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ASSESSMENT OF NUTRITIONAL STATUS OF PAKISTANI INDUSTRIAL WORKERS

PART I

by

- (i) Dr. Ahsanulhaq R. Rana, M. Sc., Ph.D. (Pb.); M.S. (Columbia),
Professor of Nutrition and Dietetics and Head of the Central Food
Analysis and Nutrition Research Laboratory.
- (ii) Dr. Manzoor Ahmad Malik, M.B.B.S. (Pb.), D.P.H. (Pb.), D.P.H.
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Institute of Hygiene and Preventive Medicine, Lahore.

This report is based on clinical survey carried out during the months of July and August, 1965, of six industrial concerns, generally involving light to moderate work. The six factories surveyed are :—

- A. Pakistan Oxygen, Ltd., Shalamar Link Road, Baghbanpura, manufacturing Oxygen and Acetylene gases.
- B. Electric Equipment Manufacturing Co , Ltd., G. T. Road.
- C. Malik Muhammad Din and Sons, Steel Rerolling Mills, G. T. Road
- D. Kayce Industries, Ltd., G. T. Road, manufacturing electric fans
- E. West Punjab Textile Mills, Ltd., G. T. Road.
- F. Bata Shoe Co., (Pakistan) Ltd., G. T. Road.

These industrial concerns are situated on the eastern side of the city of Lahore, in the Baghbanpura Wagah sector, which, immediately after the completion of the survey, became famous as the Pakistan's defence line against Indian attack. The number of workers examined from each factory is given in Table 1.

TABLE I

Number of Workers Examined From Each Factory

Factory	No. given abbreviated examination	No. given detailed examination	Total
A	38	9	47
B	70	18	88
C	116	29	145
D	108	24	132
E	162	38	200
F	328	68	396
Total	822	186	1008

The object of this survey was to collect data for the appraisal of nutritional status of industrial workers employed in different industries. The number of workers on roll in these factories varied from 50 in "A" to 4,000 in "F". The survey team consisted of a "team leader", two clinicians and four assistants. The procedures employed for the survey were those outlined in the "Manual for Nutrition Surveys" ¹

In planning the surveys, due consideration was given to sampling. In factories employing upto 200 workers, all the workers present at the time of survey were examined. In cases of factories employing larger number of workers, random sampling was done.

Age, height, weight and skinfold thickness measurements, along with income and number, age and sex of family members of each worker, were recorded. These results will be reported after analysis. For the purpose of clinical examination, four of every five workers were given abbreviated clinical examination which was limited to selected major signs of nutritional significance. Every fifth worker, randomly selected, was given a detailed examination. The results of these examinations are recorded in Tables II and III.

1. (Interdepartmental Committee on Nutrition For National Defence, U. S. A. 1957).

TABLE II

Summary of Abbreviated Clinical Examination

Factory	A	B	C	D	E	F	Total
No. examined	38	70	116	108	162	328	822
Glands							
Thyroid gland	—	—	—	—	6.7	0.3	0.15 %
Skin - Face & Neck							
Nasolabial Seborrhea	36.8	8.6	5.1	19.4	6.7	18.3	15.8 %
Eyes							
Biotot's Spots	—	1.4	0.9	—	1.2	1.5	0.83 %
Lips							
Angular Lesions	—	—	0.9	1.9	0.6	1.8	0.87 %
Angular Scars	5.3	1.4	1.7	3.7	4.3	7.9	4.05 %
Cheilosis, General	—	1.4	1.8	1.9	2.4	1.2	1.5 %
Tongue							
Magenta Coloured	—	1.4	—	—	0.6	1.2	0.53 %
Filiform Papillary Atrophy.							
Slight	36.8	17.1	6.2	9.3	5.5	10.3	14.20 %
Moderate	—	—	—	3.7	—	1.8	0.92 %
Severe	—	—	—	—	—	—	—
Glossitis	28.9	22.9	13.8	18.5	11.0	20.9	19.33 %
Gums							
Scorbutic Type	2.6	1.4	1.8	0.9	1.2	0.9	1.5 %
Skin - General							
Follicular Keratosis	5.3	2.9	—	—	1.2	0.3	1.62 %
Arms	—	—	—	—	—	—	—
Back	—	—	—	—	—	—	—
Scrotal Dermatitis	—	—	—	—	—	—	—
Pellagrous Lesions	—	—	—	—	—	—	—
Lower Extremities							
Bilateral Edema	—	—	—	—	—	—	—
Loss of Ankle Jerk	—	—	0.9	—	—	—	0.15 %
Calf Tenderness							
Slight	—	—	0.9	—	—	6.1	1.17 %
Moderate	—	—	—	—	—	0.9	0.15 %
Severe	—	—	—	—	—	—	—

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TABLE III
Summary of Detailed Clinical Examination

Factory	A	B	C	D	E	F	Total
No. examined	9	18	29	24	38	68	186
Appearance							
Good	...	44.4	11.0	13.8	50.0	39.4	35.3 32.3 %
Fair	...	55.6	50.0	69.0	25.0	44.6	55.9 50.0 %
Poor	...	—	39.0	17.2	20.8	16.0	8.8 17.0 %
Cachectic	...	—	—	—	4.2	—	— 0.7 %
Skin							
Nasolabial Seborrhea	...	22.2	16.7	13.9	16.6	21.0	15.5 17.7 %
Follicular Keratosis	...	—	5.6	—	—	2.1	— 1.5 %
Perifolliculosis	...	—	—	—	—	—	—
Acneform Eruption	...	—	—	—	—	—	—
Bluish Cold Extremities	...	—	—	—	—	—	—
Xerosis	...	—	—	—	—	—	—
Eyes							
Thickened Conjunctiva	...	77.8	44.6	20.7	54.2	28.9	10.3 39.4 %
Conjunctival Injection	...	—	11.1	27.6	8.3	13.2	14.7 12.5 %
Blepharitis	...	—	22.2	44.8	8.3	10.5	36.8 20.4 %
Mouth							
Angular Lesions	...	11.1	11.1	6.9	8.3	2.6	1.5 7.0 %
Angular Scars	...	11.1	11.1	24.1	—	5.3	2.9 12.4 %
Angular Scars and Lesions	...	—	—	—	—	—	—
Cheliosis	...	—	5.6	3.4	4.2	2.6	7.4 3.9 %
Tongue							
Filiform Atrophy (Slight ex- cluded)	11.1	16.7	3.5	4.2	—	—	6.1 %

Nutritional Status of Pakistani Industrial Workers

Factory	A	B	C	D
Fungiform Pap. Atrophy	...	22.2	11.1	3.5 4.2
Papillary Hypertrophy	...	11.1	11.1	44.8 —
Geographic Tongue	...	—	—	—
Fissures & Furrows	...	11.1	22.2	6.9 25.0
Teeth				
Caries	...	—	22.2	10.4 8.3
Worn Teeth	...	—	—	13.8 —
Fluorosis	...	—	—	—
Gums				
Recession	...	—	—	3.5 8.3
Bleeding	...	—	27.8	27.6 12.5
Scurbutic Type	...	—	—	6.9 12.5
Marginal Redness	...	66.7	44.6	10.4 62.3
Marginal Swelling	...	65.6	39.0	6.9 45.2
Atrophy of Papillae	...	11.1	—	13.8 4.3
Other				
Hepatomegaly	...	—	—	—
Splenomegaly	...	—	—	—
Loss of Ankle Jerks	...	—	—	—
Edema of Legs	...	—	—	3.5
Thyroid Enlargement	...	—	5.6	—

SUMMARY

In general the nutritional status of the industrial workers was poor. Only 32.3% showed good appearance, 17.0% of poor appearance. The clinical findings in conditions among the industrial workers.

Factory		A	B	C	D	E	F	Total
Fungiform Pap. Atrophy	...	22.2	11.1	3.5	4.2	5.3	1.5	8.0 %
Papillary Hypertrophy	...	11.1	11.1	44.8	—	21.0	11.7	16.6 %
Geographic Tongue	...	—	—	—	—	—	—	—
Fissures & Furrows	...	11.1	22.2	6.9	25.0	5.3	5.9	12.7 %
Teeth								
Caries	...	—	22.2	10.4	8.3	10.5	1.5	8.8 %
Worn Teeth	...	—	—	13.8	—	5.3	13.2	4.5 %
Fluorosis	...	—	—	—	—	—	—	—
Gums								
Recession	...	—	—	3.5	8.3	—	5.9	3.0 %
Bleeding	...	—	27.8	27.6	12.5	10.5	16.2	15.8 %
Scurbatic Type	...	—	—	6.9	12.5	5.3	14.7	6.4 %
Marginal Redness	...	66.7	44.6	10.4	62.5	28.9	2.9	36.0 %
Marginal Swelling	...	65.6	39.0	6.9	45.8	34.2	4.4	32.7 %
Atrophy of Papillae	...	11.1	—	13.8	4.2	5.3	—	3.7 %
Other								
Hepatomegaly	...	—	—	—	—	—	—	—
Splenomegaly	...	—	—	—	—	—	2.9	0.5 %
Loss of Ankle Jerks	...	—	—	—	—	—	—	—
Edema of Legs	...	—	—	3.5	—	2.6	—	0.7 %
Thyroid Enlargement	...	—	5.6	—	—	—	1.5	1.2 %

SUMMARY

In general the nutritional status of the industrial workers was found to need improvement. Only 32.3% showed good appearance, while 50.0% were of fair and 17.0% of poor appearance. The clinical findings suggest suboptimum nutritional conditions among the industrial workers.

Epidemiological Assessment of Malaria in Sheikhupura and Sialkot Zones of West Pakistan, Malaria Eradication Programme (1960-1964)

by

DR. MUHAMMAD JAMIL KHAN

Chief Epidemiologist

West Pakistan, Malaria Eradication Programme.

