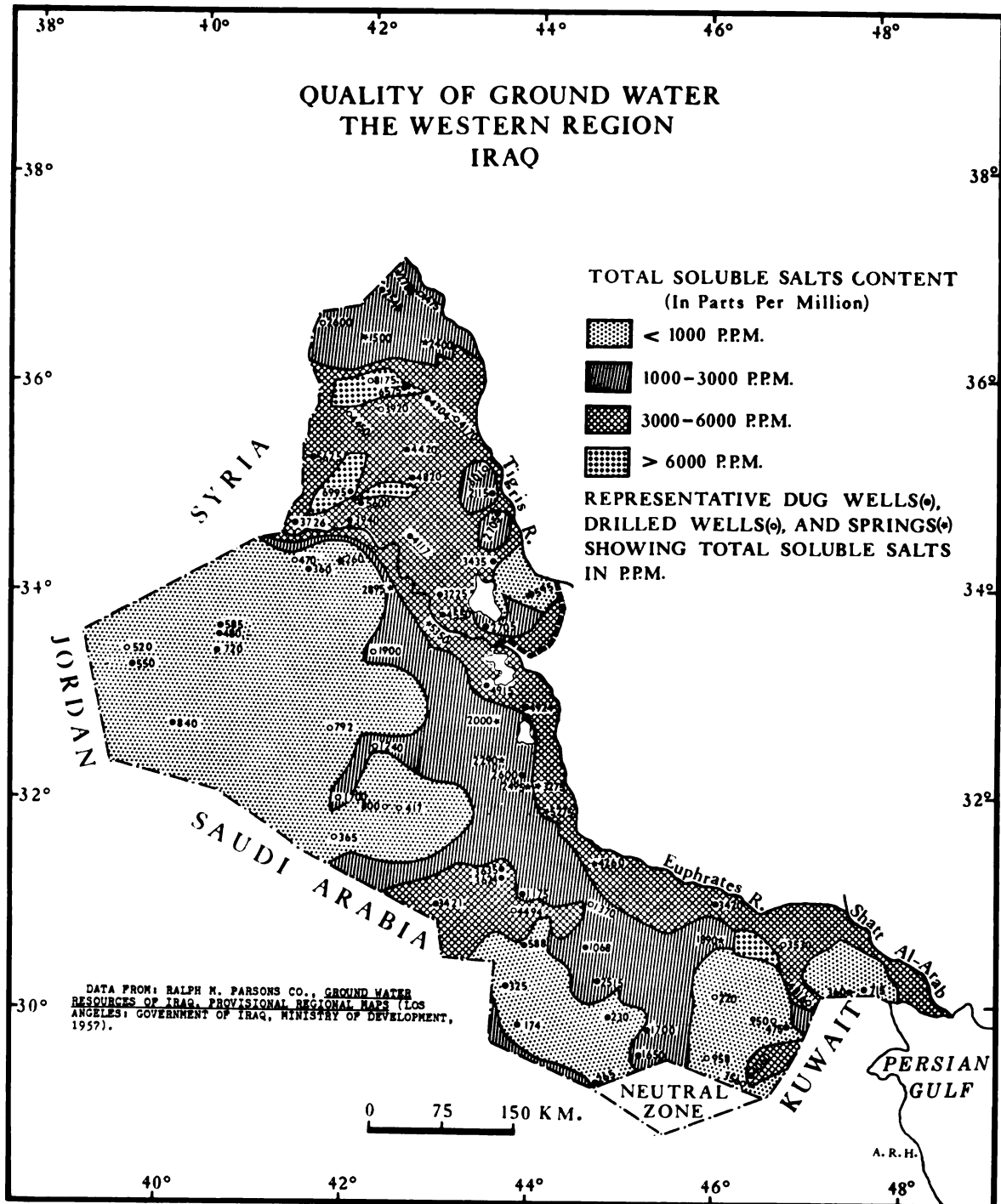


Fig. 15

or nearly equal salinity. It indicates that high concentrations of salts prevail through Western Iraq, except in parts of the Western Desert area to the west, southwest, and in the dune area, and in the southeastern corner of the Jezira. The great thickness and vast expanse of surface mantle and bed rock containing soluble minerals such as magnesium sulfate, calcium sulfate, sodium chloride, and calcium carbonate are the source of mineral concentration in the ground water of Iraq. When rain percolates through these sediments, or when runoff traverses them, the minerals are taken into solution, imparting undesirable characteristics to the water.

Despite the lack of general agreement on the limits, the tolerance of human beings, plants, and animals to these salts is not great and concentrations above these points become increasingly toxic. It has been pointed out that in an arid region, water with a salinity of 4,000 parts of mineral by weight per million is acceptable to man. For short periods even a figure of 5,000 parts is endurable.⁴² Domestic animals are even more tolerant. In Western Australia, for example, experience shows that the maximum allowable totals of soluble salts in drinking water for horses, cattle, and sheep are 5,500, 10,000, and 15,500 parts per million respectively.⁴³ The United States Department of Agriculture gives the following standards for classifying irrigation water (see Table 41).

Thus, it appears that most plants are less tolerant of mineralized water than is man or his animals. There is no doubt that the figures given for plants are general, however, and some easing of their stringency

⁴²F. W. Shotton, "The Availability of Underground Water in Hot Deserts," J. L. Clauhsby Thompson (ed.), Biology of Deserts (London: Institute of Biology, 1954), p. 14.

⁴³Ibid., p. 14.

is permissible in semi-arid areas, where there is sufficient rainfall to leach out some of the accumulating salts. It is also certain that plants vary widely in their resistance to salty water.

TABLE 41
STANDARDS FOR IRRIGATION WATER^a

Rating	Grade	Total Salt Content (ppm)
1	Excellent	Less than 250
2	Good	250-750
3	Permissible	750-2,000
4	Doubtful	2,000-3,000
5	Unsuitable	More than 3,000

^aL. V. Wilcox, "The Quality of Water for Irrigation Use," United States Department of Agriculture, Technical Bulletin, No. 962 (Washington, D. C.: Government Printing Office, 1948), p. 27.

The date palm, certain forage crops such as salt grasses, Bermuda grass, Canada wild rye, alfalfa, and legumes and cereals used primarily for pasture or hay are examples of plants with high salt tolerance. On the other hand, tomatoes, rice, and forage plants such as clover, barley (hay), birdsfoot trefoil, and Sudan grass are considered plants with lower salt tolerance.⁴⁴ In the Western Desert of Iraq, date palm, alfalfa, and barley have been grown in the Shathatha Oasis on ground water having

⁴⁴C. E. Miller and L. M. Turk, Fundamentals of Soil Science (New York: John Wiley and Sons, Inc., 1951), p. 432.

3,000 ppm. salt concentration without definitely determined adverse effect. In the Jezira small scale irrigation is presently practised which uses water with up to 5,000 ppm. total soluble salts. The produce is chiefly green, leafy vegetables, tomatoes, and to a minor extent, melons and rice.⁴⁵ In another case even water having 7,100 ppm. total dissolved solids is used for irrigation of wheat in the southern Jezira (Pl. II, Fig. 2).

If one accepts the above stated limits of water quality as a basis for assessing the ground water of the Western Region of Iraq, it appears that most of the water of the area is suitable for animals and especially for cattle and sheep. From the standpoint of human beings, however, it appears that a large number of wells in the area produce water with total salts beyond reasonable tolerance by man, although the water is being consumed out of necessity. For agriculture most of the water of the area is undesirable or even injurious, especially to more sensitive crops. Areas with water having total dissolved salts less than 2,000 ppm. can be considered permissible for most plants. Waters with salt concentration from 2,000 to 6,000 ppm. can be used for moderate to high salt-tolerant plants, particularly those used for pasture production. However, when using such highly mineralized water for irrigation, the land should be well drained to prevent the accumulation of salts in the soil.

In considering the quantity of ground water in Western Iraq, fifteen drainage areas were chosen for analysis (see Fig. 16). Table 42 gives the size of each area, its computed and probable maximum mean

⁴⁵Ralph M. Parsons Company, Ground Water Resources of Iraq (Los Angeles: Government of Iraq, Ministry of Development, 1955), Vol. V, p. 36.

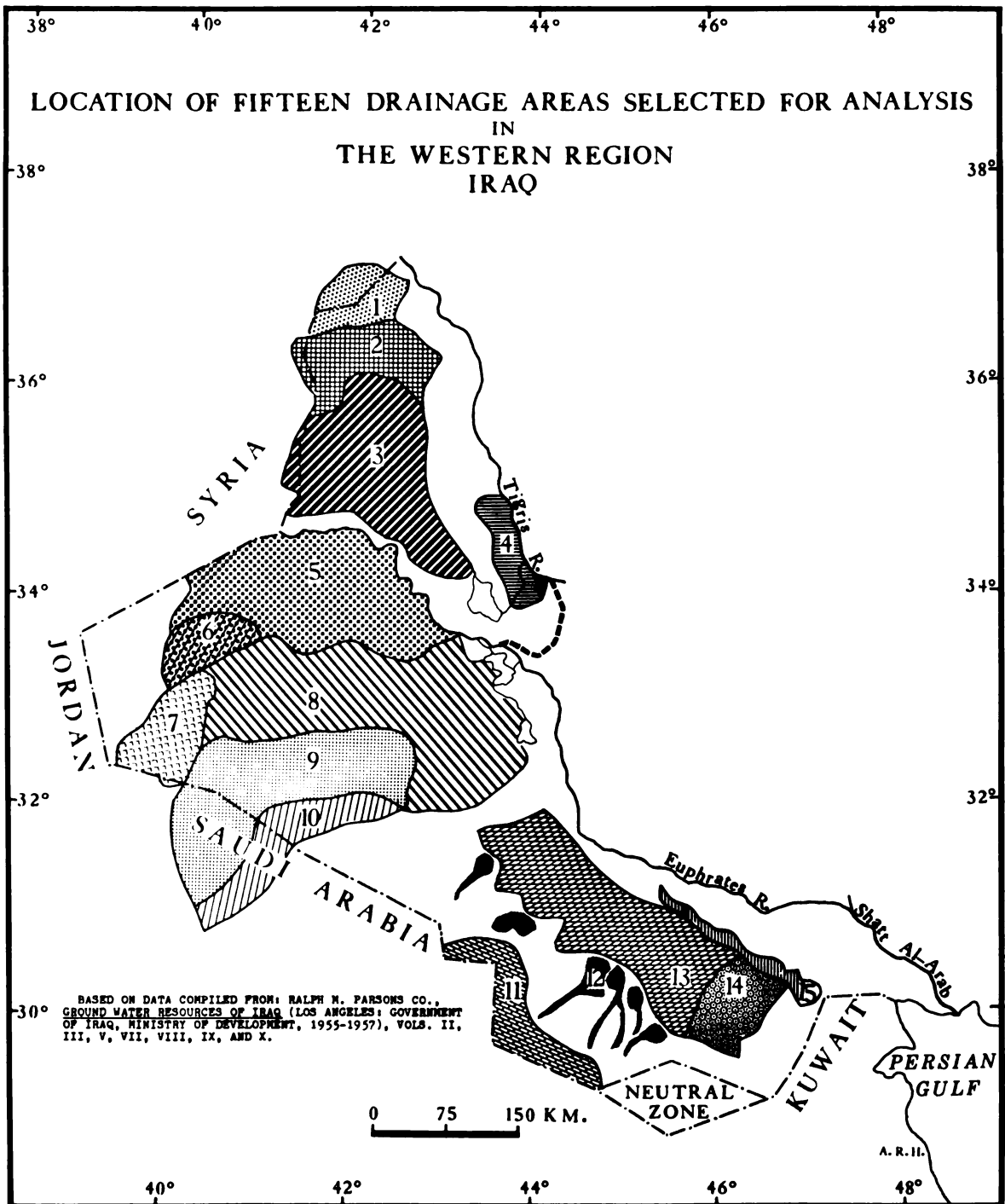


Fig. 16

annual recharges of water in U. S. gallons per minute, and the computed and possible maximum number of wells which could be supported. The Table helps to visualize the amount and significance of ground water available. In the total area of about 190,765 square kilometers of the fifteen selected drainage basins, the computed mean annual recharge from direct precipitation only is 231,491 U. S. Gallons per minute, or 460,877,537 cubic meters of water annually. The probable maximum value of recharge over the same area amounts to 558,756 U. S. gallons per minute, or 1,112,432,400 cubic meters per year.

A safe yield analysis indicates that the computed recharge in the fifteen drainage areas can support 3,858 wells, each producing continually at the rate of 100 U. S. gallons of water per minute. The probable maximum number of such wells is 9,312. The safe yield analysis used is based on the assumption that the consumptive use of water is 60 per cent of pumpage, and that the remaining 40 per cent returns to ground water as deep seepage. The purpose of this analysis is to determine the amount of water which may be pumped from the ground economically without exceeding the supply or deteriorating its quality.

An example will clarify the safe yield approach applied in this study. Recharge from precipitation only over drainage area number 1 in Table 42 is 60,480 U. S. gallons per minute. If consumptive use is 60 per cent of pumpage, the remaining 40 per cent returns to ground water as deep seepage, and if recharge is entirely recoverable, the estimated mean annual pumpage which can be supported is equal to 60,480 divided by 0.60 which equals 1,008 wells each producing continuously at the rate of 100 U. S. gallons of water per minute.

In addition to that from direct precipitation, other possible

TABLE 42

MEAN ANNUAL RECHARGE FROM PRECIPITATION AND NUMBER OF WELLS THAT CAN BE SUPPORTED
IN FIFTEEN SELECTED DRAINAGE AREAS OF
WESTERN IRAQ^a

Drainage Area	Area in Sq. Km.	Mean Annual Recharge from Precipitation		Number of Wells	
		Computed (U.S. gal. per min.)	Probable Max. (U.S. gal. per min.)	By Computed Recharge	By Probable Max. Recharge
1	5,840	60,480	130,000	1,008	2,167
2	8,350	35,140	85,000	586	1,417
3	23,175	27,000	108,000	450	1,800
4	4,000	1,900	6,000	32	100
5	29,200	26,000	37,800	433	630
6	4,800	3,514	8,550	59	143
7	6,200	5,520	12,500	92	208
8	36,500	33,000	60,200	550	1,003
9	22,000	13,000	30,000	217	500
10	8,000	4,016	10,040	67	167
11	7,200	1,960	6,020	33	100
12	3,850	12,400	42,600	206	710
13	23,990	5,720	16,520	95	275
14	5,670	1,350	4,020	22	67
15	1,990	491	1,506	8	25
Total	190,765	231,491	558,756	3,858	9,312

^aThis Table is Compiled from Ralph M. Parsons Company, Ground Water Resources of Iraq (Los Angeles: Government of Iraq, Ministry of Development, 1955-1957), Vol. V, p. 49; Vol. VII, p. 56; Vol. IX, pp. 51-105; Vol. X, p. 79; and data supplied by the Ground Water Department of Iraq.

Note: Figures were in million cubic meters per year. In this Table they are converted into U. S. gallons per minute at the rate of one cubic meter of water equals about 264 gallons.

sources of recharge to ground water come as influent seepage to the lands closely bordering the Tigris and the Euphrates rivers, the Tharthar reservoir and the Habbaniya flood control project. Other possible contributions may come from outside sources either as surface runoff or as sub-surface seepage. For example, the northern section of the Jezira may receive a considerable quantity of recharge from the humid Mountain region of Iraq and Turkey to the north. It is also probable that the ground water of Wadi Hauran in the northern section of the Western Desert is recharged from the humid region of Syria since the head of this wadi originates in that region. At the present time the total amount of recharge to ground water of Western Iraq from these sources is unknown. However, according to the Parsons Company, drainage area number 4, the Baiji-Samarra area shown in Figure 16, receives a considerable amount of influent seepage from two sources, namely the Tigris River and the Tharthar flood diversion channel.

