



PRELIMINARY REPORT ON
EGYPTIAN VILLAGE HOUSING,
BUILDING MATERIALS,
AND METHODS OF CONSTRUCTION
TO
ADMINISTRATOR
TECHNICAL COOPERATION ADMINISTRATION

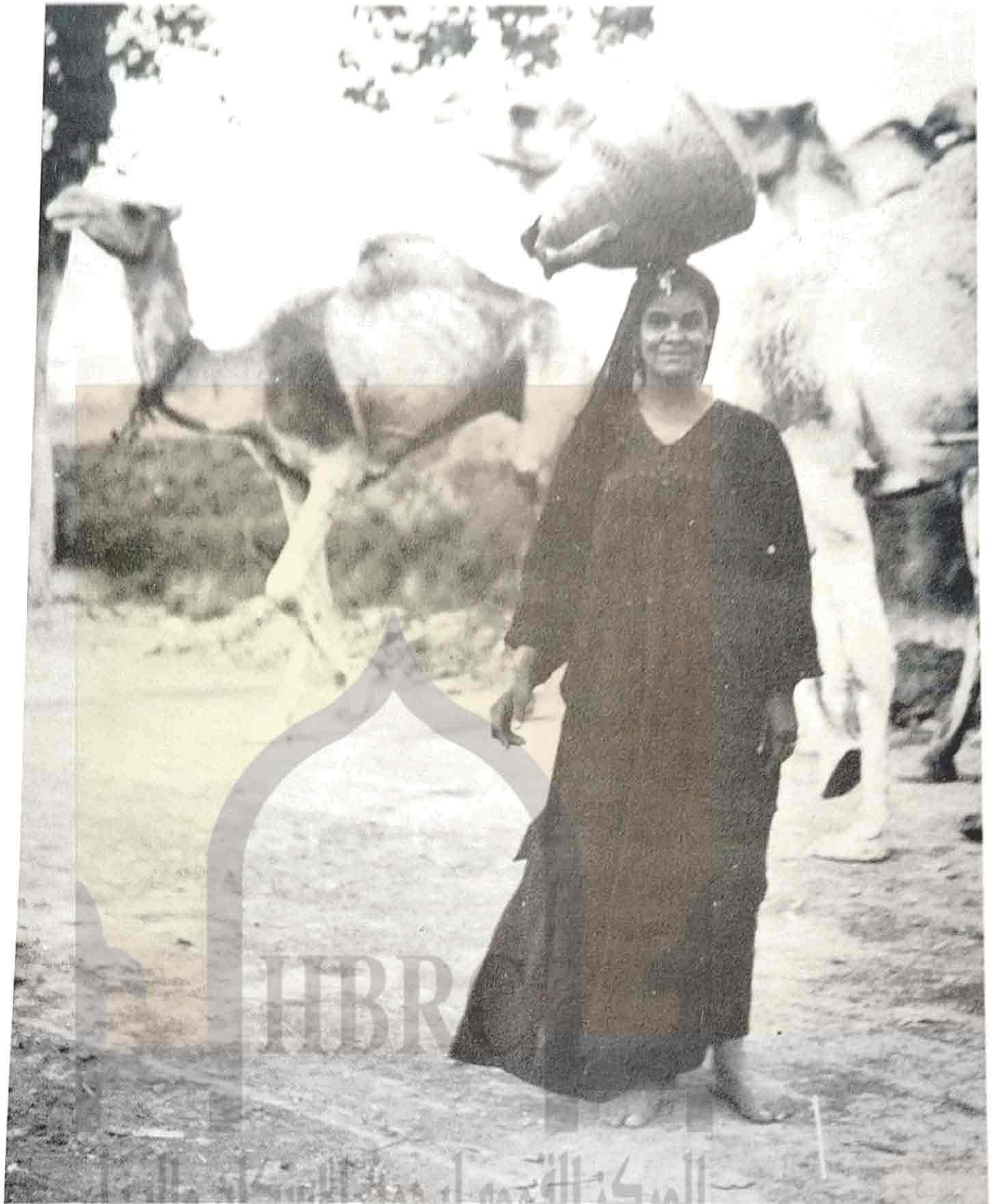
ARTHUR D. LITTLE, INC.
Cairo Office
12, Elbaria Tolombat, Garden City
Telephone - 28311 - 28319
Ext. 251, 260, 259, 266, 287, 288.

المركز القومي لبحوث الإسكان والبناء
Housing & Building National Research Center

Since 1954

Arthur D. Little, Inc.
CAMBRIDGE 42, MASSACHUSETTS

D. 31 A 1



المركز القومي لبحوث الإسكان والبيئة
Housing & Building National Research Center

The place of honor in this report on housing is given to the village mother or fellaha, who, with her jar of water, is an indispensable part of village life.

New water supplies in some villages have begun to lighten daily toil. It is fervently hoped that new housing will further reduce the drudgery of the fellaha and that a better home will afford more time to care for the health and comfort of her family.

