
TABLE OF CONTENTS

	Page
FOREWORD	xiii
ACKNOWLEDGMENTS	xvi
LIST OF ABBREVIATIONS	xvii
INTRODUCTION	xix
 I: BACKGROUND INFORMATION ABOUT TAIWAN	 1
THE LAND	1
THE CLIMATE	1
THE POPULATION	3
POLITICAL ADMINISTRATION	5
HEALTH ORGANIZATION	6
ECONOMIC AND SOCIAL DEVELOPMENT	7
COMMUNICATIONS / TRANSPORTATION	7
 II: MALARIA IN TAIWAN BEFORE 1946	 8
MALARIA SITUATION PRIOR TO 1895	8
JAPANESE MALARIA RESEARCH AND CONTROL ACTIVITIES IN TAIWAN (1895 - 1945)	10
 III: DEVELOPMENT OF ANTIMALARIA ACTIVITIES 1946 - 1951	 17
GENERAL REVIEW	17

	<u>Page</u>
RESEARCH PROJECTS (1946 - 1951)	19
Observations on Malaria Prevalence	19
<i>Seasonal Prevalence of Malaria in Southern Formosa</i>	19
<i>Seasonal Prevalence of Malaria in Central Formosa</i>	21
<i>Seasonal Prevalence of Malaria in Northern Formosa</i>	22
Observation on Anopheline Mosquitoes	22
<i>Seasonal Prevalence of Anopheline Mosquitoes in</i>	
<i>Southern Formosa</i>	22
<i>Natural Infection of Anopheline Mosquitoes</i>	
<i>with Malaria Parasites in Taiwan</i>	23
EXPERIMENTAL MALARIA CONTROL	25
Field Trial of Chlorguanide (Paludrine) as a Suppressive	
and as a Therapeutic Agent in Southern Formosa	25
Field Trial of Chloroquine (SN-7618-5) for	
Malaria Control in Central Taiwan	27
Control by Automatic Flushing of Streams	28
Larviciding	29
DDT Residual House Spraying	30
TRAINING	33
IV: DEVELOPMENT OF BASIC HEALTH SERVICES	35
V: PREPARATIONS FOR THE ANTIMALARIA PROGRAM	40
REHABILITATION OF 155 ANTIMALARIA STATIONS/	
RETRAINING OF MALARIA TECHNICIANS	40

	<u>Page</u>
UTILIZATION OF BASIC HEALTH SERVICES	42
Decentralized Execution of Malaria Eradication Program	43
Benefits of Decentralized Program Implementation	44
Problems and Solutions in Decentralized Operation	45
UTILIZATION OF HOUSEHOLD REGISTRATION AND COMMUNITY ORGANIZATION	45
ANOPHELINE FAUNA	46
DETERMINATION OF MALARIA VECTOR(S)	49
STUDIES OF ANOPHELINE POPULATIONS IN HUMAN DWELLINGS	53
STUDIES ON MALARIA ENDEMICITY	60
Malaria Surveys at Different Distances	
From the West Sea Coast	60
Malaria Endemicity at Different Altitudes	62
Malaria in the Aboriginal Areas	65
Malaria on the Adjacent Islands	68
<i>Malaria in Pescadores (Penghu) Islands</i>	68
<i>Malaria in Lutao (Green Island)</i>	70
<i>Malaria in Lanyu</i>	70
STRATIFICATION OF MALARIOUS AREAS TO DETERMINE OPERATIONAL PRIORITIES	71

	<u>Page</u>
VI: PILOT PROJECT IN CHISHAN DISTRICT	73
PREPARATORY ACTIVITIES FOR THE PILOT PROJECT	74
Selection and Training of Local Health Personnel as Spraying Foremen	76
Recruitment and Training of Temporary Workers as Spraymen and Helpers	76
TRIAL OF DDT RESIDUAL SPRAYING ON AN ANNUAL CYCLE	77
COMPLETE VERSUS SELECTIVE RESIDUAL SPRAYING	81
ORGANIZATION OF SPRAYING SQUADS AND FIELD OPERATIONS	82
EVALUATION OF EPIDEMIOLOGICAL RESULTS IN THE CHISHAN PILOT PROJECT	91
Spleen and Parasite Surveys	92
Monthly Infant Surveys	95
Fortnightly Fever Case Survey	96
Entomological Surveys	98
CALCULATION OF MANPOWER NEEDS, DDT AND SPRAYER REQUIREMENTS	100
Summary of Spraying Operations (1952)	101
Analysis of Operational Output	101
Cost Analysis	102
SUMMARY OF THE PILOT PROJECT	103
PREPARATION OF OPERATIONAL MANUALS	104