Seepage from the Tigris River affects a strip of land which extends for a distance of about 100 kilometers along its western bank and 7.5 kilometer west from it. This portion of the Baiji-Samarra drainage area receives a computed amount of 300,000 U. S. gallons of water per minute, or about 600,000,000 cubic meters of water per year through seepage from the Tigris. The probable maximum amount may be upwards of 1,000,000 U. S. gallons per minute, or nearly 2,000,000,000 cubic meters of water annually.⁴⁶ On the basis of the safe yield approach the computed seepage water from this source to the area can support 5,000 wells producing

⁴⁶Ralph M. Parsons Company, Ground Water Resources of Iraq (Los Angeles: Government of Iraq, Ministry of Development, 1955), Vol. IX, p. 76.

continually at a rate of 100 U. S. gallons per minute. The maximum number of such wells may be as high as 16,666. The estimated land area which could be intensively irrigated by pumpage supplied from the river influent seepage, without exceeding economic pumping depth, is from 750 to 2,500 square kilometers.⁴⁷

The second source of influent seepage to drainage area number 4 comes through the Tharthar flood diversion channel which extends west of the Tigris River from Samarra to the Tharthar reservoir (Fig. 16). The land bordering this channel receives a computed recharge of 10,000 U. S. gallons per minute,⁴⁸ or the equivalent of 20,000,000 cubic meters of water annually. According to an interview with the experts of the Ground Water Office of Iraq, the probable maximum amount of recharge from this source is about 50,000 U. S. gallons per minute, or 100,000,000 cubic meters of water annually. The probable maximum recharge figure from the channel is based on a reasonable estimate for two reasons. The first, is that since the Tharthar channel is newly opened, wide, and unlined, it is possible that large quantities of its water percolate to the adjacent land along its route. The second, is that the geological structure of the Tharthar area is characterized by large and numerous cracks which permits great amounts of water to filter through the ground not only from the bed of the channel, but also from the reservoir itself. The computed recharge from the Tharthar channel can support 166 wells and the probable maximum number of wells is 830, each yielding 100 U. S. gallons per minute continuously.

⁴⁷Ibid., p. 81.

⁴⁸Ibid., pp. 78-81.

Thus, the combined influent recharge from the Tigris River and from the Tharthar flood diversion channel into the Baiji-Samarra drainage area can support 5,166 wells operating on a safe yield basis. The probable maximum number of such wells may be 17,496. Consequently, the number of wells which can be supported by influent seepage from the two sources in drainage area number 4 is greater than that which can be supported in the entire fifteen drainage basins of the Western Region by recharge from rain alone (see Table 42).

Actually, in the fifteen drainage areas the total of wells possible would be considerably greater than the number indicated in Table 42 because influent seepage from rivers, reservoirs, and flow irrigation in the lower Euphrates occurs continuously in several places, mainly on the eastern border of the Western Region.

The evaluation of the quantity of ground water resource of Western Iraq requires calculation of the amount of water discharged from drilled and hand-dug wells, springs, and karezes. On the basis of 1961 production, the 208 drilled wells in the entire area produce 588,650 U. S. gallons of water per hour (Table 6). The capacity of hand-dug wells is limited because such wells penetrate only a short distance below the water table and because of the ineffective methods of water withdrawal (Pl. II, Fig. 1). Consequently, they have a small yield. Assuming that each hand-dug well produces 20 U. S. gallons per minute, the total yield of the 312 wells in the area would be 374,400 U. S. gallons per hour. In addition, the 20 productive springs in the area produce an amount of 120,000 U. S. gallons per hour. . An additional 25,000 U. S. gallons of water per hour is allocated for the production of the karezes dug in the area. The total amount of ground water withdrawn from the

entire area of Western Iraq from all these sources is thus 1,108,050 U. S. gallons per hour, while the computed recharge in the fifteen selected drainage areas is 13,889,460 U. S. gallons per hour (from rain only), and the probable maximum recharge is 33,525,360 gallons per hour. Consequently, the computed recharge and the probable maximum recharge of the fifteen drainage areas are more than the present ground water used in the entire area by 13 and 33 times respectively.

Thus, it seems evident, that there is great possibility of increasing the use of ground water in Western Iraq. Suggested means by which this can be accomplished are:

1. Existing springs and wells which at present are either not in use or yield only small quantities of water, should be cleaned, repaired, deepened, and curbed to make them more productive (see Pl. V, Fig 2 and Pl. VI, Fig. 1).

2. New wells should be drilled. The most promising locations are in drainage areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14, and the Alluvial Plain west of the Euphrates River.

3. The possibility of diverting water from the Tigris and the Euphrates rivers, the Tharthar flood control project, the Habbaniya project, and other water control schemes for spreading to replenish the ground water reservoirs should be fully considered. The addition of relatively unmineralized water will also tend to better the quality of the present ground water.

4. There should be long-term, more exhaustive, studies of ground water in the area incorporated in a development program for progressively increasing the supply of water.

5. The program of test drilling and putting down new wells now

being carried out by the Government of Iraq should be continued and expanded. Although the objective of the current program is to relieve water deficiencies where the most critical shortages exist, it may advantageously be broadened to embrace other areas where new wells will provide a supplementary source for irrigation, relieve high water table conditions by providing drainage, and recover losses from deep percolation of rain water. West of the Euphrates River are many areas where such systematic development promises good results.

6. Continuous hydrologic investigation should be extended over a much broader range than has before been done. This program should be under skilled direction. Precipitation and evaporation stations at a number of locations in the area are needed to institute a system of records from which water availability may be estimated. Water movements underground should be studied through wells in key locations to give both a broad regional coverage and a close analysis of areas where the water supply problem is most critical. These wells should be subject to periodic measurements of water level, yield, drawdown, and quality. A careful record of the pumping history of each well should be maintained.

7. A study of the effects of saline and contaminated water upon human health should be undertaken by qualified medical personnel. A determination of the extent and source of bacterial pollution of domestic water should be part of this program, along with educational and corrective measures to raise the general standards of water sanitation (Pl. V, Fig. 1).

If the above recommended measures are carefully carried out and ground water resources of the area are more fully developed, enough water will be provided for domestic uses, for animals, and also for the support

of small scale irrigation projects. The present need for water for domestic purposes and for animal consumption must be alleviated, however, before irrigation schemes are considered (Pl. VI, Fig. 2). The primary purpose of such irrigation should be the production of pasture.

Betterment of Grazing Resources

In developing grazing resources, it is essential to first survey, analyze, and map the existing plant cover, so as to determine its composition, ecology, and potential carrying capacity. This information will be of great practical value in the optimum development of livestock carrying capacity, the selection of areas for reseeding, deciding cultivation activities, and in other ways. It will help correct present poor grazing practices and will ultimately facilitate the settlement of the nomads. Such a survey should be the responsibility of a team of botanists, soil scientists, animal husbandrymen, agronomists, and other specialists. As a first step, the author has already presented a general map showing the potentialities of pasture regions in the Western Region of Iraq (Fig. 9).

Regeneration of Vegetation

Regeneration of the natural vegetation is essential to provide enough grazing. This can be done by natural restoration and by reseeding. If the plant cover in selected sites of the Western Region of Iraq could be fenced and protected from grazing for a period of 5 years, it would be possible to make full use of the remarkable capacity of nature to rejuvenate the pasture.

This was proved by an experiment of the Range Management Section of the Ministry of Agriculture of Iraq at Kadhira Al-Mah in the southern section of the Western Desert. In 1958 an area of 400 dunums was fenced

off and protected from grazing animals. With no other improvement, in two years results were obvious. The number of annual and perennial plants expanded 10 times. The size of the perennial plants increased 5 times and of the annual plants 10 times.⁴⁹ Plants outside the fenced area showed no such improvements. Other results were betterment of the top soil in structure and in its water absorbing capacity. With more time than the two years the experiment lasted, the vegetation cover and the soil would no doubt have showed even more improvement, and this in spite of the fact that this area receives the least rainfall of the entire Western Desert. Because of the encouraging results, this type of development should be extended to other larger and more favorable areas.

Reseeding is another measure suggested to increase the quality and quantity of the grazing resources of Western Iraq. There has been successful reseeding of arid and semi-arid sections in many countries. This can be accomplished by selecting local species or by importing plants from other areas. In the United States, reseeding of ranges has been achieved with the use of imported grasses. Species introduced from South Africa and the Middle East, such as crested Agropyron desertorum; wheat grasses, and Russian wild rye, have been successfully adopted in New Mexico and Arizona. Through their use fodder production increased between ten and twentyfold in these two states.⁵⁰ Reseeding

⁴⁹Republic of Iraq, Ministry of Agriculture, Directorate General of Agriculture, Range Management Section, "Report on Development of Natural Grazing Resources of Iraq," Baghdad, 1958, in Arabic, pp. 1-2. (Mimeographed).

⁵⁰Raymond Price, "Possibilities of Increasing and Maintaining Production from Grass and Forest Lands Without Accelerating Erosion," Gilbert F. White (ed.), The Future of Arid Lands (Washington, D. C.: The American Association for the Advancement of Science, 1956), pp. 218-239.

has also shown encouraging results in the arid lands of Australia. Between 1923 and 1948 Western Australia was able to extend its area of pasture land from 25,000 to 2,250,000 acres, mainly by the use of subterranean clover.⁵¹

Investigations of similar possibilities have also been carried out in some countries of the Middle East.⁵² In Egypt, 300 species of native and introduced plants have been reseeded under 6 inches annual rainfall in the Ras Al-Haikma Desert Range Project, covering 25,000 acres in the Western Desert. A tenfold increase of vegetation has been obtained.⁵³ Israel has a large scheme under way and has established special seed multiplication nurseries at Migdal Askalan, Nahal Arva, and some other places in the Negev Desert.⁵⁴ Several native and imported species of drought and salt-water resistant plants are being tested. It has been found that Colutea istria and Oryzopsis miliacea perennial grasses are highly valuable for pasture and soil conservation.

In Iraq, very little attention is being paid to bettering the vegetation cover, although experts indicate that there is good possibilities for both improvement of native species and the adaptation of introduced ones in several localities in the Western Region. The

⁵¹Salter, op. cit., p. 195.

⁵²Food and Agriculture Organization of the United Nations, Report of the Second Meeting of the FAO Working Party on the Development of the Grazing and Fodder Resources of the Near East, Held in Teheran, Iran, 12-19 May, 1958, (Rome: By the Organization, 1958), p. 28.

⁵³Omar Draz, "Adaptation of Plants and Animals," Gilbert F. White (ed.), The Future of Arid Lands (Washington, D.C.: The American Association for the Advancement of Science, 1956), pp. 333-338.

⁵⁴R. O. Whyte, "Grazing Resources of Arid and Semi-arid Lands," World Crops, VII (1955), 351-352.

northern section of the Jezira is particularly suitable for development as mixed pasture and crop land. By planting suitable fodder crops such as clover, it can provide year-round grazing for a large number of animals. A five-year rotation of four years pasture and one year wheat might be suitable for this section of the Jezira without irrigation.

Clover may also be reseeded in conjunction with a variety of other pasture grasses, especially with goose grass and barley grass which are abundant in Iraq. When a mixed pasture is sown, the grasses make an initially stronger growth than the clover and thereby provide early spring grazing for the animals of the nomads. Experiments in Australia indicated that the carrying capacity of pasture was tripled by the introduction of clover. In the northern section of the Jezira similar results could probably be obtained, opening new possibilities for the production of animal products. Clover could no doubt be introduced into other areas of Western Iraq as well.

According to range management experts native perennial species of Western Iraq which could be restored or replanted to provide increased pasture and fodder are Lolium rigida, Salsola rigida, Poa bulbosa, Carex stenophylla Wahl, and bird's-foot trefoil. Other local species which have important grazing value and which could also be used as fuel are Chenopodiaceae, and Rhanterium epapposum, in the southern section of Jezira; tamarisk, in the southern part of the Western Desert (the Dibdibba Plain); and Achillea spp. and Artemisia herba in the northern part of the Western Desert.⁵⁵

⁵⁵J. B. Gillett, "The Pastures and Wild Fodder Plants of Iraq," Report submitted to the Government of Iraq, Ministry of Agriculture, Range Management Section, Baghdad, 1948, pp. 2-4. (Mimeographed).

Introduced species which have been tried experimentally in Iraq and proved successful are Vilola marhanensis, Secale montanum, and Sorghum vulgare var Sudanenses. The latter is especially suitable because of its high capacity to resist drought and high productivity.⁵⁶ These and other species should be planted extensively in Western Iraq.

Proper Distribution of Livestock

Obviously, wells and watering places should be provided wherever possible so that animals can make effective use of the available pasture. Properly spaced watering places help distribute the animals over the range, thereby preventing local overgrazing and keeping livestock in a better condition. The number of animals watered at any place should not exceed the grazing capacity of the area within a distance of one and a half to two miles of the well. This practice will help lessen the migration of the tribes for the purpose of grazing and watering their herds, and will thus facilitate their tendency toward permanent settlement. But the proper distribution of water points also depends on factors such as the quality of water, its amount, and the availability of pasture in the area. Where it is unpractical to develop wells, it will be necessary to convey water from a distance in order to assure the proper use of pasture over the entire range.

Improvement of Livestock

Treatment of Animal Diseases

The first requirement for improving the health of livestock, as mentioned earlier, is to provide adequate pasture and water. At the

⁵⁶H. Wayne Springfield, "Pasture and Forage of Iraq," Iraq Agricultural Journal, Baghdad, IX (1954), in Arabic, 414.

same time, attention should be given to the prevention and cure of diseases among the animals (Pl. VII, Fig. 1). According to an Australian expert, the elimination of disease in sheep presents neither a costly nor a difficult problem and could be largely accomplished within a year.⁵⁷ The methods to be adopted are well known and the Veterinary Department of Iraq could spread this knowledge. In the case of liver fluke it would be necessary to apply carbon tetrachloride on the affected areas around the watering points. Intestinal worms could be treated with arsenical drenches, while the administration of chloroform in the proper dose is recommended for the treatment of lung worm cases.⁵⁸ If the tribesmen were shown the advantages of disease control, especially the elimination of big losses in animal production, they would no doubt buy the chemicals necessary for the treatments. It is certain, however, that such measures can only be carried out if the tribes are partly or completely settled. Concurrent with their settlement, the government should help initiate the program. The Ministry of Agriculture would be well advised to explore methods of providing the necessary instructions to the tribesmen by such means as the establishment of well-equipped veterinary extension centers in tribal areas.

Reducing Pressure of Livestock

Since the destruction of natural range is largely due to overgrazing, attention must be devoted to the reduction of the pressure of livestock on the grazing land where needed, and to regulating present uncontrolled stocking. The introduction of these measures demands that nomadic tribes of the neighboring countries, as well as settled and

⁵⁷Salter, op. cit., pp. 196-197.

⁵⁸Ibid., p. 197.

semi-settled tribes of Iraq, be prevented from grazing their animals in the Western Region of Iraq. Unless this is done, remedial measures may prove worthless. Reduction of the number of animals belonging to the local nomads is also essential. There must be a change of philosophy from mere numbers to quality. The wide variation in rainfall and the consequent differences in annual forage production makes proper stocking essential. A breeding herd built up to use the forage crop produced in good years cannot be maintained during dry years. A margin for safety can be provided by stocking at a level less than the average forage production can support.

In southern New Mexico in the United States, stocking at 65 per cent of average forage production is recommended on arid ranges. Moreover, it is also suggested that the basic breeding herd should be kept low, 55 to 60 per cent of the total number grazed. The rest of the herd should be made up of younger, more salable animals which can be disposed of easily when dry periods and short pasture supplies occur.⁵⁹

Such a grazing system should be designed for Western Iraq. Obviously, the levels of stocking desirable will vary widely with local climatic conditions in these arid and semi-arid lands. Under such a grazing program, ungrazed pasture produced in favorable years will provide a fodder reserve for dry years. Because of better feeding, a smaller number of animals will produce just as much or more products, and of a better quality, than before. It will probably be difficult, however, to convince the nomads to keep fewer animals, since wealth and social prestige are proportional to the number of livestock owned. Nevertheless, if the process is one of gradual change accomplished

⁵⁹Price, op. cit., p. 236.

through guidance and education, this difficulty could be overcome.