(I) INTRODUCTION : -

Based on the analysis of extensive pre-eradication surveys carried out in the province in 1960, the plan of West Pakistan Malaria Eradication Programme was prepared with the help of World Health Organization. The province was divided on the basis of topo and demographical features for Malaria Eradication purpose in 35 operational zones (ANNEX I). The operations were planned to start in 1960-61 in a phased manner, taking up different zones in different years till in 1966-67 whole of West Pakistan will be covered by Malaria Eradication Programme. Thus in year 1961 Sheikhupura Zone (No. 1) was sprayed. In 1962 Sialkot Zone (No. 2) was added up for spraying. In 1963 zones of Gujranwala (No. 3), Lahore (No. 4), Lyallpur-A (No. 5) and Lyallpur-B (No. 6) were also sprayed. In year 1964, in addition, zones of Gujrat (No. 11), Sargodha (No. 12), Jhang (No. 7), Montgomery-A (No. 8), Montgomery-B (No. 9), Bahawalnagar (No. 10) and Hyderabad (No. 13) were sprayed. DDT residual spraying 1 gm/m² with two cycles is applied. The zones of Multan-A (No. 14), Multan B (No. 15), Muzaffargarh (No. 16), Bahawalpur-Rahimyarkhan (No. 17), Campbellpur (No. 18), Rawalpindi (No. 19), Jhelum (No. 20) Mianwali (No. 21), Nawabshah-Khairpur (No. 22) and Sanghar-Tharparkar (No. 23) are in preparatory phase and will be covered with DDT residual spraying in 1965.

The population of zone varies from 0.75-1.5 million which has been organized as a self contained executive unit with separate but co-ordinated branches for dealing with administration, operations, epidemiological assessment and health education. In order to obtain adequate supervision and to facilitate the work, each zone is further divided into sectors having an average population of 100,000-200,000. Each sector is divided into 8-16 sub-sectors. The population of each sub-sector is 10,000-12,500 living in 12-15 villages in about 2500 houses on an average area of 25-30 Sq. miles and this forms the basic operational unit in which the objectives of eradication are easily obtained geographically, administratively and technically.

A permanent Malaria Supervisor is independent incharge of a sub-sector for all Malaria Eradication activities. He has the geographical responsibility in the sub-sector and is recruited amongst the villages of his sub-sector. During spraying campaign he works as a squad leader for five spraymen, one mixer (recruited for spraying season) and is surveillance agent for the case detection activities of his area. He is provided with a bicycle.

The sector on an average composed of 16 sub-sectors is in the charge of one Assistant Malaria Superintendent, assisted by four Malaria Inspectors each responsible for four sub-sectors. A car is provided at sector level.

At Zonal level Malaria Superintendent is responsible for planning, supervision, proper achievement of the field activities, overall smooth running and reporting.

An Administrative Officer heads the administration branch of the zone and looks after supplies, transport, accounts and personnel activities.

The Evaluator is the officer incharge of Evaluation Branch of the Zone, is responsible for all epidemiological work assisted by Assistant Entomologist, for entomological work, and Senior Microscopist for parasitological work.

Health Educator is responsible for carrying out the health education activities in the zone including training of the Malaria Eradication Programme personnel in health education techniques.

All the different branch officers work directly under the supervision and guidance of District Malaria Eradication Officer who heads the whole zonal organization and is responsible directly to Regional Chief of the programme. (ANNEX II)

(II) METHODOLOGY ADOPTED FOR MALARIA ERADICATION ACTIVITIES :—

(a) Geographical Reconnaissance :—

The G. R. technique in West Pakistan is connected with the organizational set up of the programme as discussed earlier on limiting the basic operational area to a sub-sector. The sub-sectors are standardized into rectangles with maximum size of one mile by 3/4 mile. In such a small area it becomes easy to obtain information regarding location, kind of structures and means of accessibility to houses ; etc.

In order to achieve the above objectives, the Malaria Supervisor of the sub-sector is provided with up to date maps showing clearly villages with physical and artificial features viz. roads, rivers, canals, etc. These maps are traced on a scale

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of 10' to one mile. These villages are numbered and then the houses in them are numbered serially. The geographical reconnaissance is complete before spraying operations start.

(b) Spraying Operation :—

The spraying operations are performed by two cycles (June-July 1st cycle, August-September 2nd cycle) with 1 gm per square meter for each cycle. In a subsector a spraying squad (one Malaria Supervisor with 5 spraymen and 1 mixer) work independently. The Time Table of a Malaria Supervisor is prepared before hand to complete one cycle in 50 working days in the sub-sector. The spraymen work in one or two neighbouring houses, gravimetric method is used for weighing DDT for each sprayer. Two buckets full of DDT suspension are always kept ready for use by spraymen. Malaria Supervisor is responsible for the quantity and quality of spraying in his subsector. Sufficient supervisory visits are given by Malaria Inspector, Assistant Malaria Superintendent and Malaria Superintendent

(c) Epidemiological Assessment :—

The epidemiological assessment is again based in assessing the sub-sectors which ultimately furnishes a cross-section in assessing the work of the zone.

Malarimetric Assessment :—

Preparatory Phase :—Blood and spleen surveys assessment are conducted twice yearly in children (2-9) in one village per sub-sector (once before transmission period and secondly during peak of transmission season.)

Attack Phase :—1) Blood and spleen surveys are repeated in the villages which have shown relatively high endemicity during surveys in preparatory phase. 2) Infant parasite survey is conducted in 2 villages per sub-sector every month by Malaria Supervisor of that sub-sector. 3.) Active case detection starts after 1st year of spraying operations and is conducted during Jan-May and Oct-Dec in all villages by Malaria Supervisor of each sub-sector who visits house to house in a serial order. A blood film is taken from the fever case and presumptive dose of 4-aminoquinoline is given. The smear is sent to zonal laboratory for examination. After two years of attack phase the active case detection is conducted along with spraying operations, thus covering the area in two months. 4) Passive case detection is conducted through collaboration with hospitals, clinics and social workers in the area. It is organized during the 2nd year of the Attack Phase, is fully developed during the 3rd year. The blood smears of all the fever cases attending the "Fever Reporting Posts" are taken and presumptive dose of 4-aminoquinoline is given. The smears thus collected are sent to zonal Headquarter laboratory for checking. Epidemiological investigation of positive cases are conducted and radical treatment is given by 4 and 8 aminoquinoline.

Regime of treatment for (i) *P. vivax* is total 1500 mgm of chloroquine in 3 days and 15 mgm primquine daily for 14 days, while (ii) *P. falciparum* cases are given 1500 mgm chloroquine in 3 days.

Follow up of cases is done as a routine for 6 months by Malaria Supervisors of the area during his routine case detection tour of the sub-sector.

Entomological Assessment :—

Is done by following methods either separately or combined depending on the situation either to prepare the base line data during preparatory phase or to investigate any problem or assess spraying operations :—

- (i) Random survey for adult and larval anopheline.
- (ii) Fixed capture stations for adult and larval anopheline.
- (iii) Human and animal bait in indoor and outdoors.
- (iv) Outlet and inlet window Traps.
- (v) Susceptibility Tests.
- (vi) Bioassay Tests.
- (vii) Sporozoite Rate Determination.
- (viii) Age grading of vectors.
- (ix) Precipitin Tests.

III. REPORTING AND RECORDING SYSTEM FOR EPIDEMIOLOGICAL ASSESSMENT :—

For epidemiological assessment in West Pakistan reporting and recording system which promptly brings to light any problem is based on :—

- (1) **Sub-Sector Files :—**For keeping the original epidemiological field records of all localities in one sub-sector, a separate file is kept. The records are arranged locality-wise.
- (2) **Locality Record :—**Every locality in the zone has got a locality which the Geographical Reconnaissance, spraying, entomological and malarimetric data of that village are recorded.
- (3) **Consolidated Sub-sectors Record :—**On one paper are recorded for epidemiological data consolidated for whole of the sub-sectors.
- (4) **Consolidated Sector Record :—**They are similar to sub-sectors records recording the monthly epidemiological data of the sub-sectors, consolidating sub-sector data. There is one paper for each sub-sector.

- (5) **Consolidated Zone Record** :—In this are recorded monthly consolidated data of whole zone. There is only one such paper in a zone

From the consolidated Zonal record necessary information about the zone is received and then by going into consolidated sectors, sub-sectors, locality records and sub-sector file (for original field record) positive cases can be traced without any loss of time.

Some simple forms for records and reports of Entomological activities have also been prepared and data are recorded according to sectors which help in spotting the problem easily.

The higher echelon are informed of all the important epidemiological events regularly on simple forms.

IV. ACHIEVEMENTS :—

IV. 1. Sheikhpura Zone.

The Sheikhpura Zone (No. 1)—the whole district of Sheikhpura, was the first zone which was taken up by West Pakistan Malaria Eradication Programme in 1960. It lies roughly between North latitudes 31.0° and 32.5° and East longitudes 73.5° and 74.42° . Its shape is roughly that of a trapezoid with a triangular off-shoot to the West from the South West corner (ANNEX I). It has got a total population of about 1.18 million with area of 2312 square miles. It is surrounded on the North by Gujranwala Zone, on West by Lyallpur Zone, on South by Montgomery, Lahore Zones and Amritsar district (INDIA) and on the East by Sialkot Zone. Its southern boundary is formed really by river Ravi.

The zone having 85 sub-sectors has been divided into 5 sectors which has been given codes from a to e. The sector having on an average 16 sub-sectors is manned by an Assistant Malaria Superintendent. There are 4 supervisory units in every sector and Malaria Inspector is incharge of the supervisory unit which has on an average 4 sub-sectors. Recently this organizational pattern has been totally changed to the following :—

For every unit of six sub-sectors a chief has been put who is Malaria Inspector/Assistant Malaria Inspector. In Sheikhpura there are 14 such units. The unit chief has got no car and performs his duty on bicycle. Three Assistant Malaria Superintendents have been put at zonal level to assist the Malaria Superintendent. This change is only in the field but all reports and records are being maintained according to the previous organization.

Malaria Eradication Activities :—

Year 1960 :—

Extensive pre-eradication malariometric surveys conducted during whole year except April-August revealed a gross parasite rate of 15.4 %, the vivax rate of 9.9 %

and *falciparum* rate of 6.2 % on examination of 21545 inhabitants in 813 localities. Examination of 1339 infants in 299 villages showed IPR of 6.8 %. (ANNEX III).

The gross parasite rate varied from 22.8 % in sector 'c' to 8.7 % in 'a'. The *falciparum* rate varied between 5.7 % in sector 'c' to 3.8 % in sector 'a'. Sub-sector e-1 showed the highest P. R of 70.5 % (examination of 88 inhabitants in 2 villages only) while b-1 showed lowest P. R of 2.8 %. Highest IPR recorded was 1.6 % in sector 'd'. Out of 66 sub-sectors examined 34 revealed positive results for I. P. R. The spleen rate recorded was 32.0 % (4608 inhabitants in 103 villages) (ANNEX IV).

As the entomological section was not fully organized limited entomological studies were undertaken.