	<u>Page</u>
VII: STRATEGIC EXPANSION OF DDT SPRAYING	106
ANNUAL PLAN OF ACTION	110
TRAINING OF SPRAYING PERSONNEL	111
Regional Training of Township Supervisors and Foremen	114
Local Training of Spraymen and Helpers	118
Curricula of Training Courses	121
FIELD OPERATIONS	124
Timing of Spraying	124
Spraying Technique and Sequence	125
Equipment, Supplies and Transport	129
Reporting and Supervision	136
Analyses of Spraying Operations, July 1952 - October 1957	138
EPIDEMIOLOGICAL EVALUATION	142
Annual, Simultaneous Island-Wide Parasite Surveys	142
Island-Wide Spleen Surveys	146
Monthly Infant Surveys in Selected Areas	150
Island-Wide Infant Parasite Survey	151
Entomological Evaluation	152
PROBLEMS ENCOUNTERED BUT SURMOUNTED	156
VIII: MALARIA SURVEILLANCE	157
DEVELOPMENT OF THE MALARIA SURVEILLANCE SYSTEM ...	157
FULL-SCALE STRATIFIED MALARIA SURVEILLANCE (FSMS) ..	158
Stratification of Surveillance Areas	159

	<u>Page</u>
Protocol for Surveillance Activities	160
<i>Case Detection</i>	163
<i>Case Investigation</i>	169
<i>Treatment</i>	170
<i>Anti-Mosquito Measures</i>	172
<i>Entomological Vigilance</i>	174
<i>Elimination of Transmission Foci</i>	175
<i>Control of Imported Cases</i>	176
ACCOMPLISHMENTS OF MALARIA SURVEILLANCE	178
IX: MAINTENANCE	182
SCREENING OF ARRIVING TRAVELERS AS POTENTIAL PARASITE CARRIERS	184
CASE DETECTION	185
Case Reporting by Clinics	186
Case Reporting by Voluntary Collaborators	187
Fever Case Surveys at Health Stations	187
Epidemiological Investigations	187
Case Reporting by Military Clinics	187
Other Case Detection Systems	187
CASE INVESTIGATION	188
ENTOMOLOGICAL VIGILANCE	188
ELIMINATION OF TRANSMISSION FOCI IN NORTHERN TAIWAN	191
PROBLEMS IN THE MAINTENANCE PHASE	192

	<u>Page</u>
X: MILITARY COOPERATION	196
DDT SPRAYING	197
MALARIA SURVEILLANCE AND VIGILANCE	199
OPERATION KUOLEI	200
FILARIASIS CONTROL	203
 XI: COMMUNITY PARTICIPATION	 204
TYPES OF COLLABORATION DESIRED	204
MEANS OF COMMUNICATION AND COORDINATION	206
At the Village Level	206
At the Township Level	207
At the County Level	208
At the Provincial Level	208
At the National Level	210
 XII: PROGRAM FUNDING	 211
 XIII: SPECIAL STUDIES	 216
EXPLORATION OF POSSIBLE SAVINGS	
THROUGH SELECTIVE SPRAYING	216
BEDBUG RESISTANCE TO INSECTICIDES	222
SILKWORM INTOXICATION	226
DDT INTOXICATION IN A FAMILY OF SOUTHERN TAIWAN ...	231
"MILK-FISH" AND ASSOCIATED MALARIA PROBLEMS	231
FELINE FATALITIES	233
SPLENOMEGALY	234
STAINING TECHNIQUE	239
A MALARIA EPIDEMIC AND ITS ECONOMIC IMPACT	240

	<u>Page</u>
XIV: MALARIA ERADICATION IN LANYU	245
LANYU AND ITS PEOPLE	246
ANTIMALARIA ACTIVITIES	252
OBSERVATIONS OF BEDBUGS IN LANYU	259
HEAD LICE ON LANYU	261
XV: OTHER RESEARCH AND CONTROL ACTIVITIES	263
TAXONOMIC STUDIES OF INSECTS OF MEDICAL IMPORTANCE	263
ECOLOGICAL STUDIES OF INSECTS OF MEDICAL IMPORTANCE	264
FILARIASIS CONTROL	265
JAPANESE ENCEPHALITIS (JE) CONTROL	266
DENGUE FEVER CONTROL	268
XVI: TECHNICAL DIVIDENDS	271
REFERENCES	273
LIST OF MAPS	286
LIST OF TABLES	287
LIST OF FIGURES	290
INDEX	294