Upgrading of Livestock

After the immediate necessities of water and pasture have been solved, the nomads should be trained to think of their animals in terms of quality rather than quantity. Upgrading is necessary to increase the production of the animals, so as to both satisfy the material needs of the tribesmen and provide a surplus for sale. This end can be achieved gradually through selection and cross-breeding.⁶⁰

There are promising indigenous types of sheep which could be used as the starting point to improve breeds. Among these are the Awasi raised by Dulaim tribesmen in the northern part of the Western Desert. This breed is very hardy and can do without water longer than most stock. Moreover, it produces one of the best types of wool in Iraq in regard to softness, length of fiber, and color. Another good breed is the Arabi sheep which is raised in the southern part of the Western Desert. It likewise is hardy and yields wool comparable to that of the Awasi. These two breeds could be used to upgrade the other types of sheep owned by the nomads, provided improved management of animal husbandry were made available.⁶¹ With regards to cross-breeding, Rumboly Sheep, suggested by Dokrumaghi, could be used in experimental breeding stations established

⁶⁰Phillips, in discussing methods of breeding which can successfully be applied in underdeveloped areas, recommended the following: (1) selection within the native types; (2) grading up with already improved types or breeds from other countries; and (3) development of new types out of animals that are graded up only a part of the way. See R. W. Phillips, Breeding Livestock Adopted to Unfavorable Environment (Rome: Food and Agriculture Organization of the United Nations, 1953), Agriculture Studies No. I, p. 153.

⁶¹Kurni Dokrumaghi, "The Sheep of Iraq," Iraq Agricultural Journal, Baghdad, XIV (1959), in Arabic, 7-8.

in representative future settlement areas.⁶² The offspring of breeding of this type could be distributed to the tribes and eventually replace the indigenous, less productive sheep.

There is much room for improvement in shearing to increase wool production. Experts should be recruited to teach the tribesmen the way to secure a maximum clip. These experts hired by the government, should be assigned to clipping sheds established in the future settlement areas. The tribes would thereby be encouraged to bring their sheep to the sheds to be clipped. The sheds could, at the same time, be used as wool-grading stations and collecting centers.

Due consideration should also be given to the possibility of introducing productive breeds of cattle to gradually replace camels, especially in areas of more abundant water and grass. Much care, however, must be taken to put the cattle in the hands of the most intelligent tribesmen. The need for such a step is obvious because the camel no longer has the economic value that it once had.

Fodder Reserves

The introduction of easy and inexpensive fodder storage methods will help facilitate settlement of the nomadic tribes. Since there is usually an oversupply of forage in winter and spring, it is desirable to train the tribesmen to gather and store the surplus for later use. Several advantages will be achieved by this measure. It will help avoid overgrazing the ranges in times of low production and consequently will protect the soil. It will also reduce the extent of migration of the

⁶²Ibid., p. 11.

nomads with their animals and thereby facilitate their settlement. The resultant constant supply of sufficient food will produce stronger and more productive animals.

A mission of the International Bank to the Government of Syria has suggested establishment of fodder reserves as a possible solution to the nomad problem. The recommendation was that the government erect stone shelters, stocked with reserve food, in the desert around water wells for the nomads' use. Fodder would be shipped in from cultivated areas. Each shelter could protect 300 to 400 sheep and would cost \$1,680. The sheep would be fed in the shelter, for periods of 20 to 30 days, only during times of exceptionally severe conditons. According to the mission, the feeding and operational costs would be about \$6.72 per sheep.⁶³ This same plan has been suggested by the mission for the nomads of Iraq.

In the author's opinion, however, it is impractical to apply it to the tribes of Iraq for several reasons. The erection of such shelters would be too expensive. It might involve the nomads and the authorities in difficulties arising from overconcentration of stock at the watering points, especially during dry seasons, as well as in possible complications arising from competition for food and shelter. Since these items could not be provided for more than 20 to 30 days, this would be a temporary solution. Moreover, the transportation of fodder from other areas of Iraq to points deep within the desert might be difficult and economically infeasible. In addition, the concentration of animals in the

⁶³International Bank for Reconstruction and Development, The Economic Development of Syria (Baltimore: The Johns Hopkins Press, 1957), p. 81.

shelters would intensify the problem of diseases among them.

A more realistic approach to the problem of fodder reserves may be found by using the resources of the area itself. The application of the measures previously suggested for the development of grazing resources of the area, such as reseedling, fencing, and use of water spreading techniques will produce an excess of pasture. This surplus forage could be gathered by the nomads themselves if the government would teach them the techniques involved. The reserves could then be stored, not in expensive buildings, but by using a method which is both effective and familiar to the tribesmen. The gathered fodder could be deposited near watering points and covered with mud from the desert. The mud hardens and protects anything it covers. Encouragement of use of a method this simple would facilitate the people adopting it into their way of life.

Development of Agriculture

As previously indicated, at present some tribesmen from the Shammar, the Dulaim and Aneza tribes are practicing dry farming in areas receiving 150 mm or more of rain a year on the hill slopes of the Jezira and in wadi beds and natural depressions of the Upper Wadian of the Western Desert (Pl. VIII, Fig. 2 and Pl. IX, Fig. 2). Although the success of dry farming is related to the fluctuation of rainfall, it is generally agreed that in Iraq it is feasible in areas receiving not less than 150 mm of annual rainfall. Therefore, due attention should be given to the improvement of the dry farming practices of people in these areas before introducing agriculture to the rest of the tribes. Crop rotation and contour plowing should be taught in order to prevent soil erosion. Advice on new types of seeds, such as the drought resistant varieties of

wheat and barley developed in Australia, should be given. In addition, the authorities should provide all services and facilities required for agriculture. If these measures prove to be successful in raising the production of tribes already engaged in farming, eventually they will help to induce the other tribes to cultivate. Perhaps those most easily persuaded would be the present sheep-raising tribes found near the rivers. These people have had closer contact with the villagers and town dwellers than have the camel-owning tribes living farther from the rivers.

Once agriculture is established in the area, mechanization should be a gradual process. Any attempt to mechanize overnight would most probably result in poor operation of the machinery and definitely result in a great deal of unemployment in the area. As other demands for labor increase, mechanization will be necessary to maintain production. A second important factor is that irrigation agriculture will be eventually introduced to some areas, especially those near the rivers. Since salinity is a present problem in many of the irrigated areas of Iraq and has caused great difficulties for previous settlement projects, and especially the Dujaila, adequate drainage systems must be provided.

Acceleration of Land Distribution

Land distribution among the tribesmen is another measure which should be adopted by the authorities. At present, as previously indicated, each tribe in Western Iraq claims traditional communal ownership of the land over which it wanders. This form of tenure is related to the nomadic existence of these tribes and accounts for the destruction of natural grazing in the area. In distributing land every effort should be made to avoid the shortcomings and mistakes made by the authorities

in dealing with the already settled tribes of Iraq. Since no cadastral survey has been carried out in most parts of the Western Region, it is necessary to survey, classify, and delineate accurately the land before distribution. This can be achieved most efficiently through the use of aerial photography. In addition to the cadastral and physical surveys, a social survey should be carefully conducted. From this the authorities should be able to determine the number and size of the families in each locality, the number of animals they possess, and the area of land required to support a family. Although the advice of the Shaikhs should be considered in distributing land and in the initiation of other measures for the tribes, care should be taken to prevent the Shaikhs from gaining absolute control. To avoid disputes over land and to eliminate many social problems, such as the concentration of large landholdings in the hands of a few people and the poverty that results from this, individual tribesmen rather than tribal Shaikhs or the tribe collectively, should be considered the legal owners of holdings within their own tribal territory.

It should also be emphasized here that due to local enmities among the tribes, such as that between Shammar and Aneza, each tribe should be settled, if possible, within its traditional area. Mixing of tribes might widen old wounds. Land should not be granted, but should be made available on long, easy terms of payment. That non-tribal people should be excluded from receiving grants is most essential in order to exclude absentee landholders. To facilitate the distribution of land, the Agrarian Reform Law of 1958 should be redefined with regards to the size of the plots granted, the payment terms, and in other relevant provisions to make it better fit the physical environment and social needs of the people. Distribution of land on the basis of these

principles will give each tribesman more pride, security, and an obligation to himself which will result in a permanent attachment to the land.

Establishment of Villages

There are some localities, especially in the Western Desert, where new villages might be established for the settlement of the nomads. As already stated, there are three abandoned petroleum-pumping stations with all facilities and equipment and two pipelines in the northern section of the Western Desert (Pl. X, Fig. 2). Near these stations the alluvial soil of Wadi Hauran is very fertile and suitable for cultivation. With little investment these stations, in conjunction with the water conveying pipelines, could be utilized as cores of villages for nomadic tribes of nearby areas. If these proved to be successful, more such centers might be created along the pipelines.

Other localities where villages could be established are along the highway across the Western Desert (see Fig. 1). This has great commercial importance in linking Iraq with Syria, Jordan, Lebanon, and the Mediterranean Sea, but with the exception of the village of Rutba, there is no permanent settlement on it within the Iraqi boundaries. At the present time, some of the tribes follow this highway in their summer migration from the interior of the desert to grazing land along the Euphrates River. By drilling wells and locating some gas stations, grocery stores, coffee shops, police posts, and clinic units at carefully selected sites along the road, a series of small villages could be created. It is likely that in a short period of time these settlements would grow and become important trading centers in the desert, benefiting both the nomads and the highway traffic. The nomads will be aided

economically and culturally. Economically, they will be better able to sell their animal products and purchase their necessities. Culturally, they will appreciate the use of public services and facilities which will be within their reach. The economic and cultural contacts will cause some of the nomads to become members of established communities and attract all of them to a more settled life.

Across the southern section of the Western Desert there are two old pilgrim routes extending between Iraq and Saudi Arabia. These are Darb Zubaida between Najaf and Hail, and Darb Al-Haj between Samawa and Hail (Fig. 1). At present, the importance of these routes is enhanced by the use of busses and trucks. Because the routes are unpaved, however, they present great difficulties to travelers. Repair and improvement of these two routes and the erection of some villages along them, would be a contribution to the settlement of the nomads and also result in safer and faster transportation linking the two countries.

Equally important to improvement of the economic condition of the nomads and their settlement would be expansion of the already existing small villages in the interior of the study area, such as Busaiya, Salman, Shabicha, Rutba, and Hadir. In order to satisfy adequately the needs of the nomads and the villagers, it will be necessary to supply these villages with more commercial and public establishments such as food stores, coffee shops, clothing stores, schools, and clinic units.

Settlement Through Industrialization

Another factor which should be considered as a means of settling the nomads is industrialization. This has played an important role in the history of nomadic tribes in many countries. The establishment of industries based on agricultural and livestock products in the nomadic

area of Kazakhstan in Russia has basically changed the people of this area, both materially and socially. Their standard of living has been considerably raised and the problem of their settlement has been progressively solved.⁶⁴

In the Western Desert of Egypt, settlement projects for the nomads are based on the development of agriculture, livestock, handicrafts, and the establishment of important new industries. The extraction of the salt and natron (sodium carbonate) of the Wadi Al-Natrun, located 80 miles west of Cairo, is an example of industrial development. There are also factories for the manufacturing of carpets and rugs based on the local resources of wool. All the unskilled labor employed in the carpet industry, as well as that in the extraction of salt and sodium, was recruited from the local nomads.⁶⁵ As a result, when the season of extraction is over and work is temporarily suspended, the workers do not take up nomadic herding again, but rather prefer to engage in agriculture.

For the nomads of Western Iraq, the possibility of such development must not be excluded. Preliminary surveys indicate that there is considerable untapped mineral wealth in this area (Fig. 11). Future development of these resources will demand a considerable number of unskilled laborers. The author feels that the government should rely primarily on the local tribesmen to supply these workers, for example, watchmen and drivers. Such occupations are in harmony with the social attitudes of the tribesmen toward labor. The new labor force will create

⁶⁴A. Tursunbayev and A. Potapov, "Some Aspects of the Socio-Economic and Cultural Development of Nomads in the U.S.S.R.," International Social Science Journal, XI (1959), 516-524.

⁶⁵"Wadi Al-Natrun: A Model Experiment in Desert Reclamation," Arab Review, I (1960), 15-19.

an expanded demand for the animals and agricultural products of these people still working the land, while the growing industrial centers will act as nuclei around which fixed dwelling units will replace the tents of the nomads.

In addition to extractive industries, the possibility of developing simple handicrafts based on animal products should be considered. Small plants for wool-spinning, rug and carpet manufacturing, tanning of hides, meat packing, leather working, and cheese making might be established. This industrial development could be supplemented by family factory units.

Provision of Services and Facilities

It is clear that unless the nomadic tribes are settled, it will be very difficult to provide them with necessary services and facilities, such as education, health, credit, and marketing. Education of the nomads, in particular, poses a special problem to the authorities. In the last 40 years there have been two major approaches to its solution. Some countries in the Middle East, such as Syria,⁶⁶ Saudi Arabia,⁶⁷ and Iran,⁶⁸ adopted the idea of providing mobile schools which follow the moving tribes.⁶⁹ This approach involves serious difficulties and the

⁶⁶Mohammed Awad, "Nomadism in the Arab Lands of the Middle East," UNESCO, Arid Zone Research, The Problems of the Arid Zone, Proceedings of the Paris Symposium (Paris: By the UNESCO, 1962), No. 18, p. 330.

⁶⁷A. S. Helaissi, "The Bedouins and Tribal Life in Saudi Arabia," International Social Science Journal, XI (1959), 532-535.

⁶⁸Willie Snow Ethridge, There's Yeast in the Middle East (New York: The Vanguard Press, 1962), pp. 106-107.

⁶⁹It is mistakenly stated by Atiyah that this method has been tried in Iraq. See Edward Atiyah, The Arabs (Edinburgh: R and R Clark Ltd., 1958), p. 227.

results are disappointing. For one thing, it is hard to find teachers ready to accompany the nomads. Secondly, the tribal groups are seldom sufficiently large to justify provision of a traveling school. In addition, the tribes are not encouraged to settle when they see that mobile schools and teachers are ready to follow them continuously. The same limitation will be faced in supplying the tribes with mobile medical clinics.

Another approach to the problem of the nomads' education has been the establishment of boarding houses which are attached to primary schools in some of the towns and villages located within reach of the tribes. This has been practiced to educate some of the nomads in Syria, Egypt, and Saudi Arabia. Six such boarding schools have been set up in different parts of eastern Syria for example.⁷⁰ Similarly, in the southern region of the Sinai Desert of Egypt, ten primary schools have been established and supplied with boarding facilities. In both areas, the tribesmen are being encouraged to leave their children behind as boarders, while they move from place to place with their animals. The children in these schools are given their primary education, food, and lodging free of charge.

However, this approach also seems impractical, though it is more realistic than the mobile school. Experience in Saudi Arabia showed that, once the rainy season came, the children usually left school to accompany their parents on their wandering. In addition, because the parents needed their children to help look after the animals, they usually refused to send them to the schools. To compensate for losses

⁷⁰Awad, "Nomadism in the Arab Lands of the Middle East," op. cit., p. 330.

as a result of the children's attendance, the Saudi Arabian government has instituted a system of financial grants which are paid in monthly installments to the parents, in addition to paying for the education of the children.⁷¹ It is obvious that this system of double payment is very expensive.