In October 1960, susceptibility tests conducted on *A. culicifacies* for DDT in two villages proved that *A. culicifacies* was highly susceptible to DDT. In both the villages the mortality rate at 2 % DDT concentration was 100 %. The results are given below :—

Date.	3/4. 10. 60			13/14. 10. 60		
Villages.	Maliwala			Karimwala		
Species.	<i>A. cul :</i>			<i>A. cul :</i>		
Replicate	4			1		
DDT Con : %	No.	No.	%	No.	No.	%
	Test.	Dead	Mor :	Test.	Dead	Mor :
0.25	78	51	71.4	20	13	65.0
0.5	77	66	81.4	19	17	87.0
1.0	77	75	97.1	18	18	100.0
2.0	78	78	100.0	20	20	100.0
Control.	77	8	10.3	20	3	15.0
Spray Status.	Unsprayed.			Unsprayed.		

Year 1961 :—

According to the plan of action in a starting Zone the recruitment and training of personal, geographical reconnaissance and obtaining supplies etc., before starting 1st year of spraying operation takes one year as a preparatory phase. The Sheikhpura Zone was opened in March, 1961 and spraying operations were started in June, 1961 without completing the house numbering and population census operations of geographical reconnaissance which were completed after the 2nd cycle of spraying.

The Zone was covered by DDT residual spraying starting in June ending in October 1961. The spraying was done in 54 sub-sectors two cycles with a dose $1\text{gm}/\text{m}^2$ in each cycle, while 25 sub-sectors were covered by one cycle of $1\text{gm}/\text{m}^2$ dosage.

The following is the summary of 1st and 2nd cycle :

TOTAL EXISTING NUMBER

		1st cycle.	2nd cycle.
Population	...	...	1126577
Localities	...	1710	1078
Sub-sectors	...	79	79

WORK PERFORMED**Totally Sprayed :—**

No. of houses	...	234293	146319
No. of Inhabitants	...	1025225	629313
No. of Rooms	...	560550	351024

Partially Sprayed.

No. of houses	...	7620	3711
No. of rooms sprayed	...	41265	21390
No. of rooms unsprayed	...	19179	9402

Unsprayed :—

No. of houses left unsprayed	...	19010	110893
Houses unwilling and closed	...	60103	475874
Percentage of unwilling and closed houses...		8.1	42.4

Insecticides :—

DDT 75 % w. d. p in pounds	...	59559	89013
DDT 50 % w. d. p in pounds	...	18470	4161
Technical DDT per Sq. meter in gms	...	1.18	0.96

Personnel :—

Highest No. of squads working in (S. Ss) ...	79	54
Total No. of man-days all personnel ...	33457	19658
Total No. of man-days spraymen only ...	23796	13936
Houses sprayed per sprayman in a day ...	9.8	10.4

As is clear from the above chart during the 1st cycle about 92 % of the total number of existing houses in the Zone was totally sprayed. The 1st cycle was started on 15th of June 1961 and was completed on 21st August, 1961. Over 80 % of the localities were covered before the transmission season while 20 % were covered early during transmission season.

About 58 % of the existing number of houses in Sheikhpura District was totally sprayed during 2nd cycle starting from 21st August and ending on 31st October 1961, as spraying could be carried out in only 54 sub-sectors. The total coverage in sprayed sub-sectors was about 94 % of houses (ANNEX. XX & XXI).

The malariometric surveys were conducted in most of the sub-sectors of the Zone. There was a drop in gross parasite rate to 2.8 % (Examination of 20527 inhabitants in 472 villages) *vivax* rate to 0.9 %, *falciparum* rate to 2.3 % and infant parasite rate to 1.1 % (Examination of 257 infants in 339 villages). Out of total 30 infants, 7 were detected during April to July. They were born in early autumn in 1960. The remaining 23 infants were born either in winter or in early 1961 and hence contracted the disease during transmission period of 1961 (ANNEX III & VI).

The parasite rate varied between 4.1 % in sector 'e' to 2.0 % in sector 'a'. The *falciparum* rate varied from 1.2 % in Sector 'b' to 3.0 % in sector 'c'. The spleen rate recorded was 24.1 % (Examination of 939 individuals in 17 villages).

The impact of DDT residual spraying on transmission of the disease is evident if gross P. R. during transmission months of August, September, October and November in 1961 & 1962 is compared. Parasite rate dropped from 19.7 % in November 1961 (peak of transmission) to 4.1 % in November 1962 (ANNEX III).

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For Entomological studies 20 fixed capture stations were selected in August 1961 in some previous endemic localities of the zone. In these stations only adult indoor resting studies were conducted.

To study the seasonal progress of *A. culicifacies* & *A. stephensi* two fixed capture stations were left unsprayed (subsequently sprayed in 1962). The consolidated results are given below :—

VILLAGE	Month Year.	Aug. 1961	Sep.	Oct.	Nov.	Dec.	Jan. 1962	Feb.	Mar.	Apr.	May.	June
Tragawali.	<i>A. Cul :</i>	14.5	21.5	7.8	4.2	3.2	1.5	1.7	4.0	23.7	61.7	22.2
	<i>A. stp :</i>	0.0	1.3	0.2	0.0	0.0	0.3	0.1	0.0	2.5	2.8	0.0
Yousafwala.	<i>A. cul :</i>	69.0	24.6	13.0	2.6	4.8	0.0	0.4	6.8	23.2	35.5	65.2
	<i>A. stp :</i>	28.5	11.8	0.8	0.0	0.0	0.0	0.0	2.2	20.8	14.2	10.7

Two peaks of *A. culicifacies* & *A. stephensi* 1st during May-June and 2nd during August-September were observed. This may be delayed or start earlier depending on climatological conditions. Results from the sprayed fixed stations revealed that the density of *A. culicifacies* and *A. stephensi* was remarkably decreased as compared with density in two control villages (ANNEX. XVIII & XIX).

The susceptibility test was repeated on *A. culicifacies* for DDT during May and November 1961 at village Maliwala. The mortality as is clear from the Table below in both the tests at 2 % DDT concentration was 100 % showing clearly that *A. culicifacies* was still susceptible to DDT :—

Epidemiological Assessment of Malaria

Village

Maliwala

Date.	4/5. 5. 61			8/14. 1	
Species.	<i>A. cul :</i>			<i>A. c</i>	
Replicate.	2			5	
DDT Conc : %	No.	No.	%	No.	No.
	Test :	Dead	Mor :	Test :	De
0.25	39	32	78.7	100	4
0.5	38	34	87.1	100	5
1.0	40	40	100.0	100	8
2.0	39	39	100.0	40	4
Control.	40	7	17.5	100	
Spray Status.	Unsprayed.			Unspr	

Year 1962 :—

Spraying campaign in Sheikhpura Zone was carried out in localities during June to October after the completion of G. phases (general survey, mapping and numbering of houses). The existing numbers and averages in the Zone :—

Total Localities	=	182
Total Inhabitants	=	109457
Total Houses	=	27329
Total Rooms	=	65292

AVERAGES

Sprayable Surface per capita	=	50 Sq. mete
" " " House	=	260 " "
" " " Room	=	80 " "

Village

...

Maliwala.

Date.	4/5. 5. 61			8/14. 11. 61		
Species.	A. cul :			A. cul :		
Replicate.	2			5		
DDT Conc : %	No. Test :	No. Dead	% Mor :	No. Test :	No. Dead	% Mor :
0.25	39	32	78.7	100	43	43.0
0.5	38	34	87.1	100	56	56.0
1.0	40	40	100.0	100	87	87.0
2.0	39	39	100.0	40	40	100.0
Control.	40	7	17.5	100	4	4.0
Spray Status.	Unsprayed.			Unsprayed.		

Year 1962 :—

Spraying campaign in Sheikhpura Zone was carried out in two cycles in 100% localities during June to October after the completion of G. R. with all its different phases (general survey, mapping and numbering of houses). The following showed the existing numbers and averages in the Zone :—

Total Localities	=	1823
Total Inhabitants	=	1094577
Total Houses	=	273292
Total Rooms	=	652921

AVERAGES

Sprayable Surface per capita	=	50 Sq. meter.
" " " House	=	260 " "
" " " Room	=	80 " "

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The summary of spraying operation is as follows :—

WORK PERFORMED		1st cycle	2nd cycle
Total No. Localities syrayed	...	1823	1823
Totally Sprayed :—			
No. of Houses.	...	248452	250310
No. of Inhabitants.	...	1013476	1024131
No. of Rooms.	...	608123	599120
Partially Sprayed :—			
No. of Houses.	...	6265	6288
No. of rooms sprayed.	...	16861	18373
No. of rooms not sprayed	...	8792	8594
Un-sprayed :—			
Total No. of houses not sprayed	...	24145	20711
Houses unwilling	...	9109	6716
Houses closed	...	15036	13995
Percentage of unwilling houses	...	3.3	2.4
Percentage of closed houses	...	5.3	5.0
Insecticides :—			
DDT 75% w.d.p. used in pounds	...	165006	155982.14
DDT 50% w.d.p. used in pounds	...	1357	5442.0
Tech: DDT per Sq. meter in gms	...	1.0	1.0
Personnel :—			
Highest No. of squads working	...	85	85
Total No. of man-days all personnel	...	32093	32058
Total No. of man-days spraymen only	...	22810	23532
House per sprayman-day.		11.2	10.9

Average dosage of 1 gm/m² DDT in each cycle was achieved in majority of houses. As is clear from the above Table the percentage of unsprayed houses in first and second cycle reached 8.6 % and 7.4 %, respectively. This includes both the unwilling and unsprayed houses. Sector and Sub-sector spraying data are exhibited on ANNEX XX and XXI.

Till October 1962, the malariometric surveys continued after which monthly active case detection activity was instituted. The malariometric activities covered all the sub-sectors except b-8. Though the active case detection activities were conducted in November and December but for purpose of analysis, all data are combined with malariometric surveys.

The gross parasite rate further dropped to 1.3 % (examination of 41035 inhabitants in 2750 villages) while the F. R of 0.7 % and *vivax* rate of 0.3 % was observed. I. P. R recorded was 0.3 % (examination of 8525 infants in 1207 localities). The P. R varied from 1.3 % in sector 'd' to 0.7 % in sector 'e'. The F. R varied from 0.7 % in sector 'c' to 0.4 % in sector 'e'. Subsector c-21 showed the highest P. R of 4.1 %. While Sub-sector d-16 showed the highest I. P. R of 3.5 %.