If this report should contribute its small share toward that end, the authors will be grateful.

FOREWORD

This report is written with a dual purpose: (1) As a source of information for the Technical Cooperation Administration of the State Department in the United States; (2) for use by personnel in the Ministry of Social Affairs and others in the Government of Egypt. It is hoped that readers in Egypt will be patient with some of the descriptive information already well known to them and will understand that it is included particularly as information for American readers who may be called upon to take action under the Point IV Program in furtherance of some of the recommendations.

Figures are in Egyptian currency unless specifically stated otherwise. The Egyptian pound has an exchange value of about \$2.80 in U. S. currency. The piaster is one hundredth of a pound or slightly less than three cents.

Land measure is in feddans, the Egyptian "acre", which is about three percent larger than the United States acre.

المركز القومي لبحوث الإسكان والبناء
Housing & Building National Research Center

Since 1954

TABLE OF CONTENTS

	<u>Page Number</u>
FRONTISPIECE	ii
FOREWORD	iii
ABSTRACT OR SUMMARY	1
ACKNOWLEDGEMENTS	5
GENERAL OUTLINE AND BRIEF CONCLUSIONS	10
Conclusions in Brief	11
Definitions of "Housing"	13
RECOMMENDATIONS	17
VILLAGES AND HOUSING DEVELOPMENTS VISITED	19
Map	20
Embaba	21
Heliopolis Project	22
Mahalla el Koubra and Kafr el Dawar	23
Esba Shebrakhit	24
Damanhur Shoubra	25
El Agaiza	26
Bahtim	28
Gourna	31
Atic Island	33
Kom Ombo	34
Miscellaneous Villages	35
SHORT DISCUSSION OF BUILDING MATERIALS	36
Steel	37
Wood	37
Cement and Concrete	38
Lime	38
Limestone	39
Sand	39
Brick	40
Rice Hull Brick	40
Sand Lime Brick	40
Burned or Red Brick	41
Sun-Dried Brick	42
Stabilized Sun-Dried Brick	44
Homra-Clay Mixes	45
Oil Stabilized Plaster	45
WORKERS HOUSING GENERALLY	46
Representative Village Conditions	51
Representative House	54
CONSTRUCTION DETAILS AND PRELIMINARY COST	60
Dome and Arched Roof Construction	62
Design of Small Representative House	64
Possibilities in Cooperative Action	68
Water Closets	69
Water Supplies	71
Garden Plots	73

TABLE OF CONTENTS (Cont.)

APPENDIX

	<u>Page Number</u>
GENERAL DISCUSSION OF MATERIALS	74
MATERIALS NOW IN PRODUCTION	79
Sun-Dried Bricks	79
Bitumen Soil Mix or Stabilized Brick	81
Red Burned Brick	85
Sand Lime Brick	88
Ribal Light Concrete Brick	88
Lime	90
Concrete: Portland Cement and Sand	91
Foamed Concrete	92
Terra Cotta and Cement Asbestos Products	94
Gypsum and Plaster	95
Steel	96
Wood	96
MATERIALS NOT IN PRODUCTION	99
"Alabaster" (a gypsum product)	99
Walls from Blocks	100
High Strength Products	101
Light Weight Cellular Stone	102
Building Products Based Upon Fibers	104
Cereal Straws for Building Products	104
Building Boards From Sugar Cane Wastes	105
Building Papers	105
Paper in General	106
COMPARATIVE COSTS OF BUILDING MATERIALS	112
STATUS OF VILLAGE HOUSING IN PUERTO RICO	114

Housing & Building National Research Center

Since 1954

LIST OF ILLUSTRATIONS

	<u>Following Page Number</u>
Frontispiece	ii
Hospitality at Shabt el Ballad	8
Boy Scout Welcome at Bayadia	
Map of Nile Valley	20
Embaba - Workers Settlement	21
New Medium Rental Apartment Building at Heliopolis	22
Two-Family Dwellings at Kafr el Dawar	23
Two Views of One-Story Dwellings at Mahalla el Koubra	
Damanhur Shubra - New and Old	25
Model House at Agaiza	26
Dome Roofs of Sun-Dried Brick at Bahtim	28
New Gourna Village	32
Street Corner Scene	
Stalls in Market Place	
Courts at Gourna	
Atic Island in Aswan Reservoir	33
Dome Village at Kom Ombo	34
Miscellaneous Villages	35
Roadside Villages on Outskirts of Cairo	
Qena, In a Dry Area	
Villages With Date Palms	
Roofs With Stored Fuel	
Roof Tops With Stored Fuel	
Representative Villages	
Dome Roofs at Mariout in the Delta	
Four Sketches	65
<u>APPENDIX</u>	
Experimental Brick Making	80
Half Hour Water Immersion Test	82
"Rain Fall" Test on Brick of Bitumen Soil Mix .	83