The first mentioned approach to education, without examining its feasibility, was suggested for the nomads of Iraq by Jamali in 1934.⁷² The author feels that with respect to the nomadic tribes of Iraq both approaches are impractical because of the mentioned difficulties. Consequently, the final answer to the problem of the education of the nomads here would seem to be to provide proper facilities after they are settled partially or completely, through the establishment of permanent schools.

It should be emphasized that the educational methods, principles and objectives of these schools, must in the beginning differ from those offered in long established schools of cities and towns. Primarily, the program should concentrate on immediate adult education in the fields of animal husbandry, farming, conservation of natural resources, and health. Nothing impresses the tribesmen more than to see something proved before their eyes. Therefore, demonstration and activity rather than verbalism should be followed in their education. The education of children should, of course, provide the basic tools of reading and writing. They too, should be taught the same principles which their parents are learning, but in more detail. Since these children may be more

⁷¹Helaissi, op. cit., p. 534.

⁷²Mohammed F. Jamali, The New Iraq: Its Problem of Bedouin Education (New York: Columbia University, Bureau of Publications, 1934), pp. 114-115.

easily molded than their parents, they should be taught the broader concept of civic loyalty rather than absolute loyalty to their tribe. It is also important that, as much as possible, education of tribal children should be controlled by people of the tribe. As previously mentioned, it is very difficult for a teacher accustomed to city or town life to carry out his duties among the tribes and be able to stand their hard life for any length of time. The practical problem, then, is how to train educators from the sons of the tribes for the tribes.

The nomads are able to maintain a relatively effective standard of sanitation by constant exposure to the sun and by moving from place to place. In addition, they do not have to live in close proximity to others. Accordingly, the breathing of germs and the chances of contagion are reduced to a minimum. In spite of these facts, though, many diseases are prevalent among the tribes. It is possible that the transformation of the nomads into settled communities will result in increased passage of germs from person to person. A primary factor would be the lack of knowledge of adequate sanitation techniques. A comprehensive health program should therefore be planned for the tribes. As in the case of their education, however, the health service cannot be fully extended to them unless they have settled. A clinic unit should be assigned to each village to maintain a reasonable level of health. Such a program will have to face the problem of the unwillingness of doctors and health workers to live among these people.

Consequently, the first step to be taken toward any educational, health, social, and agricultural or livestock extension program is the establishment of an all-purpose training center. The staff of this center should be provided by the Ministry of Education, Ministry of Health, Ministry of Social Affairs, and Ministry of Agriculture. It is

important that care be exercised in choosing its members. Their willingness to serve, sacrificing the comforts of city life, is the first and foremost requisite. A number of intelligent young tribesmen should be recruited to be trained for a certain period in the principles of animal husbandry, preventive medicine, health, the art of agriculture, and small-handicraft techniques. At the end of this time the trainees would be assigned to teach their fellow tribesman.

Such a training center^{was} established in Iran in 1956 and has performed successfully. It was established in conjunction with two experimental villages located 150 miles north of the city of Shiraz. The objective was the training of 200 tribesmen, chosen from the migratory Ghashghais and other tribes in the principles of education, health, and agriculture. The center has the support of the Department of Agriculture and the Department of Fundamental Education of Iran, with the assistance of the Ford Foundation.⁷³ Its success has encouraged the Iranian government to establish a second center.

The Iraqi nomads presently have no seeds or other farming materials. They also lack cash and all facilities for marketing their animal production. For loans, they rely on money lenders, and usually they are forced to pay high interest. Since they have little concept of their products' worth, they sell them at very low prices. Therefore, they should be provided with the capital necessary to start production and help in marketing. The setting up of an adequate credit system at low interest rates and an effective marketing organization are in many respects the principle keys to improvement in the economy of these tribes. At present, credit could be provided to these tribes by the

⁷³Ethridge, op. cit., pp. 106-107.

Agriculture Bank, a government institution, and the Commercial Bank. Marketing facilities could best be achieved through forming cooperative societies in the proposed settlement areas.

The Possibility of Settling Some
Nomads in Other Areas

At present the number of the nomads in the Western Region of Iraq is about 200,000. As a result of sanitation, education and other social welfare services which may be introduced their number will inevitably increase. A solution of this increase would be to settle a number of the nomads by allotting them small landholdings in the arable areas of the country and especially in newly reclaimed lands which will be available upon the completion of the proposed irrigation projects discussed earlier. However, this will be a temporary solution, because for those remaining within the Western Region of Iraq, a better diet will enable a somewhat larger percentage of children to survive, which in turn will result in the reattainment of the present population within a few decades. To be prepared for this future population problem, land in the arable area of the country should be reserved for these people.

Let us examine the settlement potentials of other regions of Iraq to see if this is possible. The two most important factors to be considered are the availability of arable lands and the existing water supply. From these two points of view, Iraq seems to offer a great promise. Arable land is estimated to be about 48,000,000 dunums, or 27 per cent of the 177,789,600 dunums area of the entire country. About one third of this arable area, or 16,000,000 dunums, is in the northern part of Iraq, where cultivation depends on rain alone. The remaining two-thirds, or 32,000,000 dunums, is in the irrigatable land of the

southern and central parts of the country. At the present time, only 21,286,712 dunums, or less than a half of the arable land, are under cultivation. Of this, about 8,690,712 dunums, is lying fallow during any one year; therefore, the area under actual cultivation is 12,596,000 dunums, which is only slightly more than one-fourth of the total arable land. It is expected, however, that with the completion of the irrigation and drainage projects discussed earlier, it will be possible to bring an additional 12,214,000 dunums under cultivation. This amount will also be used on the basis of the fallow system, which means that perhaps 6,107,000 dunums will be cultivated yearly and the other half will be idle. Thus, expected expansion will bring the actual area of cultivation to about 18,703,000 dunums. Nevertheless, there will still be 29,297,000 dunums, or more than half of the arable land uncultivated.

Moreover, the presently cultivated land of Iraq is not used to the best advantage. Modern techniques and proper farm management are quite unknown. Land preparation is very poor and the use of fertilizers, soil building crops, and crop rotation are rare. This means that with proper cultivation methods and modern management techniques, more produce of a better quality can be obtained while utilizing less land than is presently cultivated.

Surplus water of the Tigris and the Euphrates Rivers, as previously discussed, is now wasted. The following points are worth repeating: (1) At present, about 25,739 million cubic meters of water, or 35 per cent of the annual flow of these rivers is dissipated to the Persian Gulf without being used. Even after the completion of all presently planned irrigation and flood projects, there will be a yearly waste of about 18,039 million cubic meters. (2) About 36,000 million cubic meters of water diverted for irrigation is economically unjustified

waste. As Cressey puts it "If all of this water which enters Iraq might be controlled and properly used, millions of desert acres could be cultivated, providing food for twice the present population or more."⁷⁴

Not only is there ample land and water in Iraq, but the present small number of the rural population has been recognized by many observers as being partially responsible for the low agricultural productivity of the cultivated area of the country. Since there is a deficiency of farmers, but water and good soil are in supply, some of the nomads of the Western Region should be relocated to work this land.

Steps for a Pilot Settlement Project

To bring into operation the various ideas suggested in the present chapter for settlement of the nomads, the establishment of at least one adequately equipped desert institute is essential. It is obvious that this facility should be sponsored by the government, be headquartered in the Western Region, and be staffed by specialists.

Studies of the soil, water, and other physical characteristics should be conducted in the potential development areas suggested by the author and elsewhere. The aim should be to discover land which can be successfully irrigated for settled grazing and limited farming. These studies can be facilitated by an aerial photography survey, making it possible to more correctly ascertain the actual number of people and the exact physical characteristics of the area. In light of the information gathered, with consideration of the tribes' willingness to settle, a specific location for the development of a pilot project should be chosen. Then, a small experimental farm should be established to test

⁷⁴Cressey, "Water in the Desert," op. cit., p. 114.

the most likely crop and pasture-resource management practices. If this proves successful, the next step will be to attract settlers to the area, but not until roads, drainage facilities, water supply, and other technical requirements have been provided.

The sweetness and availability of water in the project area will attract some of the nomads to pitch their tents on the adjacent land. Once they show tendency toward permanent settlement and interest in the project activities, public and commercial establishments should be introduced. The public establishments should include a police post, a weather station, a school, a health clinic, and a livestock breeding station. The commercial establishments should include a grocery store, a clothing store, and a coffee shop. The coffee shop will give these people a focal point for their social life. The grouping of these establishments will result in a clustered type of village, which will be in harmony with the traditional village pattern of settlement, yet will facilitate proper operation of the project. The mistake made in designing the Dujaila project, which was based upon dispersed housing units, should not be repeated.

Representative tribesmen should be selected through their Shaikhs to work on the project for wages. They will learn the proper methods and principles of grazing, farming, and conservation. During this learning period, the tribesmen should be encouraged to construct their own permanent dwelling units for themselves and their animals. As the project expands, a plot of land should be put aside for experimental purposes, and the rest of the land should be distributed to the tribesmen. If this project proves to be successful, other similar settlements can be established in the study area, each with modification to suit the specific situation. A considerable period of time should be allowed

to pass before embarking on another project so that the experiences gained from the first project can be utilized in planning the second. The lack of this principle in the previous settlement project has motivated the author to indicate the importance of time when planning new settlements.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

According to official estimates the total population of Iraq was slightly more than 6.7 million in 1962. Of these people approximately 36 per cent were urban, 60 per cent rural settled tribal people, and four per cent tribal pastoral nomads. The 250,000 nomadic people can be classified into three groups: (1) the Kurdish nomads in the north numbering about 40,000, (2) the sheep-owning Arab nomads, about 10,000 people scattered throughout the cultivated areas of the country, and (3) the desert Arab nomads, totaling some 200,000 people, who occupy the Western Region of Iraq and are engaged mainly in raising sheep and camels (see Fig. 12). It is on the latter group that this dissertation was focused.

The major findings and conclusions are considered under the following headings: (1) review of the past, (2) problems and prospect, and (3) practical lines of action.

Review of the Past

The problem of settling the tribal groups and integrating them socially, politically, and economically with the rest of the nation has been present throughout the history of contemporary Iraq. A review of the past, starting when the Ottoman Turks gained control, demonstrates that tribal settlement is closely connected with the influence of the central government and the process of economic development.

During the Early Turkish Period, 1534-1869, government policy of converting the tribes into settled cultivators and obedient citizens by force, without providing them with any incentive for accepting the change, resulted in failure. The most fundamental and obvious defect of the early Ottoman rule was its inability to exercise some sort of control over the tribes apart from the punitive expeditions which were carried out with extreme brutality. This condition resulted in a state of near anarchy, except in the larger cities, and dangerously broadened the extent of empty villages and untilled lands.

To better resist Turkish control and oppose its military force tribal confederations were gradually formed toward the end of the sixteenth century. Not only did these become the dominant power in the countryside, but at times they challenged Turkish authority in the gates of the cities as well. To counter this force, it was common practice of the governors to make every effort to set the tribes against each other and to encourage feuds between rival leaders within a tribe. Shaikhs were frequently changed, deposed and replaced by their rivals, and often killed. The settled tribes were taxed to, and sometimes beyond, the limit of endurance with the result that some resumed the nomadic way of life. In addition, such recurrent calamities as flood, drought, attack of pest or disease, and raids by tribes of Najd, Persia, or the Kurds added to the disturbed conditions and retrogression of the settlement process.

During the Late Turkish Period, 1869-1916, the conditions described above were reversed. A body of liberal reforms was first applied by Midhat Pasha, the Turkish governor of Iraq, 1869-1871. The reforms included military, civil, economic, and administrative measures. Although progress was uneven through time and from place to place, it was

considerable. The population grew, the frontier of settlement was pushed forward, tribal confederations were disintegrated, nomadic and semi-nomadic tribes began to settle down. The degree of change was demonstrated by a reduction of the nomads from 35 to 17 per cent of the total population of Iraq between 1867 and 1905 and an increase of sedentary rural people from 41 to 59 per cent during the same time (Table 11).

These figures reflect a real improvement in the efficiency of the administration, particularly as regards to internal security, land distribution, and increased in trade and economic activity. The formation of a new "model" army began and the rule of law was imposed on tribesmen as well as urban people; forts and police posts were established, with larger garrisons at such places as Deyer Baker, Quim, Ana, Hit, Ramadi, and in other locations. By the end of the century the Euphrates caravan road between Basra and Aleppo was much more secure and much used, and the settlement process had been encouraged by removal of one source of tribal income, namely tribute from the caravans.

The development of new means of communication--notably steam navigation on the Tigris-Euphrates waterways and the telegraph system--during the second half of the 19th century had far reaching influence in increasing control of tribal areas, opening up the country to foreign commerce, changing the subsistence economy of the tribes to a market-oriented one, raising land values, and creating a demand for the services of tribesmen as farmers rather than fighters. New towns and villages were founded and grew rapidly at river-steamer loading points. Such were Aziziya, Swayra, Nomania, Kut, Amara, Nasiriya, and others. These places were supplied with more police and became main administrative centers. Thus, they brought not only economic opportunity, but also a measure of government control over nearby tribal areas.

The first serious attempt at fitting the tribes into the existing agrarian social and administrative system was made in the 1870's by Midhat Pasha. His policy consisted of selling to the tribes by auction on easy terms, tenancy rights to state-owned domains. The aim was to settle the tribes, weaken their tribal spirit, establish new relations with them and increase the state revenue by a more intensive use of large expanses of land. This approach was faced with many difficulties and some of its results were not very happy ones because of inadequate organization, lack of a cadastral survey of the lands that were distributed, and disregard for the boundaries of tribal territories. The mishandling of land rights resulted in a great deal of confusion and long lasting disputes among the tribes. Some tribes still resisted settled life, preferring to remain as nomads; others mistrusted any improvement intended by the Turks, being suspicious of conscription and other requirements of settled life, and so tried to avoid anything calculated to connect them with the governmental machinery.

Tribes which accepted land and settled, had the lands registered in the names of their Shaikhs. Because of the great authority yielded by the government to the Shaikhs and the pressure exerted by a few land speculators from urban areas on land registration officials, some were able to acquire large tracts which were originally tribal areas. This ended in destroying the old relationships between the Shaikhs and their tribes, created a class of feudal lords from among the Shaikhs and the land speculators, and reduced the tribesmen to the status of tenants. Yet many tribes began to settle, such as the Shammar south of Mosul, and Jubur along the Tigris, and the Tamim north of Baghdad. Later others were to be attracted to agriculture in the boom years at the end of the 19th century.

From 1883 onward the government tended to encourage the peaceful and more submissive tribesmen to settle down and cultivate not only land belonging to the Sultan, i.e. "Sanniya Land", but lands belonging to more powerful tribes which they could not manage to use without government assistance. These two trends contributed greatly to the detribalization process among the tribes and eventually resulted in the settlement of many.

The Ottomanization policy which was instituted was also of particular importance. Notable Shaikhs were entrusted with official titles and were given the responsibility of tax collection, conscription, and the settling of their tribes. The establishment of a special school in Constantinople for the education of the sons of tribal Shaikhs was another aspect of this policy. Sometimes yearly allowances, in addition to the titles, were allocated to Shaikhs in order to enhance their positions and gain their cooperation in bringing about the settlement of their people.

The above mentioned factors, particularly the land policy and the Ottomanization policy, not only destroyed the great tribal confederations, but resulted in long lasting disputes between the Shaikhs and the tribesmen, and even among members of individual Shaikhly ruling families, as in the cases of the Muntafiq and Shammar. Iraq, therefore, by the beginning of the 20th century was a country of tribesmen fast losing their traditional loyalties. This tribal disintegration in turn accelerated the settlement process because the government found it easier to deal with small and weak tribal sections than with the former large and strong confederations.