Amongst 26 infants found positive, 2 were born, in early autumn 1961. Out of 24 remaining 12 of these were imported, 1 was born in November, 1961 and 11 were born immediately before spraying operations of 1962 and hence contracted the disease during transmission period of 1962. The examination of 2419 inhabitants in 45 villages showed spleen rate of 18.9 %.

So as to assess the spraying, various entomological techniques were applied. The entomological investigations followed mainly the malariometric results. By the adult studies conducted in fixed and random stations, it came to light that *A. culicifacies* & *A. stephensi* were resting in significant numbers in unsprayed houses, replastered houses or unsprayed articles such as vessels, clothes, cowdung, etc. (ANNEX XVIII & XIX).

The outlet window traps studies revealed no development of irritability for *A. culicifacies* and *A. stephensi* to spraying operation.

The results of indoor and outdoor biting rates of *A. culicifacies* and *A. stephensi* for both human and animal bait showed zero results.

Susceptibility test performed (results tabulated below) on *A. culicifacies* for DDT revealed that mortality rate at 2 % and 4 % DDT concentration was 87 % and 100 %, respectively. These results showed that species was still susceptible to DDT.

Date.	18/20.6.62		
Village.	Ladhar.		
Species.	<i>A. cul</i> :		
Replicate.	2		
DDT Conc : %	No. Test.	No. Dead	% Mor :
2.0	33	29	87.8
4.0	14	14	100.0
Control.	36	2	5.5
Spray Status.	SPRAYED.		

The results of bioassay test confirmed that DDT of 1 gm/m² applied in two successive cycles achieved the desired results of interruption of transmission.

Year 1963 :—

During June to October 1963, all the localities in Sheikhpura Zone were sprayed with DDT residual spraying with an average dose of 1 gm/m². The G. R. was checked and corrected before starting the spraying operations. The summary of the work achieved is given below :—

TOTAL EXISTING NUMBER

Localities	...	1723
Population	...	1104757
Houses	...	278185
Rooms	...	659966

AVERAGES

Square meter per capita	...	50 Sq. m.
Square meter per house	...	250 Sq. m.
Square meter per room	...	80 Sq. m.

WORK PERFORMED

	1st cycle.	2nd cycle.
Total No. Localities sprayed	.. 1723	1723

Totally Sprayed :—

No. of Houses	... 251542	267354
No. of Inhabitants	... 1025228	1100600
No. of Rooms	... 615788	562863

Partially Sprayed :—

No. of houses	... 6900	3965
No. of rooms sprayed	... 19472	11264
No. of rooms not sprayed	... 9436	5468

Unsprayed :—

Total No. of houses not sprayed	... 18541	7896
Houses unwilling	... 4976	1502
Houses closed	... 13565	6394
Percentage of unwilling houses	... 1.6	0.69
Percentage of closed houses	... 5.2	3.30

Insecticides :—

DDT 75 % w. d. p. used in pounds	... 161946	163063
Tech. DDT per Sq. meter in gms.	... 1.04	0.99

Personnel :—

Highest No. of squads working	... 85	85
Total No. of Man-days all personnel	... 31697	30665
Total No. of Man-days spraying	... 22672	21788
Houses per sprayman-day	... 11.4	12.5

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As is clear from the above table, the percentage of sprayed houses during 1st and 2nd cycle was 93.2 % and 96.01 % respectively showing a marked improvement over last year spraying results. The further analysis will show that major portion of refusal and closed houses were from the town areas.

Sector and sub-sector spraying data are exhibited on Annex. XX and XXI.

The monthly active case detection operations continued except during the months June—September when Malaria Supervisors (surveillance agents) were busy in conducting spraying operations. Limited malariometric surveys were carried out in this period.

During monthly case detection activities Jan—May and again in Oct.—Dec. 1963 by malaria supervisors in all localities, 27875 fever and suspect cases were detected which revealed 27 *vivax* and 51 *falciparum* cases, (including 4 mixed). During malariometric survey in June—September 1963, blood examination of 6275 inhabitants in 172 villages revealed only one *falciparum* case. The list of positive villages is exhibited on Annex. X.

All the cases were investigated epidemiologically. 40 cases (53.3 % of total cases) were classified as imported, 7 were indigenous, 5 proved to be relapses, 6 remained unclassified and 17 were lost during investigations. The cases occurring in sectors a and c were 20 and 18 while b & e showed 16 and 15 and d showed only 6 in numbers respectively. Cases were falling mostly in age group above 10 years of age (ANNEX. IX). Very few epidemiological contact surveys were done around a positive case.

The ABER of 3.0 % was recorded for whole zone while API and AFI reached 0.067 % and 0.045 % respectively. No infant was detected positive amongst 8574 infants examined in 1474 villages.

The ABER varied from 4.4 % in sector 'a' to 1.9 % in sector 'd'. The API observed was 0.02 % in sector 'd' to 0.09 % in sector 'a'. The AFI varied from 0.03 % in sector 'd' and sector 'c' to 0.07 % in sector 'a', respectively.

Though all villages were visited by the surveillance worker every month but many houses were missed. Efforts were made to organize passive case detection without any good results. Haphazard radical treatment of the cases was done. No follow up of the cases was organized. There was a time lag of more than 10 days between collection and examination of blood smears. In some cases examination of smears was delayed for 3 months.

Again this year entomological investigations followed to a great extent the malariometric results.

The results of random surveys in sprayed villages revealed zero density per room. While the results from fixed capture stations revealed that *A. culicifacies* and *A. stephensi* appeared during March–May '63 though with very low densities. (ANNEX XVIII & XIX).

Outlet window traps observations were also conducted in sprayed rooms. A significant number of *A. stephensi* was collected in April and May 1963. Most of these were half gravid females. Susceptibility test for *A. stephensi* to DDT in sprayed villages revealed that mortality rate of 2% and 4% DDT concentration reached 92.3% and 91–95.2% respectively as is tabulated below :—

Date.	3/5. 4. 63			23. 5. 63		
Villages.	Ratian Sikhan.			Chak Chatta.		
Species.	<i>A. stephensi.</i>			<i>A. stephensi.</i>		
Replicate.	2			1		
DDT Conc : %	No. test.	No. Dead	% Mor :	No. Test	No. Dead	% Mor :
2.0	13	12	92.3	—	—	—
4.0	34	31	91.0	21	20	95.2
Control.	13	0	0.0	7	0	0.0
Spray Status.	SPRAYED.			SPRAYED.		

Hence it may be concluded that rooms from which vector was collected had certain safe resting spots which allowed them to complete gonadotrophic cycle. This was revealed after 6-7 months spray of 1962. However, after the spray in 1963, the results were negligible or negative.

A few observations on human bait net trap during night were made in villages where positive findings of *A. culicifacies* & *A. stephensi* were recorded but the results obtained were negative.

Year 1964 :—

The spraying of 1st cycle was conducted in June—July and the 2nd cycle in August—September strictly according to plan. 100 % localities were sprayed with DDT residual insecticide with an average dosage of 0.97 & 1.01 gm/m² Tech. DDT during 1st and 2nd cycle, respectively.

The following chart shows the achievements :—

TOTAL EXISTING NUMBER

		1st cycle	2nd cycle
Localities	...	1723	1723
Population	...	1186780	1166220
Houses	...	287014	282586
Rooms	...	723886	695516

AVERAGES

Square meter per capita	...	50	
Square meter per house	...	250	
Square meter per room	...	80	

WORK PERFORMED

Total No. of localities sprayed	...	1723	1723
Totally Sprayed :—			
No. of houses	...	281218	283774
No. of inhabitants	...	1159628	1173496
No. of rooms	...	706159	714075
Partially Sprayed :—			
No. of houses	...	1520	848
No. of rooms sprayed	...	4534	2467
No. of rooms not sprayed	...	2148	1364
Un-sprayed :—			
Total No. of houses not sprayed	...	3159	2392
Houses unwilling	...	413	461
Houses closed	...	2746	1931
Percentage of unwilling houses		{ 1.1	0.16
Percentage of closed houses	...		0.67

Insecticides :—

DDT 75 % w. d. p. used in pounds	...	166224	175304
Tech : DDT per square meter in gms.	...	0.97	1.01

Personnel :—

Highest No. of squads working (Total		85	85
No. S. Ss)			
Total No. of man-days all personnel	...	31044	30128
Total No. of man-days spraymen only	...	22826	21438
Houses per sprayman day	...	12.39	13.2

This year the percentage of unsprayed houses dropped to 1.1 % & .83 % during 1st and 2nd cycles, respectively.

Sector and Sub-sector spraying data are exhibited on Annex XX and XXI.

The monthly case detection activities in all sub-sectors continued from Jan-May and then Oct-December. Along with spraying operations in all sub-sectors during June-September the Malaria Supervisors also conducted the case detection operations, in other words, the sub-sector was covered for case detection in two months during 1st cycle of spraying operations (June-July) and again it was covered in two months during 2nd cycle of spraying (August-September).

Out of 51567 blood smears from fever cases collected 63 *falciparum* and 22 *vivax* cases including one mixed were detected. The ABER, API, and AFI comes to 4.5%, 0.07 % and 0.05 % respectively. (ANNEX III & VI).

The ABER varied from 4.7 % in sector 'a' and 'b' to 4.0 % in sector 'c' the API varied from 0.04 % in sector 'b' to 0.083 % in sector 'e' and AFI from 0.038 % in sector 'b' to 0.065 % in sector 'd'. (ANNEX VI).

No infant was found positive out of 4322 infants examined in 1627 villages. (ANNEX III).

Annex XI is the complete list of positive cases during 1964. *Falciparum* cases were 75 % of the total cases. The epidemiological investigations of all cases were done. Within 5-16 days of slides taken 37% of cases were investigated while 31 % of cases were investigated between 17-22 days of blood collection. 16 % cases were investigated between 23-31 day of blood collection. Remaining cases were investigated after one month. The cases were classified as :—

42 — Imported,	8 — Indigenous and
18 — Relapses,	2 — Unclassified.
14 — Untraceable,	

The number of cases increased with higher age groups. Most of the cases were found in 'c', 'd' & 'e' sectors (ANNEX IX). 61 out of 84 were detected during 4th Quarter of the year when ABER of 1.85 % was recorded. (ANNEX IV).

Epidemiological contact surveys were conducted almost regularly and average of 14.4 slides were taken per positive case.

Radical Treatment (in most cases drug was left with patients) was conducted in all the cases.