While the process of settlement was encouraged during the Late Turkish Period by some factors there were at the same time others which slowed it down. The most important of these latter were the periodic

floods and drying up of the rivers, the primitive cultivation methods, the lack of firm right to the land, the high taxes on crops and high rents on land, the lack of capital, and the inadequacy of transportation for marketing the agricultural produce. In addition, neither the authorities, nor the Shaikhs and landlords provided the settlers with genuine incentive to improve the land's productivity. On the contrary, the plundering of physical and human resources were generally their only perceived objectives.

During the British domination of Iraq, 1916-1932, the forward course of tribal settlement was continued. The nomadic people declined from 17 to 7 per cent of the total population between 1905 and 1930, while the percentages of the rural and urban population increased from 59 to 68 and from 24 to 25 respectively (Table 11). Of the many factors which influenced tribal life and the settlement process during this period, the most important may be grouped under three categories: (1) those related to the British policy concerning the tribes, (2) those associated with economic development, and (3) those linked with technical changes.

As an adjunct to their policy of pacification during World War I, the British reversed the process of tribal disintegration which was the heritage of the Turkish Period. The Tribal Disputes Regulation was put into effect in 1916 to restore tribal customs. All means of solidifying the Shaikh's position were undertaken. The paramount Shaikhs became responsible for law and order in their tribal territory, and for collecting government revenue. The escape of agricultural tribesmen from their Shaikh's lands was prevented. Shaikhs were appointed to those tribes which were either without a recognized strong leader or had no leader at all. Outside tribal areas, the dignity of the Shaikh's position was enhanced by making possible his participation in administering the

country at both local and national levels along with the British. In addition, subsidies, land grants, low agricultural land rents, and reduced taxes were his special privileges. Although the British succeeded in maintaining law and order and continuing the settlement process by depending on the power of the Shaikhs, the abuses which followed restoration of the Shaikhly position were a continuing source of dissatisfaction with British rule among the common people.

An important contribution of the British to the acceleration of the process of tribal settlement was the public security which they introduced both to the settled tribes and to the nomads. This improvement was part of administrative efficiency. The enactment with the help of the British authorities, of the Treaty of Mahammara in 1922 and the Bahra Agreement in 1925 between Iraq and Najd concerning solution of the frontier and tribal problems of the two countries, and the establishment of a number of desert police posts, were symbols of this development. Having the power to end raiding activities and to protect the villager against the exacting of Bedouin tribute, the British were able to control the Bedouins as never before. In the desert the new order imposed a severe crisis upon Bedouin economy, making it necessary to adopt either settled life continuing the trend begun earlier, or at least a more peaceful mode of nomadic existence.

During the early Occupation Period the British followed the already existing land policy of the Late Turkish Period with the tribes. Large tracts of tribal land were registered in the names of Shaikhs willing to support the British authorities. This brought a firm footing to the feudal system in rural Iraq and increased economic inequalities and social distinction between the landlord Shaikhs and the tribesmen. During the Mandate Period, however, the British made moves to modify their

land policy. Certain large estates were parcelled and given to individual tribesmen especially in the Amara and Diwaniya provinces. Small properties established in newly reclaimed land were likewise distributed to landless peasants, and leases of state landholdings were respected. This procedure helped considerably to stabilize landholdings and enabled some tribes to settle. But land disputes, illegal possession of holdings, trespassing on neighbor's territory, and acquisition of large estates by great Shaikhs and urban merchants continued despite the tardy efforts of the British to remedy the situation.

The introduction of water-pumps for irrigation, which was encouraged by the British and Iraqi authorities, had a great influence on the life of many tribes. The use of this machine raised the agricultural productivity, made it possible to irrigate areas which could not be supplied with water by older methods, and created a big demand for agricultural labor. As a result, settlement of tribesmen increased. On the other hand, installation of the pumps required capital and in the end facilitated the acquisition of large tracts of tribal land by pump owners (generally Shaikhs, and urban merchants) mainly because the settlers lacked savings, credit facilities and marketing experience. Thus, while the water-pump encouraged settlement, it did little to improve the lot of the settlers.

The British administrators, who primarily focused their attention on the achievement of political stability, did undertake some irrigation and agricultural improvement projects. The irrigation measures included flood-prevention works, completion of canals left unfinished by the Turks, the construction of new canals and the improvement of old ones, as well as the initiation of some drainage work. In the field of agriculture the British efforts included the establishment of research stations, the in-

trodition of agricultural education, the organizing of a veterinary service, and the supplying of free improved seeds to settlers. In addition, some dairy and grass farms were put into operation and foreign breeds of livestock were introduced. In spite of the fact that the British measures were primarily designed to provide enough food for their troops in Iraq and to provide exports to meet the increasing demand for agricultural products in Great Britain, they did extend the agricultural area and encourage sedentarization among the tribes.

Before 1914 carriages, carts, and pack animals (chiefly camels) were the only means of overland transportation used in Iraq. The introduction of mechanized transportation--the railway, the automobile, and water transportation (largely subsequent to World War I in Iraq, as in other Middle East countries)--deeply influenced the life of the tribes. Tribal areas were brought within easier reach of government authorities. The construction of roads and railroad lines provided new employment opportunities for both town dwellers and tribesmen. Cultural contact between towns and countryside was enhanced. But most significant was the fact that the motor trucks and railroads to a great extent took the place of caravans moving goods in Iraq and across the Syrian and Arabian deserts. This resulted in a considerable drop in camel prices on both the domestic and the Middle Eastern markets.

Thus establishment of new means of transport and increased security deprived the Bedouins of major sources of income, namely the provision of animals for caravans, the handling of these caravans, and the raiding of them as the case might be. Moreover, the rising standard of living in some countries of the Middle East after the War caused a reduction in the demand for camels as a source of meat. An example was in Egypt which had been a good market for Iraqi camels. To find a way out

of their economic quandary, some of the nomads of Iraq became cultivators; others turned more to sheep breeding; and still others found employment by the oil companies.

Development of the oil industry in Iraq started in 1926 when the Iraq Petroleum Company (IPC) opened the Karkuk fields. From its earliest days the industry set in motion a series of economic and social forces which helped to change life of the desert and to accelerate settlement of tribes, such as Ubaid, Jubur, Shammar, Dulaim and Aneza, which became associated with its projects.

Tribesmen were employed as unskilled labor in the construction of pipelines between Karkuk and the Mediterranean coast, in the pumping stations, and in the oil fields. Gradually, some were trained to higher forms of work. In one way or another, all were exposed to a new and impressive way of life. At Company expense they received their first scientific medical examination and treatment with modern drugs. Housing, schooling, and pure water were provided at all pumping stations. Each station became a modern town lying either on the fringe of the older settled areas or deep in the desert. Although the nomad's complete reaction to this new way of life has never been studied, it is known that they quickly became dependable workers, learned new skills easily, and eventually adopted themselves to solid roofs and the enforced regulations of a settled existence. Oil employment undoubtedly increased the population as well as the purchasing power in the affected tribes.

In spite of the tendency of the tribes toward settled life during the British Period, it was found that in 1930 the majority of the rural population of Iraq were still rather mobile (Table 21). Consequently, it can be said that real interest in solving the tribal problem began during the National Period, 1932 to the present, when for the first

time Iraqi authorities themselves launched efforts to help the tribes, especially the already settled and semi-settled ones.

During the first part of the period, the years 1932 to 1958, the authorities of the Monarchal government followed very closely in the footsteps of the British in dealing with the tribes. The Tribal Disputes Regulation was enforced and Shaikhly position was solidified by the same means followed by the British. Politically, the Shaikhs were given higher status as members of parliament and some of them became associated with the executive body of the government. Economically, they were the main beneficiaries of laws enacted to settle the tribes. The trend toward the concentration of large estates, especially of good lands, in the hands of a few landlords continued, with the result that the tribesmen were increasingly reduced to the role of indebted sharecroppers in their former tribal areas. Since their share from the crops was seldom above the subsistence level, the end results were the same as those of the Turkish and the British Period, namely impoverished people, impoverished soil, widespread nutritional diseases, and hunger which now caused an increasing migration of tribesmen to the cities.

In this new urban environment, the tribesmen erected poor huts and lived under extremely undesirable conditions (Pl. XI, Figs. 1 and 2). Moreover, the heavy movement of tribesmen to urban centers created serious economic, social and planning problems, both in the rural and the urban areas of the country. In the former, their leaving reduced agricultural production; in the latter, their coming depressed wage rates because of their competing with city labor, aggravated the health and crime problems, and frustrated city planning, especially in Baghdad and other large centers.

In order to slow the movement from the countryside to the towns

and to improve the agricultural economy of the country, the Monarchal government initiated several remedial measures between 1945 and 1958. These included: (1) the establishment of a system of agricultural credit; (2) the introduction of agricultural cooperatives; (3) an attempt to adopt the concept of agricultural extension service; (4) the construction of irrigation projects, and (5) the initiation of land reform and settlement projects on state land. However, because of shortcomings of the planning, the lack of management experience and technical know-how, and the great influence of the Shaikhs who once again managed to twist the various measures to their own advancement, these measures generally failed to benefit the tribes.

For example, the State Agricultural Bank which was founded soon after World War II to provide credits to cultivators at a low interest rate, came under the political pressure of influential landlords. In addition, since the landless tribesman could not provide the necessary security required for credit, he was automatically excluded from the benefits of this service. During the late 1940's some agricultural cooperatives were established, but because of inadequate guidance and the lack of understanding of the administrators concerning the traditions of the rural population, most of these ended with only qualified success at best. The same was true in the case of the agricultural extension program which was started in the same period. As for the irrigation projects, many of them are still in the stage of construction, while others are being studied on paper, and still others are not even this far advanced. It is, therefore, difficult to assess their real contribution to solution of the tribal problem up to now, but it is certain that potentialities for agricultural development and settlement are great if water can be added to the land.

The shortcomings of planning and the inadequacies of management are best exemplified by the results of settlement efforts undertaken during the period under consideration. Soon after World War II, as a result of inside and outside pressures, the Monarchal government attempted to settle tribesmen on government lands. Although the program was largely financed and implemented by Iraq, there was some foreign assistance from Egypt, Great Britain, the United States, and the United Nations. Between 1945, when the program was started, and 1957 over 2.3 million dunums of state land were distributed. Of this, more than one and a half million dunums were developed under government-supervised settlements such as the Dujaila, Sinjar, Hawija, Shahrzoor, Latifiya, Makhmoor, and Musaiyib projects (Fig. 13). The rest of the land was distributed without prior expenditures on reclamation, or aid in its subsequent development.

Assessment of four of the government projects (the Dujaila, Shahrzoor, Latifiya and Sinjar) indicates that these schemes have not achieved as much as they should have in improving the living condition of the settlers, because of the interrelated technical, social, and administrative problems and difficulties encountered. On the other hand, experience gained should provide valuable guidelines for initiating any settlement scheme for the tribes in the future. Past failure or partial failure to find proper solution of settlement problems has demonstrated the need for detailed studies and planning. The lack of proper soil surveys, suitable land capability classification, and provisions for irrigation, drainage, roads, and communication before the land was opened to settlement were major obstacles to success in the past. In addition, the launching of several projects in a short time caused great difficulties in management and did not allow for transfer of experience gained from one project to the others. The efforts by experts to rapidly

replace deeply rooted ideas and traditional methods of cultivation with new, locally untested, and economically unsound ones: created other problems.

In addition, the proper functioning of the projects was handicapped by several social difficulties. The lack of mutual faith between the government and the settlers, the absence of genuine concern among the governing class for tribal development, the failure to anticipate many of the settlers needs, and the inadequate provision of services such as for health improvement and education were common faults in implementing the projects. Not only was there a lack of dedicated and honest administrators, but the shortage of domestically trained technicians caused high dependence on foreign technical assistance. The overlapping of functions performed by the foreign groups injected additional complexities to the projects.

In spite of all these problems there is no doubt that the projects placed in operation yielded some good results. Settlers generally felt better off, since they were more free and enjoyed a greater sense of security than they had before under the Shaikhs. More tangible were the benefits realized from the efforts of foreign experts in the field of research, experimentation in new crops, the introduction of improved techniques and otherwise. Most important, the projects indicated the possibilities of creating a well-trained small landholding class out of landless peasants, if given proper direction by government planning and foreign aid.

The change in the political regime in Iraq on July 14, 1958 and the declaration of the Republic, resulted in the new "Agrarian Reform Law No. 30, 1958." This law called for: (1) the confiscation and redistribution of lands held in large private tracts, as well as continued

allotment of those belonging to the state; (2) the establishment of a cooperative system in agriculture (3) the regulation of agricultural relations; and (4) the abolition of old laws regarding landownership.

Once again the new regime repeated many of the errors of its predecessors. Land distribution was started before proper surveys and land classifications were made, before other relevant information was acquired, and generally before land reclamation was accomplished. There still persisted serious lacks in planning and faults in management policy.¹ Nevertheless, up to 1963 slightly more than 5.5 million dunums of land were distributed to a total of 193,395 peasants. Moreover, the agrarian reform had accomplished its political goal of removing the landlords.

Problems and Prospect

Contemporary nomadic tribes of the Western Region of Iraq are still faced with many of the diverse and interrelated problems of the past. The shortage of water and pasture and the traditional way of using the resources available impose drastic limitations on their activities. The raising of livestock, namely camels and sheep, for their own sustenance and a small surplus for sale is the nomads' main occupation (Pl. VII, Figs. 1 and 2). The standard of their animal husbandry is very low when compared with that of the settled peoples. Backwardness and stagnation characterize almost all aspects of their everyday life. Their hair tents, household materials, clothing, and food are quite simple and barely

¹Detailed assessment of this aspect is presented by John L. Simmons, "Agricultural Development in Iraq: Planning and Management Failures," Middle East Journal, XIX (1965), 129-140.

adequate for human existence. The widespread incidence of diseases and the primitive treatment methods contribute much to the low average productivity of the tribesmen. Their level of formal education is the lowest of any population segment in Iraq. Thus, these people are insignificant, both as producers and consumers. In most respects they have had a delaying effect on the economic and social development of the nation, rather than making any real contribution to its advancement.

At the present time, however, there is a marked desire among the nomads to abandon the traditional way of life for a settled existence (Pl. IX, Figs. 1 and 2). This tendency has in part been stimulated by the tremendous hardships and insecurity of their existence and in part by the spread through improved communication of knowledge of how other people live. It remains for authorities to make use of this trend by aiding in a rational manner the adjustment of the tribes to the new economic, social, and political conditions resulting from Iraq's entrance into the world community of nations. It should be realized, however, that the problem of settling these tribal people is a highly complicated one.

Nevertheless, the author believes that marked progress can be made toward solution of the problem if the procedures already outlined in this dissertation are followed. The advice given is based on the premises: (1) that a combination of animal husbandry and some form of cultivation is the most desirable occupation for most of the nomads, apart from the limited number who will be employed in industry; (2) that the agriculture, whether based on dry farming or irrigation, should be largely on a subsistence level and remain secondary to stock raising; and (3) that because the physical environment makes this type of mixed economy impossible in some areas, while in others the people may not

accept it as a way of life, nomadism will remain the pursuit of some tribes.

After study of past experience in Iraq and of attempts in other countries to solve the same problem, the author believes that the following guiding principles are essential in successfully carrying out any settlement program for the nomads of Western Iraq: (1) Transitional stages rather than a radical shift from nomadism to a settled life is the safest and most practical approach. (2) Although centralized planning and administration are necessary, participation of the tribes through voluntary cooperation should be the basis of any measure proposed for their settlement or development. (3) The program should take into consideration not only animal husbandry and farming in the narrow sense, but also all related elements of community life such as housing, schooling, credit facilities, etc. (4) Such an enlightened program must be carefully planned and efficiently administered in all its aspects. (5) It should be examined and evaluated at every stage of implementation in the light of the ultimate goal of raising the nomads' standard of living and enhancing their contribution to the nation. (6) Any measure for tribal settlement must primarily remain the concern of the government.