The blood slides were examined within 7—10 days of blood collection in whole year except in last three months when the examination was delayed in some cases by one month or more.

Passive case detection did not establish and the results were not encouraging. Very few slides were collected during the year by 'Fever Reporting Posts'. No mass blood survey was done. Follow up of cases has been organized as late as in October, 1964 and that too not regular.

The malariometric results guided mainly the entomological activities.

The adult studies in fixed capture and random stations revealed zero density of *A. culicifacies* and very low density of *A. stephensi* till June. However, it was surprising to note that following 1st cycle of DDT spraying a high number of examined villages showed positive results for *A. culicifacies*. Most of positive villages were in sector 'a'. On investigations most of the positive rooms were found to be only partially sprayed due to various reasons. During 2nd cycle an attempt was made to spray every possible resting place. This brought the density of *A. culicifacies* low. (ANNEX. XVIII & XIX).

No susceptibility test could be repeated for *A. culicifacies* & *A. stephensi*.

Epidemiological situation of neighbouring zones : Total of 40 Sub-sectors of Sheikhpura Zone border adjacent to different zones/districts. As is shown in Table below 13 Sub-sectors are bordering Gujranwala Zone, 16 Sub-sectors are bordering Lyallpur Zone, 2 Sub-sectors border Montgomery Zone while there are 10 Sub-sectors on Lahore Zone border. 3 Sub-sectors border Indian district of Amritsar and on the Sialkot Zone border there are 2 Sub-sectors. 6 Sub sectors have got border with more than one zone/district.

Name of District/Zone.	Codes of Sheikhpura Sub-sectors on border.
Gujranwala.	d. 6, d. 5, d. 3, d. 1, c. 21, c. 19, c. 5, c. 3, a. 9, a. 7, a. 6, a. 3, a. 1
Lyallpur.	b. 16, b. 15, b. 13, b. 11, e. 13, e. 11, e. 12, e. 8, e. 1, e. 2, e. 3, d. 10, d. 9, d. 8, d. 7, d. 8
Montgomery.	b. 16, b. 12
Lahore.	a. 12, a. 13, a. 14, b. 2, b. 3, b. 6, b. 8, b. 9, b. 10, b. 12
Amritsar (India).	a. 2, a. 5, a. 7
Sialkot.	a. 1, a. 2

In year 1963, only 16 Sub-sectors of Sheikhpura on border showed positive results while in 1964, 19 Sub-sectors were positives. (ANNEX VII, XII and XVII). In 1963, most of cases were in Sub-sectors on the border of Lahore and Lyallpur Zones, few on Montgomery and Gujranwala Zones, while in 1964, most of cases were distributed on Gujranwala and Lyallpur Zones. (ANNEX. XII to XVII).

Yearly consolidated malariometric results of border Sub sectors of the zones surrounding Sheikhpura are given below in the Table.

From scrutiny of the Table below and study of (ANNEX. VIII) it appears that there has been marked improvement of malaria situation on the borders of these zones after spraying operation started.

On the Indian side it is reported that no cases have been detected during last two years.

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TOTAL EXAMINED (Including Infants).

INFANT.

SPLEEN.

Year

No Exam:
Vill. INH.

+

SR

No. Exam:
Vill. INH.

+

IPR

No. Exam:
Vill. INH.

V

M

F

M
I
X

Tot

P.R.%

API
%/∞

SIALKOT ZONE (3rd year of attack)

Year	No Exam: Vill. INH.	+	SR	No. Exam: Vill. INH.	+	IPR	No. Exam: Vill. INH.	V	M	F	M I X	Tot	P.R.%	API %/∞		
1960	—	—	—	6	10	4	—	19	326	45	0	49	4	90	27.6	—
1961	—	—	—	1	14	0	—	1	14	0	0	0	0	0	0.0	—
1962	—	—	—	22	111	1	—	46	857	2	0	19	0	21	2.4	—
1963	—	—	—	32	72	0	—	129	1045	10	0	0	0	10	—	0.25
1964	—	—	—	69	135	0	—	250	1921	1	0	2	0	3	—	0.07

GUJRANWALA ZONE (2nd Year).

Year	No Exam: Vill. INH.	+	SR	No. Exam: Vill. INH.	+	IPR	No. Exam: Vill. INH.	V	M	F	M I X	Tot	P.R.%	API %/∞		
1961	—	—	—	2	25	1	—	15	745	14	0	16	1	29	5.8	—
1962	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1963	—	—	—	130	721	2	—	341	7737	46	0	140	4	182	2.3	—
1964	—	—	—	114	395	0	—	701	4657	3	0	4	0	7	—	0.03

LAHORE ZONE (2nd Year).

1961	3	141	61	43.2	—	—	—	8	367	16	0	8	0	24	6.5	—
1962	8	446	40	8.9	5	29	0	12	646	4	0	13	1	16	2.4	—
1963	6	272	79	29.0	25	107	1	91	5101	58	0	68	4	122	2.3	—
1964	—	—	—	—	33	79	0	249	2234	5	0	2	0	7	—	0.05

LYALLPUR ZONE (2nd Year)

1960	3	150	51	34.0	—	—	—	3	150	8	0	17	0	25	16.6	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1962	7	313	198	63.2	—	—	—	7	313	10	0	27	0	37	11.8	—
1963	39	1381	846	61.2	61	328	11	205	5853	166	0	174	15	325	5.5	—
1964	5	117	21	17.9	88	427	1	462	7122	29	0	20	0	49	—	0.26

* Pak : Jour : Hlth : 15 (3)

Comments :—

By seeing at the ABER of the total zone (ANNEX VI) it is evident that ABER of 3.0 % in 1963 and 4.5 % are far from being satisfactory. Further scrutiny of ABER in 1964 showed that all sectors showed improvement over the last year. ABER in 1964 varied from 4.0 % in sector 'c' to 1.7 % in sector 'a' & 'b'. It did not vary much in different sectors.

In 1963, ABER was 1-4 % in most of sub-sectors and in few between 4-8 %. In one sub-sector 'a. 13' ABER recorded was 11.7 % (ANNEX XII).

In 1964 the majority of subsector had ABER between 2-6 %, very few between 1-2 % and 6-8 %. Two subsectors showed ABER of 8-10 %. All this points to some stability in active case detection.

In year 1960, in maximum number of 29 subsectors the P.R was 15-30 %, in eleven sub-sectors it was 30-60 %, in subsector e-1 the parasite rate was found to be 70.5 %, and in the rest of sub-sectors P.R varied from 2-15 %. No surveys were done in 4 sub-sectors, if they would have been surveyed the situation would have been the same in these subsectors. The ratio of *vivax* to *falciparum* cases was 100 : 70. This survey was well representative of situation.

In year 1961 as it is apparent from Table, (ANNEX XIII) after the residual DDT spraying there has been a left side shift of P. R. The P. R. in 6 sub-sectors dropped to 0 %. In maximum of 41 sub-sectors the P.R. was 0-2 %, the two sub-sectors c-12 and c-21 showed the highest P. R 14.5 % and 12.8 % respectively. The rest of sub-sectors had P R between 2-12 %. This shift was seen in all the sectors equally. *Falciparum* cases became double the *vivax* cases (Reversal of ratio).

I.P.R of 1.1 % was recorded for the zone, which varied from 0.3 % in sector 'a' to 1.6 % in sector 'd'. The transmission was not completely interrupted in the area in spite of DDT residual spraying but a definite impact was produced on transmission and programme progressed smoothly.

In year 1962 (2nd year spray) there was further shift of P.R towards left. Twelve subsectors showed a P.R of 0.0 %. In c-21 and c-11 the P.R was 4.1 % and 6.4 % respectively. In rest of subsectors the P.R varied from 0-3 % with maximum of 38 subsectors between 0-1 %. Though the P. R had gone low yet this year F.R remained double the *vivax* rate. There was also relatively high incidence in infants. When all this taken together with entomological investigations gives evidence of transmission going on in the area with a marked improvement over last year. This was due to high percentage of unsprayed houses in some localities & also this zone existed amongst the unsprayed zones where epidemic had occurred this year. The imported cases proved to be the highest amongst positive cases detected.

In year 1963, the case detection operations revealed API of 0.0 ‰ result in 43 out of 85 sub-sectors. In sub-sector a-12 the highest API of 0.6 ‰ was recorded. In 24 subsectors the API ranged from 0.03 ‰ to 0.1 ‰ and in 18 subsectors, it ranged 0.1—0.4 ‰. The malariometric surveys failed to detect cases as the number of cases had considerably gone down in the area. 74 cases out of 75 cases were detected by active case detection operations.

Investigations of the positive cases (ANNEX. IX) were done and it was found that out of a total of 75 cases, 7 cases were indigenous, 40 cases were imported from neighbouring districts, 5 were relapses, 6 could not be classified and 17 could not be traced. The seven indigenous cases were detected during 1st and 2nd quarters of 1963. They represent the last year transmission. The imported cases form more than 53 % of total cases, thus showing the danger of importation of cases from unsprayed districts. The untraced cases form more than 22 % of the total cases. These were lost mainly due to the late investigation of cases. All the 75 cases were sporadic (ANNEX XII — XVI). More cases could be detected if ABER would have been higher as is clear from the fact that in some sub-sectors with high ABER, positive results have been seen.

This year the *falciparum* & *vivax* ratio was 100 : 52 i.e. *falciparum* cases were about double the *vivax* cases. This could not be explained though most *falciparum* cases were found to be imported.

In year 1964, the case detection operations revealed negative results in 37 subsectors (ANNEX XIII). In total of 23 subsectors A.P.I ranged between 0.05—0.07 ‰ while in other 12 subsectors A.P.I recorded was 0.07—0.1 ‰ and in still other 13 subsectors between 0.1—0.4 ‰. 26 subsectors of a.1, 5, 6 & 8, b.6, 8, 9, 13 & 14, c.9, 10, 11, 19, & 21, d.2, 4, 6, 7, 10, 11, 12, 15 & 16, e. 10, 13 & 17 which were negative in 1963 revealed positive results.

Epidemiological investigations of 84 cases detected positive during case detection operations have been done (ANNEX IX) and they were 8 indigenous, 42 imported, 18 relapses while 2 & 14 could not be classified and traced respectively. 50 % and 16 % of total cases were imported and untraced cases in 1964. This is to be seen with concern as until & unless the unprotected districts of West Pakistan are not sprayed it may be dangerous to withdraw insecticidal pressure from the zone. The untraced cases could have been traced if the epidemiological investigations would have been initiated within 10-15 days of blood collection. Again all the 26 subsectors which showed positive results in 1964 only, had a high ABER in 1964 than last year. While in most of subsectors (positive in 1963) with negative results this year had a low ABER. This brings us to the point that if there would have been high ABER this year, we could detect more cases.