Practical Lines of Action

With the premises and guiding principles outlined above in mind, practical steps for success in settling Iraqi nomads on land they now occupy, improving their welfare, and firmly incorporating them into the economic and social fabric of the modern nation have been recommended and discussed in this dissertation under eleven headings. Followed together, or in succession if such is dictated by their character, these steps will provide a multipronged attack on the problem. A recapitulation

of the more significant measures advised is as follows:

1. A research institute, staffed by experts drawn from all relevant fields, should be established to investigate the varied aspects of the nomad problem. The collection and analysis of background information to determine potentialities of the physical and human resources of the area can best be accomplished by specialists working as a team. The findings of this body should be considered and their advice followed by those planning and implementing settlement projects. In both Egypt and Israel such a Desert Research Institute has been an important factor in successful settlement of nomadic tribes.

2. The considerable potentialities for development of and better utilization of surface water resources should be studied and exploited. One large possibility lies in greater use of the supply of the Tigris-Euphrates rivers. During an average year 35 per cent (25,739 million cubic meters) of this water flows unused to the Persian Gulf (Table 40). Even more water, an estimated 36,000 million cubic meters annually, is wasted through inefficient irrigation methods, especially because of uncontrolled diversion of the water and loss by evaporation and percolation moving it through unlined open canals.

Much river water is now lost because it flows away during flood stages. If stored and subsequently applied to the land, considerable areas of the Alluvial Plain, the Western Desert, and the Jezira could be irrigated. This could be accomplished by: a) construction of multi-purpose projects such as the proposed Dairich and Eski Mosul dams on the Tigris and the Khan Baghdadi and Rawa dams on the Euphrates; (b) canalization of the Ishaqi ancient waterway; (c) utilization of the water of the Tharthar and Lake Habbaniya projects; and (d) installation of irrigation facilities in the Behr Al-Najaf depression, the Dibdibba Plain,

and the Alluvial Plain west of the Euphrates.

The possibilities of moving water via idle pipelines which formerly carried crude oil from the Karkuk oil fields to the Mediterranean Sea, of constructing irrigation pipelines such as used in Israel, and of introducing sprinkler irrigation should be investigated, and if found practicable, action should be taken.

3. Efficiency of use of the rainfall in the nomadic areas can no doubt be increased by installation of earth dams, enbankments, terraces and other structures designed to slow and spread runoff after desert showers (Fig. 14). Such water spreading techniques, practiced by some peoples in ancient times, have recently been revived and used with success in the Negev of Israel, the Eastern Desert of Jordan, Western Pakistan, and elsewhere. These should be tried, especially in the Wadian section of the Western Desert and in the Jezira.

Enlargement of carefully selected rain-pools for temporary storage of runoff, repairing and may be covering the existing masonry storage tanks in the Western Desert and the building of other similar tanks are other possible measures to be pursued in increasing use of the natural precipitation (Pl. I, Figs. 1 and 2).

4. Rational development and increased effectiveness of use of the ground water of the Western Region is another step that promises much. Assessment of the quality of this water has revealed that most of it is suitable for animals, especially sheep. From the standpoint of human beings, it appears that although many wells in the area produce water with saline content beyond that normally considered tolerable by man, much of it ^{is} being consumed out of necessity. For agriculture most of the water is either undesirable or injurious to sensitive crops, but it can be used for the production of pasture and hay, providing that the

land be sufficiently well drained to prevent the accumulation of salts in the soil.

Calculation of the ground water budget of the area indicates that the present water recovery from all sources is about 1,108,050 U.S. gallons per hour, while the computed recharge from precipitation only approximates 13,889,460 U. S. gallons per hour. The probable maximum recharge is 33,525,360 gallons per hour. Consequently, the computed recharge and the probable maximum recharge are more than the present water recovered by at least 13 and 33 times respectively. On the basis of safe yield analysis, the computed recharge could support 3,858 wells, each producing continuously at the rate of 100 U. S. gallons per minute, without exceeding the supply of water or deteriorating its quality. The probable maximum recharge could support 9,312 such wells (Table 42).

Actually, the number of wells possible is considerably greater than indicated above, if influent seepage from rivers and reservoirs is considered. For example, the combined influent recharge from the Tigris River and from the Tharthar flood diversion channel into one drainage area alone (Number 4, Figure 16) could support 5,166 wells on the computed recharge, and possibly as many as 17,496 wells on the probable maximum recharge.

Thus, it is evident that there is great potential for increasing the use of ground water in the area. This can be realized by improving and maintaining existing sources of supply, by drilling new wells, and by planning and executing a more comprehensive long-term water development and conservation program than has so far been attempted. In such a program, however, the immediate needs for domestic purposes and for watering the animals and growing forage for them must be satisfied before irrigation schemes are considered.

5. The development of water resources should be accompanied by betterment of grazing resources. The first step is to study and map the existing plant cover in order to determine its composition, ecology, and potential carrying capacity. The second is to adopt a program including both regeneration of the natural vegetation and the establishment of pasture of desirable introduced grasses. There are some promising native species which could be the starting point of such development, while much is known about valuable forage plants from other parts of the world.

Every effort should be made to prevent overgrazing. Proper distribution of livestock can in part be achieved by planned distribution of wells and watering points but more than this is needed, such as advice by experts and regulation of present uncontrolled stocking.

6. Concurrent consideration should be given to improvement of the quality of the livestock, especially the sheep, by instituting scientific breeding practices. At the same time, attention should be given to the prevention and cure of animal diseases by establishing well equipped veterinary extension centers in the tribal areas. There must be a change of the nomads' philosophy in regard to the animals from quantity to quality. This upgrading can be achieved through education in methods of selection and cross-breeding. There are promising local breeds of sheep, such as the Awasi and the Arabi, which could be used to start such a program.

The maintenance of stronger and more productive animals dictates that stocking of the arid grazing lands be not more than 65 per cent of the number the average forage production can support. The basic breeding herd should be kept at 55 to 60 per cent of this number. Also required, is the provision of fodder reserves for use during periods of short pasture supplies. This excess food can be supplied from the area itself

and stored near watering points, if proper measures are applied. Convincing the nomads to keep fewer animals may at first be difficult, because of their tradition that wealth and social prestige are proportional to the number of head owned, but it can be accomplished once the benefits of such a course are understood.

7. Attention should be given to improving dry farming methods. These should be applied first among tribesmen already practicing dry farming as part of a semi-nomadic existence and then among others as they adopt this way of living (Pl. VIII, Fig. 2). Still later, more expensive facilities for irrigation agriculture can be introduced in suitable areas.

8. Since it will be impossible to realize all the advantages expected from settlement of the nomads unless they gain title to the land they use, acceleration of land redistribution should be considered an integral part of the process of sedentarization. Every effort must be made to avoid the shortcomings of the past with regard to land policy.

9. Attention should be paid to planning the morphology and distribution of the agricultural villages and service centers which will result from the nomads adoption of semi-sedentary and settled modes of life. Elaboration of already-established cultural landscape patterns should be stressed first, as for example the founding of new settlements at suitable places along major travel routes.

10. Another prospect for settlement and improvement of the nomads which merits examination is extraction of the mineral resources of Western Iraq. The unskilled labor required should be drawn primarily from among the tribesmen. In addition, the development in central places of simple handicraft and home industries based on the animal products of the area should be undertaken.

11. Since any project for settlement of the tribes is likely to end in partial or complete failure if education, health, credit, marketing facilities, and other services are not available, these should be extended to the new settlements as part of the overall plan. Education of both adults and children is perhaps the most important key to success. To start with, the basic tools of reading and writing and practical learning should be stressed.

The recommendations made have for the most part been designed to achieve settlement of the Iraqi nomads in the territory they now occupy. The implementing of some will require much time and money, as for example the installation of multipurpose dams and their associated irrigation systems. Such should be considered not only from the standpoint of settling the nomads, but for the much greater contribution which they can make to development of the whole nation. Meanwhile, a great deal can be accomplished towards converting the nomads to a semi-sedentary life, directly benefiting them without uprooting them from their accustomed habitat, by getting started on some of the other lines of action. To bring these into operation in an orderly manner, appropriately testing the procedures, one or more carefully designed pilot projects should be established and carried to completion at places in the Western Desert especially selected because of their promising site and situation. If these projects prove successful, other similar ones can be initiated, each with modifications dictated by experience and to suit the local conditions.

There is little doubt that successful settlement of the nomads within the Western Region of Iraq will result in a higher rate of natural increase of population in the area. If rapid population growth is not to nullify other gains and thereby prevent attainment of a better level

of living, many people will probably have to migrate to other parts of the nation. Consequently, the possibilities of settling nomads and their descendents elsewhere than in their present homeland must be considered.

At present, the arable land of the country is estimated to be about 48,000,000 dunums. However, the area under actual cultivation during any one year is only 12,596,000 dunums, and even this land is not used to the best advantage. By applying modern farming techniques, much more produce of a better quality could be obtained from less land than is presently used. Moreover, the area of arable land could be greatly expanded if efficient use were made of available water resources.

Thus, it can be concluded that there are very favorable possibilities of settling the nomads of Iraq, both in the Western Region and in other parts of the country. Much depends upon man's perception of the opportunities which exist and the steps he takes to develop these. Although the problem of settling the nomads and improving their level of living is a complex one, whose ultimate solution should be sought as part of the larger effort to promote economic and social progress in the nation as a whole, much can be accomplished by an immediate attack on this limited front.

Voluntary cooperation of the nomads is necessary for success, but the most critical requisite is continued sympathetic attention to the problem by government officials in policy making positions. Without the support of these men, it will be impossible for subordinate officials and technical staff, no matter how dedicated and competent, to properly carry out the planning, financing, implementation and follow-up necessary for success of projects designed to benefit the nomads, ^{and} much of the aid provided by foreign capital and technicians will have been wasted.

PLATE I



Fig. 1. -- Stony surface in the Juraibaniya area, typical of the southwestern Western Desert. A bush-bordered rain-pool is in the background (Ralph M. Parsons Co.).



Fig. 2. -- Birkat Hamad, one of the masonry-lined tanks along the Darb Zubaida. It is about 100 feet in diameter and 30 feet deep. Notice flatness of the desert (Ralph M. Parsons Co.).

PLATE II



Fig. 1. -- Irrigation na'ur at Dagani in the southern part of the Jezira. Water raised from just below the surface is carried by canal to the village garden plots (Ralph M. Parsons Co.).



Fig. 2. -- Bir Slubi, a privately owned hand-dug well, in the southern Jezira. The yield of 200 gallons per minute of water having 7,100 parts per million soluble salts is used for irrigation of wheat. (Ralph M. Parsons Co.).

PLATE III



Fig. 1. -- Government-drilled well at the Lussaf Police Post in central part of Western Desert. Camels are watering at trough leading from well and storage area at right.



Fig. 2. -- Eucalyptus trees and small field irrigated by water from government-drilled well at the Lussaf Police Post.

PLATE IV



Fig. 1. -- The newly excavated spring of Ruhaima flows an estimated 600 gallons per minute. In the line of springs, it supplies the Ruhaima Oasis west of Najaf in the eastern part of the Western Desert.



Fig. 2. -- Vegetable field in the Ruhaima Oasis, irrigated by the spring of Ruhaima.

PLATE V

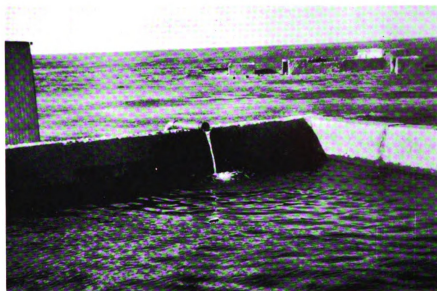


Fig. 1. -- Concrete storage tank near Habbariya in the central section of the Western Desert. Pollution by wind-blown dust and bird excrement and loss of water by evaporation are problems of open tanks such as this (Ralph M. Parsons Co.).



Fig. 2. -- The large spring at Ain Ghaim west of the Euphrates near Najaf. The water is high in sulfate and has a soluble salt content of 3,525 parts per million. Sedimentation, and contamination also reduce usefulness of the supply (Ralph M. Parsons Co.).

PLATE VI



Fig. 1. -- An idle government-drilled well in the northern section of the Western Desert. At the time of the picture (Sept. 20, 1963) the engine in the pump-house to the left was broken, and ten of eleven nearby dwellings were vacant because of lack of water.



Fig. 2. -- Trucks used for conveying water from wells in the Rutba area to nomadic tribes in the Western Desert during the summer. The supply is used primarily for watering animals.

PLATE VII



Fig. 1. -- A sheep-owning nomadic family on summer grazing ground west of the Euphrates River near Samawa. The sick and the young animals are kept inside the tent while the main herd grazes on fields of wheat stubble belonging to settled cultivators.



Fig. 2. -- A Bedouin family about to move to a new location for better winter grazing land. This view over the Plains of the Jezira shows the scattering of low brush and patches of short grass characteristic of the area (Ralph M. Parsons Co.).

PLATE VIII



Fig. 1. -- Nomadic Aneza tribesmen marketing salt in Baghdad gathered from the Razzaza area near Karbala.



Fig. 2. -- A harvested field of wheat belonging to nomadic tribesmen of the Dulaim in the Upper Wadian subregion of the Western Desert. In the foreground are tamarisk plants.

PLATE IX



Fig. 1. -- Well and pumphouse at Abu Kard in the Plain of the Jezira. This settlement of Shammar tribesmen was made possible by possession of a diesel engine to pump irrigation water (Ralph M. Parsons Co.).



Fig. 2. -- Habbariya, one of three villages recently established by Aneza camel-owning nomads north of the Nukhaib Police Post. Sheep raising and wheat dry farming support the village. The well to the left supplies water for the flocks.

PLATE X



Fig. 1. -- Main street of Rutba. This village was founded in the 1920's as a police post in the northern part of the Western Desert.



Fig. 2. -- H-1, oil-pumping station in the northern section of the Western Desert. It has been closed and unoccupied since 1948.

PLATE XI



Fig. 1. -- Reed-mat huts of tribal immigrants in Baghdad erected in vacant lots between houses of urban people.



Fig. 2. -- Women of the Asima immigrant camp carrying water from a fountain in the settlement.

BIBLIOGRAPHY

- Abou-Zeid, A.M. "The Sedentarization of Nomads in the Western Desert of Egypt," International Social Science Journal, XI (1959), 550-558.
- Adams, Doris G. "Current Population Trends in Iraq," Middle East Journal, X (1956), 151-165.
- Adams, Warren E. "The Land Development Program in Iraq with Special Reference to the Dijala Settlement, 1945 to 1954." Unpublished Ph.D. dissertation, Department of Economics, University of California, 1955.
- _____. "The Pre-Revolutionary Decade of Land Reform in Iraq," Economic Development and Cultural Change, XI (1963), 267-288.
- _____. "Reflections on Recent Land Reform Experience in Iraq," Land Economics, XXXIX (1963), 199-203.
- Agnew, A. Q. "Studies on the Plant Ecology of the Jezira of Central Iraq," Bulletin of the College of Sciences, University of Baghdad, VI (1961), 42-52.
- Ali, Hassan M. Land Reclamation and Settlement in Iraq. Baghdad: Baghdad Printing Press, 1955.
- _____. "Miri Sirf Land Development in Iraq," International Social Science Bulletin, V (1953), 713-717.
- Al-Atawna, Mussa. "What the Bedouin Want," New Outlook, Tel Aviv, III (1960), 15-18.
- Al-Azzawy, Abbas, The Kurdish Tribes of Iraq. Baghdad: Al-Marif Press, 1947. In Arabic.
- Al-Hashimi, Taha. Detailed Geography of Iraq. Baghdad: Dar Al-Salam Press, 1930. In Arabic.
- Al-Hindi, Mohammad I. "The Modern Methods of Utilizing Runoff Water and the Development of Pasture Resources for the Settlement of the Bedouin Tribes," Arab League, Department of Health and Social Affairs, Fourth Social Seminar of the Arab States, Baghdad, May 6 to 21, 1954. Cairo: Dar Al-Hana Press, 1954.



Al-Khashab, Wafiq Hussain. The Water Budget of the Tigris and Euphrates Basin. Ph.D. dissertation, Department of Geography, University of Chicago, Chicago: By the Author, 1958.

Al-Rawi, Ali. "The Natural Pastures of Iraq," Report submitted to the Bedouin Sedentarization Committee. Baghdad, 1963. In Arabic. (Mimeographed).

Al-Shalash, Ali H. "The Climate of Iraq." Unpublished M.A. thesis, Department of Geography, University of Maryland, 1957.

Al-Shaybani, Talat. The Agricultural Property in Iraq. Baghdad: Dar Al-Ahali Press, 1958. In Arabic.

Al-Soory, Mohammed A. Feudalism in the Kut Province. Baghdad: Asaid Press, 1958. In Arabic.

Al-Tahir, Abdul J. The Bedouins and the Tribes in the Arab Countries. Cairo: Al-Atmad Press, 1955. In Arabic.

_____. "The Sarifa Dwellers in Baghdad." Report submitted to the Ministry of Social Affairs, Baghdad, 1958. In Arabic. (Mimeographed).

_____. The Tribes and Politics. Baghdad: Zahra Press, 1958. In Arabic.

Alwan, Abdul S. Studies in Agrarian Reform with Special Reference to Iraq. Baghdad: Al-Aswaq El-Tijariya Press, 1961. In Arabic.

Amiran, D.H.K. and Ben-Arieh, Y. "Sedentarization of Beduin in Israel," Israel Exploration Journal, XIII (1963), 161-181.

Arab Bureau. Arab Tribes of Baghdad Wilayat, 1918. Published by the British Superintendent in Iraq. Calcutta: Government Printing, 1919.

_____. Administration Report of the Muntafiq Division, 1919, Published by the British Superintendent in Iraq. Calcutta: Government Printing, 1920.

_____. Tribes of the Tigris. Published by the British Superintendent in Iraq. Calcutta: Government Printing, 1917.

Arab League, Department of Health and Social Affairs. Fourth Social Seminar of the Arab States. Baghdad, May 6 to 21, 1954, Cairo: Dar Al-Hana Press, 1954.

Ashkenazi, Touvia. "The Aneza Tribes," Southwestern Journal of Anthropology, IV (1948), 222-239.

Atiyah, Edward. The Arabs. Edinburgh: R and R Clark, Ltd., 1958.

Awad, Mohammed. "The Assimilation of Nomads in Egypt," Geographical Review, XLIV (1954), 240-252.



- _____. "Nomadism in the Arab Lands of the Middle East," UNESCO, Arid Zone Research. The Problems of the Arid Zone. Proceeding of the Paris Symposium. Paris: By the UNESCO, 1962, No. 18.
- Bacon, Elizabeth E. "Types of Pastoral Nomadism in Central and Southwest Asia," Southwestern Journal of Anthropology, X (1954), 44-65.
- Baer, Gabriel. "Some Aspects of Bedouin Sedentarization in 19th Century Egypt," Die Welt des Islams, V (1957), 84-98.
- _____. A History of Landownership in Modern Egypt, 1800-1950. London: Oxford University Press, 1962.
- Batatu, John. "The Shaikh and the Peasant in Iraq, 1917-1958." Unpublished Ph.D. dissertation, Department of Political Science, Harvard University, 1960.
- Bell, Lady (ed.) The Letters of Gertrude Bell. New York: Boni and Liveright Publishers, 1928, Vol. II.
- Bentwich, Norman. "Development in the Negev," Journal of Royal Central Asian Society, XLII (1955), 176-183.
- Blunt, Lady A. Bedouin Tribes of the Euphrates. New York: Harper and Brothers, Publishers, 1879.
- Boesch, Hans H. "El-Iraq," Economic Geography, XV (1939), 325-361.
- Bonne, Alfred. The Economic Development of the Middle East. London: Kegan Paul and Co., Ltd., 1945.
- Bruce, C. E. "The Sandeman Policy as Applied to Tribal Problems of Today," Journal of Royal Central Asian Society, XIX (1932), 45-67.
- Bryan, Hugh M. and Springfield, H. Wayne. "Range Management in Iraq." Government of Iraq, Ministry of Agriculture, Baghdad, 1955. (Mimeographed Report).
- Buringh, P. Soils and Soil Conditions in Iraq. Baghdad: The Ministry of Agriculture, 1960.
- Burns, Norman. "The Dujaylah Land Settlement," Middle East Journal, V (1951), 362-366.
- Butler, S. S. "Baghdad to Damascus Via El Jauf, Northern Arabia," Geographical Journal, XXXIII (1904), 517-535.
- Calder, Ritchie. Man Against the Desert. London: George Allen and Unwin Ltd., 1951.
- Carruthers, Douglas (ed.) The Desert Route to India. London: Cambridge University Press, 1929.



- _____. "The Great Desert Caravan Route, Aleppo to Basra," Geographical Journal, LII (1918), 157-184.
- Caskel, Werner. "The Bedouinization of Arabia," American Anthropologist LVI (1954), 36-46.
- Coon, Carleton S. "The Nomads," Sydney N. Fisher (ed.) Social Forces in the Middle East. New York: Cornell University Press, 1955.
- Cressey, George B. Crossroads: Land and Life in Southwest Asia. Chicago: J. B. Lippincott Company, 1960.
- _____. "Water in the Desert," Annals of the Association of American Geographers, XLVII (1957), 105-124.
- Critchley, A. Michael. "Observations on a Socio-Medical Survey in Iraq," Journal of the Iraqi Medical Professions, IV (1956), 70-80.
- Dajani, Sami W. "The Enumeration of the Beersheba Bedouins in May 1946," Population Studies, I (1947-1948), 301-307.
- Dauphin, Jacques. "Les Ma'dan De Basse-Mesopotamie," Annales De Geographie, LXIX (1960), 34-49.
- Dawson, Ernest. An Inquiry into Land Tenure and Related Questions. Report to the Iraq Government. Latchworth: Garden City Press, 1931.
- _____. "Land Tenure in Iraq," Henry Field, The Anthropology of Iraq. Anthropological Series, Field Museum of Natural History, Vol. XXX, 1940.
- Dickson, H. R. P. Kuwait and Her Neighbors. London: George Allen and Unwin, Ltd., 1956.
- Dixey, Frank. "Variability and Predictability of Water Supply," Gilbert F. White (ed.) The Future of Arid Lands. Washington, D. C.: The American Association for the Advancement of Science, 1956.
- Dokrumaghi, Kurni. "The Sheep of Iraq," Iraq Agricultural Journal, Baghdad, XIV (1959), 5-12. In Arabic.
- Draz, Omar. "Adaptation of Plants and Animals," Gilbert F. White (ed.) The Future of Arid Lands. Washington, D.C.: The American Association for the Advancement of Science, 1956.
- Eberhard, Wolfram. "Nomads and Farmers in Southeastern Turkey," Oriens, VI (1953), 32-49.
- Elath, E. "The Bedouin of the Negev," Journal of Royal Central Asian Society, XLV (1958), 123-140.
- El-Jamil, Mekki. "Settlement of Land Rights in Iraq," Iraq Agricultural Journal, Baghdad, VIII (1953), 298-307.



- Epstein, E. "The Bedouin of Trans-Jordan, Their Social and Economic Problems," Journal of Royal Central Asian Society, XXV (1938), 228-236.
- _____. "The Economic Situation of the Trans-Jordan Tribes," Journal of Royal Central Asian Society, XXVI (1939), 177-184.
- Ethridge, Willie Snow. There's Yeast in the Middle East. New York: The Vanguard Press, 1962.
- Evenari, Michael and Koller, Dov. "Ancient Masters of the Desert," Scientific America, CLXLIV (1956), 39-45.
- _____. "Desert Agriculture: Problems and Results in Israel," Gilbert F. White (ed.) The Future of Arid Lands. Washington, D.C.: The American Association for the Advancement of Science, 1956.
- Field, Henry. "Some Notes on the Albu Muhammad of Iraq," Journal of Royal Central Asian Society, XXXVI (1949), 274-277.
- Fisher, W. B. The Middle East: A Physical, Social, and Regional Geography, London: Methuen and Co., Ltd., 1952.
- Fisk, Brad. "Dujaila: Iraq's Pilot Project for Land Settlement," Economic Geography, XXVIII (1952), 343-354.
- _____. "The Wadi Tharthar Flood Control Project," Middle East Journal, V (1951), 366-370.
- Food and Agriculture Organization of the United Nations. Report of the Second Meeting of the FAO Working Party on the Development of the Grazing and Fodder Resources of the Near East. Held in Teheran, Iran, 12-19 May, 1958. Rome: By the Organization, 1958.
- Food and Agriculture Organization of the United Nations, Mediterranean Development Project, Country Report. Iraq. Rome: By the Organization, 1959.
- Forde, Daryll. Habitat, Economy, and Society. London: Methuen and Co., Ltd., 1956.
- Foster, Henry A. The Making of Modern Iraq. Norman: University of Oklahoma Press, 1935.
- Galloway, J. P. N. "A Kurdish Village of North-East Iraq," Geographical Journal, CXXIV (1958), 361-366.
- Garrod, Oliver. "The Nomadic Tribes of Persia To-Day," Journal of Royal Central Asian Society, XXXIII (1946), 32-46.



Gillett, J.B. "The Desert Vegetation of Iraq." Report submitted to the Government of Iraq, Ministry of Agriculture, Range Management Section, Baghdad, 1948. (Mimeographed).

_____. "The Pastures and Wild Fodder Plants of Iraq." Report submitted to the Government of Iraq, Ministry of Agriculture, Range Management Section, Baghdad, 1948. (Mimeographed).

Glubb, John B. "The Bedouins of Northern Arabia," Journal of Royal Central Asian Society, XXII (1935), 13-31.

_____. War in the Desert. New York: W. W. Norton and Co., Inc., 1961.

_____. The Story of the Arab Legion. London: By the Author, 1948.

Government of Iraq, Development Board. Development of the Tigris-Euphrates Valley. Baghdad: Al-Ani Press, 1954.

Government of Iraq, Ministry of Development, Miri Sirf Central Committee. Agricultural Reform and Land Development. Baghdad: Al-Rabita Press, 1956. In Arabic.

Government of Iraq, Ministry of Economics, Principal Bureau of Statistics. Report on the Housing, Budget Enquiry in the City of Baghdad and its Environs. Baghdad: Zahra Press, 1954.

_____. Statistical Abstract. Baghdad: Zahra Press, 1956.

Government of Iraq, Ministry of Education. "Report on the Fundamental Education Project in Iraq." Baghdad, 1957. In Arabic. (Mimeographed).

Government of Iraq, Meteorological Department. Climatological Means for Iraq. Publication No. 9. Baghdad: Government Press, 1953.

_____. Climatological Means for Iraq. Publication No. 10. Baghdad: Government Press, 1954.

_____. Rainfall in Iraq, 1936-1939. Occasional Publication No. 3. Baghdad: Government Press, 1940.

Grant, Christine P. The Syrian Desert. New York: The MacMillan Co., 1938.

_____. "Tracks Across the Wilderness," Geographic Magazine, I (1935), 47-56 and 245-255.

Great Britain, Colonial Office. Report to the Council of the League of Nations on the Administration of Iraq. London: Stationery Office, 1928.

_____. Special Report on the Progress of Iraq, 1920-1931. London: Stationery Office, 1931.



- Great Britain, Naval Intelligence Division, Iraq and the Persian Gulf.
London: The Naval Intelligence Division, 1944.
- Great Britain, Reports of the Administration for 1918. London:
Stationery Office, 1918, Vol. I.
- _____. Review of the Civil Administration of Mesopotamia. London:
Stationery Office, 1920.
- Gulick, John. Social Structure and Culture Change in A Lebanese Village.
Viking Fund Publication in Anthropology, No. 21. New York:
Wenner Gren Foundation for Anthropological Research, 1955.
- Haider, Saleh. "The Economic Development of Iraq," Commerce (Baghdad),
IX and X (1954), 57-75. In Arabic.
- _____. "The Land and the Tribe in Iraq," Al-Abbath (Beirut), (1956), 401-421. In Arabic.
- Hamada, Said. The Economic System of Iraq. Beirut: The American Press,
1938. In Arabic.
- Harford, D. F. "Old Caravan Roads and Overland Routes in Syria, Arabia,
and Mesopotamia," Nineteenth Century (London), (1918), 97-113.
- Harris, George L. Iraq. New Haven: Hraf Press, 1958.
- Hasan, M S. "Growth and Structure of Iraq's Population, 1867-1947,"
Oxford University Institute of Statistics Bulletin, XX (1958),
338-352.
- Hashimi, Rasool M. and Edwards, Alfred L. "Land Reform in Iraq:
Economic and Social Implications," Land Economics, XXXVII (1961),
68-79.
- Haurani, Albert. A Vision of History. Beirut: Khayats Rue Bliss, 1961.
- Helaissi, A. S. "The Bedouins and Tribal Life in Saudi Arabia," Inter-
national Social Science Journal. XI (1959), 532-538.
- Hertz, Israel. "The Bedouin of the Negev," New Outlook, Tel Aviv, III
(1960), 28-31.
- Hilali, Abdul R. Reflections on Rural Reform. Beirut: Dar Al-Kashaff
Press, 1954. In Arabic.
- _____. Migration of Rural Folk to Towns in Iraq. Baghdad: Al-Najah
Press, 1958. In Arabic.
- Hitti, Philip K. History of the Arabs. London: MacMillan and Co.,
Ltd., 1937.
- Hurley, Marcella. "Dental Service Follows the Pipe Lines," Oral
Hygiene, XXX (1940), 36-41.

- _____. "The Desert Nomad Sees his Dentist," Oral Hygiene, XXX (1940), 157-163.
- Hutchinson, A. M. Clark. "The Hadrhrami Bedouin Legion," Journal of Royal Central Asian Society, XXXVII (1950), 62-65.
- International Bank for Reconstruction and Development. The Economic Development of Iraq. Baltimore: The Johns Hopkins Press, 1952.
- _____. The Economic Development of Syria. Baltimore: The Johns Hopkins Press, 1957.
- Iraq Events. Official Newspaper of the Republic of Iraq, issued by the Ministry of Guidance, Baghdad, December 31, 1959. In Arabic.
- Iraq Petroleum Company. Construction of the Iraq-Mediterranean Pipe Line. London: St. Clements Press, Ltd., 1934.
- Ireland, Philip W. Iraq: A Study in Political Development. Oxford: The Alden Press, 1937.
- Israelsen, Orson W. Irrigation Principles and Practices. New York: John Wiley and Sons, Inc., 1958.
- Jawad, Hashim. The Social Structure of Iraq. Baghdad: Al-Marif Press, 1946. In Arabic.
- Jamali, Mohammed F. The New Iraq: Its Problem of Bedouin Education. New York: Columbia University, Bureau of Publications, 1934.
- Jarvis, C. S. "The Desert Bedouin and His Future," Journal of Royal Central Asian Society, XXIII, (1936), 585-593.
- Jones, Catesby T. "A Comparative Study of Northern and Southern Pastoral Nomadism in Asia." Unpublished Ph.D. dissertation, Department of Philosophy, Johns Hopkins University, 1952.
- Kapeliuk, Menahem. "Settling Bedouin in Saudi Arabia: the Story of An Experiment," New Outlook, Tel-Aviv, I (1958), 16-21.
- Kettani, Hassan. "The Forests of Iraq," Prospects of Iraq Biology, A Monograph of the Biological Society of Iraq. Baghdad: Al-Rabita Press, 1958.
- Khalaf, J. H. Physical, Economic, and Human Geography of Iraq. Cairo Al-Bayan Al-Arabi Press, 1961. In Arabic.
- Kinch, E. A. "Social Effects of the Oil Industry in Iraq," International Labor Review, LXXV (1957), 193-206.
- Kirkbride, A.S. "Changes in Tribal Life in Trans-Jordan," Man, XLV (1945), 40-41.