It was again observed that *falciparum* cases were about three times higher than *vivax* cases. Again it could not be explained but most of the cases were imported. But a question arises why not equal *vivax* imported cases?

By looking at the maps (ANNEX. XII—XVII) it will be clear that epidemiological picture is quite good.

From the Table (ANNEX. VII) it will be observed that in 1960 and 1961 the positive cases were distributed in every subsector. In 1962 the situation improved and the cases were somewhat sporadic. In year 1963, (ANNEX. XII—XIV), the cases detected were sporadic spreading over whole of the zone. Similar sporadic occurrence of positive cases has been seen during 1964 also. (ANNEX. XV—XVII).

The passive case detection and radical treatment has not been perfectly organized. Time lag between blood collection & receipt at Zonal laboratory and examination had been a problem which has been solved recently. Follow up of cases is being organized from October, 1964 but has not yet been stabilized.

As far as the border subsectors of bordering zones are concerned, from their epidemiological situation it becomes clear that danger of introduction of the disease does exist from these zones particularly from Lyallpur 'A' & Lahore. Their situation will become more clear after this year spray.

IV. II. Sialkot Zone:—

The Sialkot Zone (No.2)—whole of Sialkot district, the biggest zone was included in Malaria Eradication Programme in 1961. The zone is located on longitudes $70^{\circ}-14'$ and $75^{\circ}-3'$ and latitudes $31^{\circ}-43'$, and $33^{\circ}-52'$. The total area of the zone is 2067 square miles with a population of 1.6 million. The density of population per square mile is about 772. The zone is bounded on the South by Amritsar (INDIA), on the East & East South by Gurdaspur District (INDIA), on the North & North East by State of Jammu & Kashmir, North-West by Zone of Gujrat and on West-South by Zones of Gujranwala & Sheikhupura. The Zone is bounded on the North by the Chenab and on the South by the Ravi River. There are also several 'nallas' flowing from North-East to the West of the Zone. The average temperature during summer & Winter is 89.6° , and $59^{\circ}.7^{\circ}\text{F}$ respectively. Average rainfall is about 36". Highest rainfall period is July to September. During rains flooding occurs over wide areas and sever the local communication. Larger tracts of the zone are under water for weeks together.

For malaria eradication purpose the zone has been divided into 128 sub-sectors and 8 sectors (a—h). There are on an average 4 supervisory units in each sector. The Assistant Malaria Superintendent & Malaria Inspector / Assistant Malaria Inspector has been put in charge of sector and supervisory unit respectively. However, recently reorganization of the zone has been done for field work. The zone has been divided

into 20 units with an average of 6 subsectors in each unit. Assistant Malaria Superintendent / Malaria Inspector / Assistant Malaria Inspector has been put in charge of the unit and performs his duty on bicycle. Five Assistant Malaria Superintendents at zonal level. All reporting & recording is being done according to previous set up and codes of the sectors & subsectors have not been changed.

Malariometric Activities :—

Year 1960 :—

Very limited pre-eradication malariometric surveys were conducted from June in 249 villages, blood examination of 5416 children revealed a gross P.R of 27.5 % (890 *P. vivax* & 650 *P. falciparum* including 49 Mixed) (ANNEX XXII). It varied from 39.3 % in sector 'e' to 6.8 % in sector 'a'. (ANNEX XXV). Surveys were conducted in all sectors in representative villages. Spleen rate of 39.9 % (777 children examined in 19 villages) was recorded. On examination of 384 infants in 84 villages I.P.R of 16.1 % was revealed. It varied from 0.0 % in sector 'a' & 'e' to 36.7 % in sector 'c'.

In several villages P.R exceeded 90 % & malaria revealed an epidemic form. No surveys were conducted in 69 sub-sectors (ANNEX XVI) of the zone hence probably these surveys were not fully representative of the zone. If surveys would have been conducted in these sub-sectors similar situation would have been revealed.

No entomological studies were done.

Year 1961 :—

Zone was included in Malaria Eradication Programme of West Pakistan in November, 1961. The recruitment and training of the field staff was carried out till end of January, 1962.

Limited malariometric surveys were conducted in 158 villages (ANNEX XXII). Examination of 5206 children revealed a gross P.R of 8.8 % (239 *P. vivax* and 229 *P. falciparum* including 8 mixed) 240 infants examined in 45 villages revealed I.P.R of 2.0 %. Spleen rate recorded was 39.1 % (examination of 3304 children in 92 villages). No surveys could be conducted during March-May, August, September and November. Again surveys were conducted in all sectors except 'h'.

It is interesting to note that P.R dropped from 27.5 % last year to 8.8 % during this year without any application of residual spraying. This was because of 1960 being an epidemic year.

No entomological investigations were carried out. In December 20 fixed stations were selected in villages with high endemicity of disease.

Year 1962 :—

Only general surveys and sketch mapping operations of Geographical Reconnaissance were completed before the start of spraying operations. The house

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numbering operations of G.R could not be done because of short of time. Hence it was pended to be completed after the spraying operations of 1962.

Two cycles of spraying were conducted successively beginning from June, each cycle was of 50 working days. The summary of spraying operations is given below:—

AVERAGE.

Square meter per capita	=	50
Square meter per house	=	250
Square meter per room	=	80

WORK PERFORMED

	1st cycle.	2nd cycle.
Total No. of localities sprayed	2781	2802
Totally Sprayed :—		
Houses	347399	372762
Inhabitants	1506659	1539177
Rooms	996716	1014157
Partially Sprayed :—		
Houses	3231	2009
Rooms	8334	4270
Unsprayed :—		
Total Houses	6734	6443
Unwilling Houses	399	446
Closed	6335	5997
% of unwilling Houses	0.11	0.11
Closed. Houses	1.8	1.6
Insecticides :—		
DDT 75 % w.d.p. in lbs	252620	245590.1
Tech: DDT per Sq. meter in gms.	1.1	1.08
Personnel :—		
Highest No. of Squads Working (S.Ss)	127	127
Total No. of Man—days all personnel	32093	41592
Houses per sprayman—day	11.2	12.3
98.09 % & 98.29 % coverage in all houses was achieved during 1st and 2nd cycle respectively.		

Sub-sectors detailed results are given in Annex. XXXIX.

In 1962 malariometric surveys were conducted till November when monthly active case detection activities by malaria supervisors were instituted. (ANNEX. XXII).

In 1st Quarter, examination of 8128 inhabitants in 189 villages during malariometric surveys revealed a Gross P.R of 1.4 % (28 *P. vivax* & 87. *P. falciparum*) I.P.R of 0.1 % was revealed on examination of 671 infants in 111 villages.

During 2nd Quarter a gross P.R of 0.9 % (examination of 6442 children from 173 villages) I.P.R of 0.1 % was recorded (examination of 794 infants in 125 villages)

During 3rd Quarter, examination of 6166 inhabitants in 132 villages revealed a gross parasite rate of 1.3 % (*P.vivax* 56 & *P.falciparum* 28) 51 cases (*P. vivax* 31 and *P.falciparum* 20) of July, 1962 depict probably previous year transmission as the total coverage of the area was achieved during end of July, 1962.

During 4th Quarter, monthly active case detection was instituted except, in October by malaria supervisor of the area. Examination of 20360 inhabitants revealed a gross positivity rate of 0.3 % (*P. vivax* 33 & *P. falciparum* 42).

If the data of the transmission months are scrutinized, impact of spraying on transmission is clearly evident.

Out of 11 infants detected positive 6 were found positive during transmission months.

Spleen Rate of 23.9 % (examination of 6000 children in 130 villages) was recorded.

Entomological investigations to assess spraying were carried out by means of several entomological techniques. (ANNEX. XXXVII & XXXVIII.)

Indoor collection from fixed capture stations revealed the following results :—

QUARTER	1st	2nd	3rd	4th
SPRAY STATUS	Unsprayed	Unsprayed	Sprayed	Sprayed
Examined :—				
Tot. Villages.	79	60	62	60
Tot. Rooms.	477	360	372	360
<i>A. culicifacies</i> :—				
No. Villages +	10	23	10	2
No. Rooms +	23	46	10	2
Average / + Room	2.6	5.5	1.7	1.0
<i>A. stephensi</i> :—				
No. Villages +	3	18	7	0
No. Rooms +	3	30	11	0
Average / + room	1.0	16	2.4	0.0

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Indoor collection from random surveys revealed the following results :--

QUARTER	1st	2nd	3rd	4th
SPRAY STATUS	Unsprayed	Unsprayed	Sprayed	Sprayed
Examined :—				
Tot. Villages.	23	38	70	53
Tot. Rooms.	150	162	397	252
<i>A. culicifacies</i> :—				
No. Villages +	8	19	12	1
No. Rooms. +	13	61	18	1
Average / + room	10.6	11.0	1.1	1.0
<i>A. stephensi</i> :—				
No. Villages +	5	15	9	0
No. Rooms +	5	38	28	0
Average / +	1.4	7.3	2.0	0.0

The positive findings after the spray were investigated and it was revealed that the positive results were from partially or unsprayed rooms. In sprayed rooms the positive results were because of the vectors resting on unsprayed hanging or furniture, etc.

The outlet window trap collection studies were conducted in 19 rooms of 19 villages revealed one room positive for *A. culicifacies* in which 2 No. (1 male and 1 unfed) were trapped thus denoting the efficiency of spraying. Somewhat similar results were recorded for *A. stephensi*.

Night biting rates were also conducted which revealed negative results.

Susceptibility test on *A. culicifacies* for DDT was performed in village Ballo F-4 (f.4). The results as tabulated below revealed that *A. culicifacies* was highly susceptible to DDT.

Village .	Ballo		
Date.	14.17/4/62		
Replicate.	6		
DDT Conc: %	No. Tested.	No. Dead.	% Mortality.
0.25 ...	120	22	18.3
.50 ...	118	37	31.3
1.00 ...	118	88	74.5
2.00 ...	118	116	98.3
4.00 ...	20	20	100.0
Control.	120	2	1.6
Spraying History.	Never Sprayed.		