- Knappen, Tippetts, Abbett, McCarthy Engineers. Development Plan for the Tigris and Euphrates River, Iraq. Baghdad: The Development Board, 1955.
- Konikoff, A. Transjordan: An Economic Survey. Jerusalem: Human Press, 1946.
- Kupper, J. R. "Le Rôle Des Nomads Dans L'Histoire De La Mesopotamie Ancienne," Journal of the Economic and Social History of the Orient, II (1959) 113-127.
- Lamb, Harold. "Mountain Tribes of Iran and Iraq," National Geographic Magazine, LXXXIX (1946), 385-408.
- Langley, Kathleen M. The Industrialization of Iraq. Cambridge: Harvard University Press, 1961.
- Leach, E. R. "Social and Economic Organization of the Rowanduz Kurds," Social Anthropology, London, No. 3 (1940).
- Lebon, J. H. G. "The New Irrigation Era in Iraq," Economic Geography XXXI, (1955), 47-59.
- _____. "Population Distribution and the Agricultural Regions of Iraq," Geographical Review, XLIII (1953), 223-228.
- Leemans, W. F. "The Contribution of the Nomads to the Babylonian Population," Journal of the Economic and Social History of the Orient, I (1958), 138-145.
- Lees, G. M. and Falcon, N. L. "The Geographical History of the Mesopotamian Plains," Geographical Journal, CXVIII (1952), 24-39.
- Lewis, Norman N. "The Frontier of Settlement in Syria, 1800-1850," International Affairs, XXXI (1955), 48-60.
- Longrigg, Stephen H. and Stoakes, Frank. Iraq. New York: Frederick A. Praeger, 1958.
- Longrigg, Stephen H. Four Centuries of Modern Iraq. London: Oxford University Press, 1925.
- _____. Iraq, 1900-1950. London: Oxford University Press, 1953.
- Mahhouk, Adnan. "Recent Agricultural Development and Bedouin Settlement in Syria," Middle East Journal, X (1956), 167-176.
- Marnnin, Ethel. "Journey to the Marshes," Bulletin of the Republic of Iraq. Published by the Embassy of the Republic of Iraq in Washington, D. C., III, No. 7 (1962), 7-14.
- Maxwell, Gavin. A Reed Shaken by the Wind. London: Longmans, Green and Co., 1957.



- Merriam, Richard and Holwerda, James G. "Al-Umchaimin, A Crater of Possible Meteoritic Origin in Western Iraq," Geographical Journal, CXXIII (1957), 231-233.
- Millar, C.E. and Turk, L. M. Fundamentals of Soil Science. New York: John Wiley and Sons, Inc., 1951.
- Mitchell, Paul C. "Instability of the Mesopotamian Plains," Bulletin de la Societe de Geographie d'Egypt, XXXI (1958), 127-140.
- Muhsam, H. V. "Sedentarization of the Bedouin in Israel," International Social Science Journal, XI (1959), 539-549.
- Patai, Raphael, The Kingdom of Jordan. New Jersey: Princeton University Press, 1958.
- _____. "Namadism: Middle Eastern and Central Asian," Southwestern Journal of Anthropology, VII (1951), 401-414.
- Phillips, Doris G. "Rural-to-Urban Migration in Iraq," Economic Development and Cultural Change, VII (1959), 405-421.
- Phillips, R. W. Breeding Livestock Adopted to Unfavorable Environment. Rome: Food and Agriculture Organization of the United Nations, 1953. Agriculture Studies No. I.
- Polk, William N. "Generations, Classes and Politics, 1952-1959," Tibor Kerekes (ed.) The Arab Middle East and Muslim Africa. New York: Frederick A. Praeger, Publishers, 1961.
- Polunin, Nicholas. "On the Need for a Flora and Ecological Survey of Iraq," Bulletin of the College of Arts and Sciences, Baghdad, I (1956), 12-17.
- Price, Raymond. "Possibilities of Increasing and Maintaining Production from Grass and Forest Lands Without Accelerating Erosion," Gilbert F. White (ed.) The Future of Arid Lands. Washington, D. C.: The American Association for the Advancement of Science, 1956.
- Quackenbush, Tyler H. and Shocklev, Dell G. "The Use of Sprinklers for Irrigation," Water. The Yearbook of Agriculture, 1955. Washington, D.C.: Government Printing Office.
- Qubain, Fahim I. The Reconstruction of Iraq: 1950-1957. New York: Praeger, 1958.
- Ralph M. Parsons Company. Ground Water Resources of Iraq. Los Angeles: Government of Iraq, Ministry of Development, Vols. I-XI, 1955-1957.
- _____. Ground Water Resources of Iraq, Provisional Regional Maps. Los Angeles: Government of Iraq, Ministry of Development, 1957.



- Rajkowski, Witold. "A Visit to Southern Kurdistan," Geographical Journal, CVII (1946), 128-134.
- Raswan, Carl R. Black Tents of Arabia. Boston: Little, Brown and Co., 1935.
- _____. "From Tent to Tent Among the Bedouins," Asia, XXIX (1929), 570-580.
- _____. "Tribal Areas and Migration Lines of the North Arabian Bedouins," Geographical Review, XX (1930), 494-502.
- Reginold, C. "The Iraq-Najd Frontier," Journal of Royal Central Asian Society, XVII (1930), 77-92.
- Republic of Iraq. Agrarian Reform Law and the End of Feudalism. Baghdad: University Press, 1958. In Arabic.
- Republic of Iraq, Ministry of Agriculture, Directorate General of Agriculture, Range Management Section. "Report on Development of Natural Grazing Resources of Iraq." Baghdad, 1958. In Arabic. (Mimeographed).
- Republic of Iraq. Ministry of Industry, Directorate General of Industrial Design and Construction. "The Possibility of Development of Salt in Fao and Samawa." Unpublished Report. In Arabic, January, 1962.
- Republic of Iraq, Ministry of Industry. Yearbook, 1961-1962. Baghdad: Al-Tamadon Press, 1962.
- Republic of Iraq, Ministry of Planning, Central Bureau of Statistics. Report on the Agricultural and Livestock Census of Iraq, 1958-1959. Baghdad: Zahra Press, 1960.
- _____. Statistical Abstract. Baghdad: Zahra Press, 1960.
- _____. Statistical Abstract, 1961. Baghdad: Zahra Press, 1962.
- Republic of Iraq, Ministry of Social Affairs. "Report on Socio-economic Survey of the Settlers in the Latifiya Project." Baghdad, 1959. In Arabic. (Mimeographed).
- Republic of Iraq, Ministry of Work and Housing. "Problems of Sarifa in the City of Baghdad." Report for Afro-Asian Housing Conference, 1963. Baghdad, 1963. In Arabic. (Mimeographed).
- Rifat, Ahsan. "The Artesian Wells of Iraq," Iraq Agricultural Journal, Baghdad, VIII (1953), 411-419. In Arabic.
- Rutter, Eldon. "The Habitability of the Arabian Desert." Geographical Journal, LXXVI (1930), 512-515.
- Saleh, Zaki. Introduction to the Study of Contemporary Iraq. Baghdad: Al-Rabita Press, 1953. In Arabic.



- Salim, Shakir M. Ech-Chibayish: An Anthropological Study of A Marsh Village in Iraq. Baghdad: Al-Rabita Press, 1957. In Arabic.
- _____. "The Role of the Guest-House in Ech-Chibayish Community," Bulletin of the College of Arts and Sciences, Baghdad, I (1956), 82-95.
- Salter, J. A. Development of Iraq: A Plan for Action. Baghdad: The Development Board, 1955.
- Schwan, H. E. "Watershed Protection in Relation to Range Management," Iraq Agricultural Journal, Baghdad, XII (1957). 532-538. In Arabic.
- Semple, Ellen C. "The Ancient Piedmont Route of Northern Mesopotamia," Geographical Review, VIII (1919), 153-179.
- Shotton, F. W. "The Availability of Underground Water in Hot Deserts," J. L. Clauhsby Thompson (ed.) Biology of Deserts. London: Institute of Biology, 1954.
- Shwadran, Benjamin. Jordan A State of Tension. New York: Council for Middle Eastern Affairs Press, 1959.
- Simmons, John L. "Agricultural Development of Iraq: Planning and Management Failures," Middle East Journal. XIX (1965), 129-140.
- Sousa, Ahmed. Irrigation in Iraq. Baghdad: New Publishers, 1945.
- Springfield, H. Wayne. "Pasture and Forage of Iraq," Iraq Agricultural Journal, Baghdad, IX (1954), 391-428. In Arabic.
- "Stabilization of the Nomads," Central Asian Review, VII (1959), 221-228.
- Stark, Freya. East is West. London: Wyman and Sons, Ltd., 1947.
- Tannous, Afif I. "The Arab Tribal Community in a Nationalist State," Middle East Journal, I (1947), 5-17.
- The Arab of Mesopotamia. Published by the British Superintendent in Iraq. Basra: Government Printing, 1916.
- The Encyclopedia of Islam, I, London: Luzac and Co., 1960.
- The Higher Committee for the Celebration of the 14th July Revolution. The Iraqi Revolution in its Second Year. Baghdad: The Times Press, 1960.
- The State Journal. Lansing, Michigan, June 7, 1964.
- Thesiger, Wilfred. "The Badu of Southern Arabia," Journal of Royal Central Asian Society, XXXVII (1950), 53-61.

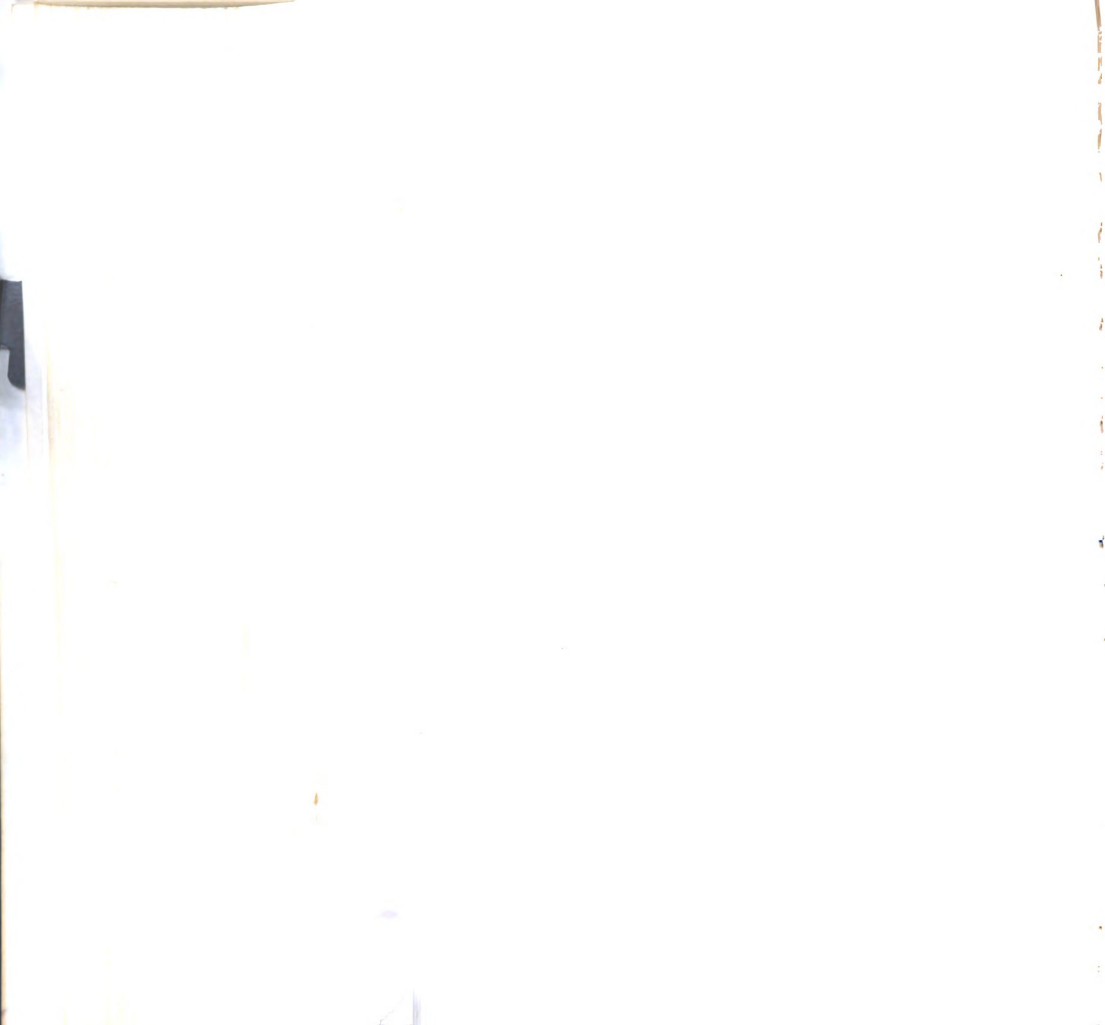


- _____. "The Ma'dan or Marsh Dwellers of Southern Iraq," Journal of Royal Central Asian Society, XLI (1954), 4-25. ✓
- Tursunbayev, A. and Potapov, A. "Some Aspects of the Socio-Economic and Cultural Development of Nomads in the U.S.S.R.," International Social Science Journal, XI (1959), 511-524.
- United Nations. United Nations, Social Welfare Seminar for Arab States in the Middle East. Beirut, 15 August to 8 September, 1949, UN Publications, Technical Assistance for Social Progress No. 3.
- _____. Second United Nations Social Welfare Seminar for Arab States in the Middle East. Cairo, 22 November to 14, December, 1950, UN Publications, TAA Conference and Seminar Series No. 2.
- _____. Third United Nations Social Welfare Seminar for Arab States in the Middle East. Damascus, December 8 to 20, 1952, UN Publications, New York, 1953.
- _____. Preliminary Report on the World Social Situation, UN Publications, New York, 1952.
- UNESCO, Arid Zone Research. The Problem of the Arid Zone. Proceedings of the Paris Symposium, No. 18. Paris: By the UNESCO, 1962.
- Van der Veen, J.P.H. Report to the Government of Iraq on Pasture and Fodder Development. Rome: Food and Agriculture Organization of the United Nations, 1960.
- Van Ess, John. "Forty Years Among the Arabs," National Geographic Magazine, LXXXII (1942), 385-420. ✓
- "Wadi Al-Natrun: A Model Experiment in Desert Reclamation," Arab Review I (1960), 15-19. ✓
- Warriner, Doreen. Land Reform and Development in the Middle East. London: Oxford University Press, 1962. ✓
- West, Burnell G. "The Soils of Iraq and their Management," Prospects of Iraq Biology, A Monograph of the Biological Society of Iraq. Baghdad: Al-Rabita Press, 1958.
- Whyte, R. O. "Grazing Resources of Arid and Semi-Arid Lands," World Crops, VII (1955), 348-352. ✓
- Williamson, Grahame. "Iraqi Livestock," The Empire Journal of Experimental Agriculture, XVII (1948), 48-59.
- Wilcox, L. V. "The Quality of Water for Irrigation Use," United States Department of Agriculture, Technical Bulletin, No. 962, Washington, D.C.: Government Printing Office, 1948.
- Winner, Irene. "Some Problems of Nomadism and Social Organization Among the Recently Settled Kazakhs," Central Asian Review, II (1963), Part I, 246-262. ✓



Zohry, M. "Hydro-Economical Types in the Vegetation of Near East Deserts," J. C. Thompson (ed.) Biology of Deserts. London: The Institute of Biology, 1954.









MICHIGAN STATE UNIV. LIBRARIES



31293103296541