Year 1963 :—

The house numbering operation was completed for the 1st time and readjustment of subsectors was done. The 2nd year of attack was started in 1st week of June, 1963. Two cycles of spraying were completed in 100 working days. The summary of spraying results is given below :—

TOTAL EXISTING

		1st cycle.	2nd cycle.
Localities	...	2804	2774
Population	...	1574387	1610778
Houses	...	381255	391645

WORK PERFORMED

Localities Sprayed	...	2804	2774
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Totally Sprayed :—

Houses	...	382125	383723
Inhabitants	...	1565462	1576825

Partially Sprayed :—

Houses	...	3606	2333
Inhabitants	...	9399	6406

Unsprayed :—

Total Houses	...	7286	5921
Houses Unwilling	...	223	198
Houses Closed	...	7063	5723
% tage of unwilling houses	...	0.06	0 05
% tage of Closed Houses	...	1.6	1.48

Insecticides :—

DDT 75 % w.d.p. in lbs	...	292639	248108
Tech. DDT per Sq meter in gms.	...	1.14	0.97

Personnel :—

Highest number of squads working	...	128	128
Houses per sprayman in day	...	12.1	13.2

Sub-sectors results are given in ANNEX XXXIX

During 1963, irregular case detection activities were conducted. (ANNEX XXV) From January to April and again October to December, monthly active cases detection was undertaken by malaria supervisors. While May to September extensive surveys were under taken in previously endemic localities. Though during monthly active case detection, all villages were visited but many houses were missed.

This year an ABER of 2.5% was recorded. A.P.I, A.V.I and A.F.I. of 0.09 ‰, 0.057 ‰ and 0.037 ‰ were revealed respectively (ANNEX XXV). The vivax cases proved to be 2/3rd of the total cases. Epidemiological investigations of 115 cases could be carried out. (ANNEX XXX). 21, 38 & 55 cases proved to be imported, indigenous & Relapse respectively while one could not be classified. Age group 5-9 year had the maximum number of positive cases, next came the above 10 years age group. One positive infant of 1 month age was recorded in the month of January, 1963, could not be investigated. Most probably he contracted the disease near the end of transmission period in November, 1962 (age was probably recorded wrong.)

Most of the cases were concentrated in Sector 'd'. Again majority of cases (all indigenous) were distributed in sub-sector d-2. (ANNEX XXVI) It is presumed that focal transmission in 1962 continued which is substantiated by the fact that majority of *falciparum* cases were detected during 1st & 2nd Quarter.

Sector 'g' showed only 9 cases—lowest of all sectors. ABER did not vary much and was somewhat constant in all sectors.

Examination of slides was delayed beyond 10 days in most of cases. Investigations of positive cases were delayed beyond one month in some cases.

No passive case detection could be organized. Radical Treatment and follow up of cases was not organized.

Entomological investigations mainly followed the malariometric results. Indoor collections from fixed stations & random surveys revealed following results (ANNEX XXXVII & XXXVIII).

TYPE.	FIXED STATIONS, RANDOM COLLECTION							
QUARTER	1st	2nd	3rd	4th	1st	2nd	3rd	4th
SPRAY STATUS.	SPRAYED.				SPRAYED.			
Examined :—								
Tot. Villages.	61	46	56	60	62	95	40	41
Tot. Rooms.	366	276	336	360	330	490	178	192
<i>A. culicifacies</i> :—								
No. Villages +	0	0	33	6	1	3	25	15
No. Rooms +	0	0	77	15	1	3	67	35
Average / + rooms	0	0	3.2	1.4	1.0	1.0	6.0	5.0
<i>A. stephensi</i> :—								
No. Villages +	0	1	0	0	2	13	0	0
No. Rooms +	0	1	0	0	3	16	0	0
Average / + rooms	0	20	0	0	1.0	1.4	0	0

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Negligible results were achieved till July, 1963 when one of the fixed stations showed positive results for *A. culicifacies*. Special investigations were carried out and more and more positive villages were detected. Most of the positive rooms were generally filled with straw almost up to the ceiling and gradually as the straw was consumed, the hidden walls (unsprayed) appeared. Few rooms were seen with total DDT coverage but with positive results. This prompted to intensify the special investigations. N/P ratio and survival rates were carried out in the area. 79.6% were found parous after dissection & 96.2% survival rate was observed in specimens collected from sprayed rooms. This showed longer age of vector.

During November, 1963, in two villages Sukhmal (g. 1) and Dharman (g. 5) susceptibility test of *A. culicifacies* revealed mortality rates of 12.3% and 49.2% respectively. These disclosed for the 1st time the presence of resistance in *A. culicifacies*. This is discussed in detail under "Problem of resistance".

Year 1964 :—

The spraying operations were conducted in two cycles during June-September after the correction of geographical reconnaissance of the zone in April-May. Spraying in 100% localities was achieved. The summary of spraying results is given below :—

TOTAL EXISTING

		1st cycle	2nd cycle
Localities	...	2780	2780
Population	...	1641505	1659204
Houses	...	393555	396668

AVERAGES

Square meter per capita	...	55	55
Square meter per house	...	270	270

WORK PERFORMED

Total Localities sprayed	...	2780	2780
Totally Sprayed :—			
No. of Houses	...	386217	390039
No. of Inhabitants	...	1614468	1631363
Partially Sprayed :—			
No. of Houses	...	3270	1973
Unsprayed ;—			
Total No. of Houses	...	6798	4656
Houses unwilling	...	232	91

Houses closed	...	6566	4365
Percentage of unwilling houses			
Percentage of closed houses	...	{ 1.7	0.02 1.15
Insecticide :—			
DDT 75 % w. d. p. used in lbs.	...	260545	256102
Tech : DDT per square meter in grms.	...	0.99	0.97
Personnel :—			
Highest No. of squads working (S. Ss)	...	128	128
Houses per sprayman-day	...	12.2	12.6

It is clear from the above Table that the percentage of sprayed houses was 98.3% and 98.83% during 1st and 2nd cycle respectively. Dosage of Tech : DDT of 0.99 and 0.97 per square meter was achieved.

Subsector spraying results are given in Annex XXXIX.

Monthly active case detection activities were conducted in all subsectors during January to May and again October to December. From June to September two-cycles of active case detection were conducted along with spraying operations (June July 1st cycle and August-September 2nd cycle) (ANNEX XXIV). A total of 51975 fever & suspect cases (ABER 3.1 %) revealed 98 cases (*P. vivax* 44 and *P. falciparum* 57 including 3 Mixed). API stood at 0.059 ‰. The API varied from 0.27 ‰ in sector 'h' to 0.029 ‰ in sector 'a'. Further sector 'd' had the highest number of cases. Scrutiny of sector 'd' revealed that sub-sector d. 14, 12 and 7 had highest number of cases. (ANNEX XXV & XXVI). Examination of 2049 infants revealed 2 positives (1 each in November & December) which were 'imported'. Monthly blood examination rate varied from 0.11 in July to 0.46 in November. The monthly B. E. R. varied in different months without any reasons except faulty coverage by malaria supervisor in space and time. It is also interesting to note that with higher B. E. R. higher number of positive cases were detected.

All the cases were investigated epidemiologically. (ANNEX XXVIII) four cases were not investigated, while 50, 16, 26 and 10 cases were labelled as Imported, Indigenous, Relapses and unclassified respectively. Two cases were lost and could not be investigated. Higher the age group more was the No. of cases. Age group above 10 years had the maximum number of cases. The imported cases when further analysed showed that above 60 % cases were imported from zones not yet sprayed by DDT residual spraying.

Efforts have been to organise activated—passive surveillance but without good results till December. Radical treatment of cases has been organized and in most of the cases drug was left with patients. Follow up of cases has been organized in last months of the year.

The examination of blood smears and investigation of positive cases has been delayed for much longer period than the recommended one i.e. 7 & 10-15 days respectively.

Entomological investigations mainly followed malariometric results. The data of fixed station and random surveys are (ANNEX XXXVII and XXXVIII) tabulated below :—

TYPE Quarter.	FIXED STATIONS.				RANDOM SELECTION			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Examined :—								
Total Villages ...	57	30	28	28	34	78	83	65
Total Rooms ...	342	180	168	168	157	308	320	232
<i>A. culicifacies</i> :—								
No. Villages + ...	0	0	17	3	2	10	61	18
No. Rooms + ...	0	0	65	8	4	20	161	31
Average /+rooms ...	0	0	6.0	2.1	2.2	46.9	12.2	6.6
<i>A. stephensi</i> :—								
No. Villages + ...	0	0	0	0	1	2	1	1
No. Rooms + ...	0	0	0	0	1	3	1	1
Average /+rooms ...	0	0	0	0	1.0	1.3	1.0	4.0

During 1st Quarter the positive results of Random surveys were recorded only in sector 'g' for *A. culicifacies* & *A. stephensi*. During 2nd Quarter the positive results were again mainly from sector 'g' during random surveys.

It was surprising to note that *A. culicifacies* was found to be extremely high number in several villages even after 1st cycle of spraying this year. (June-July) special investigations of survival rate observations, and susceptibility test were conducted immediately.

The results of survival rate conducted in 10 villages varied from 0.0 % in one village to 100 %. Thus showing high longevity of the vector. However, some of these rooms were containing straw fodder and cowdung which are not sprayed thus providing suitable resting places.

One concentration technique was applied in susceptibility test in 4 villages where sufficient number of *A. culicifacies* were available. The results are tabulated below :—

Date Tested.	Name of Village.	Code No.	DDT Concentration			CONTROL.		
			4 %			Total	Dead	Mor. %
			Total	Dead	% Mor			
7/8.8.64	Sahalia.	b. 3	53	17	32 %	17	7	41 %
9.8.64	Ahmalpur.	a. 5	40	1	2.5 %	8	1	12 %
11.8.64	Thaker Spall.	b. 12	20	7	35 %	...	...	...
12.8.64	Miani Awana.	a. 7	41	8	19.5 %	16	11	68.8 %

It can be seen from the above Table that mortality at 4% DDT Conc : revealed less than 35 % although control mortality was rather high. *A. culicifacies* was found to be resistant to DDT in these villages.

Special attention was paid during spraying of 2nd cycle. High density of *A. culicifacies* was observed in September but it declined gradually after 2nd cycle of spraying.

After 1st year of spray in 1962, regular entomological surveys in random and fixed stations along with other special studies revealed mostly negligible results till July, 1963 when one of the fixed stations showed positive results of *A. culicifacies*. More surveys were carried out in the area and more positive villages were detected. Special investigations were carried out in order to determine the reason for this increase.

In October, 1963, in village Sukhmal (g. 1) N/P ratio and survival rates could be carried out 79.6% were found parous after dissection and 96.2% survival rate was observed in specimens collected from sprayed rooms. This showing longer age of vector. Susceptibility test in some villages for DDT on *A. culicifacies* showed following results :—

Village.	Sukhmal (g. 1)						Darman (g. 5)			
Date.	8. 11. 63		28. 11. 63		29. 11. 63		9. 11. 63		27. 11. 63	
Species.	A. cul :		A. cul :		A. cul :		A. cul :		A. cul :	
Replica No.	1		1		1		1		1	
DDT Con : %	Tot.	Mor.	Tot.	Mor.	Tot.	Mor.	Tot.	Mor.	Tot.	Mor.
	Expos.	%	Expos.	%	Expos.	%	Exp.	%	Exp.	%
2.0 %	13	15.4	20	5	—	—	16	6.2	12	44.6
4.0 %	16	18.7	20	20	10	10	16	62.5	18	44.6
Control.	15	13.3	9	0	2	0	17	5.9	9	11.1

This showed that some presence of resistance strain in the area.

Further susceptibility tests were done to confirm the above findings in May, June, July & August, 1964 when sufficient vector was available to conduct the test. The results are shown in the following Table :—

Dated of test.	Name of Village	Vill : Code No.	2 % DDT		4 % DDT		Control.	
			Tot.	Mor. %	Tot.	Mor. %	Tot.	Mor. %
6-8/5/64	Junian Arayan.	a. 2	—	—	50	58 %	7	28.5 %
24-25/64	Darman.	g. 5	50	4 %	122	4 %	57	1.0 %
9/7/64	Darman.	g. 5	20	5 %	20	0 %	20	0 %
7-9/8/64	Sahalia.	b. 3	—	—	53	32 %	17	41 %
9/8/64	Ahmalpur.	a. 5	—	—	40	2.5 %	8	12 %
12/8/64	Miani Awana.	a. 7	—	—	41	19.5 %	11	68.8 %

The above tests revealed that *A. culicifacies* was resistant to DDT in these subsectors.

In subsectors where resistance of the vector has been recorded, the malariometric investigations points to the absence of transmission which needs confirmation.

Subsector g. 1—During pre-eradication surveys of 1960 a gross parasite rate of 22.2 % (examination of 18 children in one village) was recorded. In November and December 1962 examination of 201 children in 17 villages revealed a gross P. R of 0.3 %.

No positive results were recorded in 1963 when ABER of 2.5 % was achieved.

During 1964, ABER of 6.3 % was recorded. Two *vivax* cases were detected which were found out to be 'Relapses'.

Sub-sector g. 5—No activities were conducted during 1960 and 1961. During 1962 examination of 183 inhabitants in 16 villages revealed negative results. In 1963 during case detection activities 4.7 % of ABER was achieved. One *falciparum* case was detected during June, which was imported from Gujrat district.

In 1964 during A. C. D, ABER of 6.7 % was achieved. No case was detected. Vigilance is being kept in the areas of resistance and A. C. D is well organized.

Sub-sector a. 2—Two *vivax* cases were detected during October 1963. The one of January was formed to be relapse while the other was not investigated.

One *falciparum* Indigenous case was detected in May 1964 pointing to last year transmission.

Sub-sector a. 5—In November 1963, two *falciparum* cases were detected, one was last during investigation while other proved to be Imported.

Sub-sector a. 7—One indigenous *vivax* case was detected in March, 1964 pointing to last year transmission. Sub-sector b. 3—In June 1963 one *falciparum* Indigenous case was detected because of last year transmission, two *vivax* Relapse cases were detected in November 1963 and July, 1964.

Epidemiological situation in border subsectors of neighbouring Zone :—

42 Subsectors of Sialkot zone are on the border of zones of Gujrat (1st year of attack), Gujranwala (2nd year of attack), Sheikhpura (4th year of attack), State of Jammu & Kashmir, Gurdaspur (India) & Amritsar (India). They are located as under :—

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Zone / District	Code No of Subsectors on border of Sialkot.
Sheikhupura.	d. 11, d. 16, d. 15
Gujranwala.	d. 11, d. 9, d. 8, d. 7 & d. 3 c. 1, c. 11, c. 12, c. 14, c. 15, a. 15
Gujrat.	a. 15, a. 13, a. 11
State of Jammu & Kashmir.	a. 1, a. 2, a. 3, a. 4, b. 2, b.3, b. 12, e. 1, e. 2, e. 5, e. 6, e. 7, g. 1, g. 4, g. 5, g. 7, h. 1, h. 2,
Gurdaspur & Amritsar	d. 14, d. 15, f. 12, h. 3, h. 5,
Districts (India).	h. 12, h. 13, h. 15.

From analysis of the malariometric results of the border Subsectors of Sialkot Zone, it comes out that all was quiet except along Indian border in subsector a.4 and along Gujranwala Zone in subsector c.11 & a.15. where 2, 1 and 1, *falciparum* indigenous cases were detected.

From the scrutiny of the data in Annex XXVII and the Table given below it became evident that : —

Year.	PARASITES												
	SPLEEN				INFANT				TOTAL EXAMINED (Including Infants)				
	No. Exam.		+	SR %	No. Exam.		+	IPR %	No. Exam.		V	M	F
	Vill.	Inh.			Vill.	Inh.			Villi.	Inh.			
											Total	P. R. %	Gam. + G. R
1960	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	6	307	32	10.4	2	23	1	4.3	7	354	2	0	3
1962	—	—	—	—	—	—	—	—	—	—	—	—	—
1963	14	555	172	30.9	78	429	2	0.4	188	5529	21	0	21
1964	—	—	—	—	97	377	0	0.0	504	3849	1	0	4
											40	0.7	31
											5	0.1	2
													0.5
													0.50

GUJRANWALA (2nd year of attack)

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SHEIKHUPURA (4th year)

1960	6	271	152	56.1	8	31	2	6.4	21	700	45	1	60	5	101	14.4	71	10.1
1961	2	107	34	31.7	21	127	5	3.9	28	1211	5	0	37	2	40	3.3	35	2.9
1962	3	133	17	12.7	22	173	0	0.0	48	611	0	0	1	0	1	0.1	1	0.1
1963	—	—	—	—	49	341	0	0.0	149	1887	0	0	1	0	1	0.05	1	0.05
1964	—	—	—	—	104	309	0	0.0	303	2006	2	0	3	0	5	0.2	4	0.2

GUJRAT (1st year)

1963	1	70	12	17.1	—	—	—	—	1	70	0	0	0	0	0	0.0	0	0.0
1964	—	—	—	—	7	7	0	0.0	93	614	1	0	1	0	2	0.3	2	0.3

epidemiological condition of the borders of the neighbouring zones seems to be quite satisfactory. Similar situation was reported on the State of Jammu and Kashmir and India.

Comments :—

The ABER for total zone in year 1963 & 1964 was 2.5% and 3.1% respectively, which is not enough to bring to light the true epidemiological picture. This improvement in Annual blood examination rate in year 1964 was seen in all the sectors except in sector 'h' where it fell from 2.5 % to 2.2 %. (ANNEX XXVII)

In 1963 most of the subsectors had an ABER of 2—4, some had ABER 1—2 % and some had ABER 4—6 %. Very few had ABER 0.0—1 % and 6—8 %. Further the monthly ABER vary much in different months, thus pointing to lack of coverage in space and time in year 1963. Exactly similar pattern was seen in 1964 except in very few subsectors reached ABER of 8—10% & 10—12%. (ANNEX XXXII). Pattern in the sectors followed the zone. The ABER varied from 2.2 % in sector 'h' to 3.1 % in sector 'f'.

In year 1960, malariometric surveys were conducted only in 59 S. Sectors. 41 subsectors showed P.R between 15—60 %. Even in one subsector P.R of 60—75 % was recorded. These surveys don't represent the true epidemiological picture of the zone. If 69 subsectors would have been surveyed the picture would have been different *vivax* dominated the results.

In year 1961, without application of residual spraying the P.R fell to 8.8 %. This is because previous year was an epidemic year. No surveys could be carried in 60 subsectors. Again this year surveys could not represent the zone.

In 1962 (1st year of spray), however, malariometric surveys (and monthly case detection activities from November) were conducted in all the subsectors, a left side shift of P. R. has been seen. In total of 49 subsectors P.R dropped to 0 %. 48 subsectors P.R of below 1 %, in 17 subsectors P.R of 1—2% & in 14 subsectors P. R of 2—6 % was recorded. This shift of parasite rate to left was seen in all the sectors. More *falciparum* cases were detected than the *vivax* cases. Infant parasite rate of 0.2% was recorded and 9 infants out of total were detected positive during 2nd & 3rd Quarter of 1962. Probably the transmission was not completely interrupted in all the places.

In year 1963 (2nd of spray) the monthly case detection activities were conducted from January to April and again October to December while May to September extensive surveys were conducted.

The examination of blood smears was delayed in some cases beyond 10—15 days. Epidemiological investigation of 30 cases could not be carried out & in most cases the investigation was delayed beyond 15 days. Radical Treatment of cases was not organized. Efforts were made to organize activated passive surveillance with little results. 14.5 slides per positive cases were collected at time of investigation.

Annexes XXXV to XXXVII reveal the epidemiological situation of 1963. This year *vivax* cases were more than *falciparum* cases.

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Problem of resistance was detected in two subsectors of the zone on the Indian border, but the results of epidemiological investigations neither confirmed nor exclude the interruption of transmission in the resistance area. On the whole the programme progressed smoothly.

In year 1964, total of 8) subsectors showed negative results. Sector 'a' & 'h' showed higher A.P.I %₀₀ while in sector 'b', 'c', 'e', 'f' and 'g' the A.P.I %₀₀ remained same as in 1963. Only in sector 'd' the A.P.I %₀₀ fell. The *falciparum* cases detected were more than *vivax*. Again this reversal could not be explained. Out of total 98 cases, 26 cases were relapses which may be also seen with concern as they were missed by active case detection. Imported cases were 50 % of the total cases out of which 60 % were imported from areas not yet sprayed by residual spraying. Mostly the cases were sporadic in nature except in subsector d.14, c.4, c.5, b.17 & f.16 where quite number of cases were detected. On epidemiological classification, the cases in these subsectors were found out to be mostly imported.

Epidemiological contact surveys were better organized this year and average of 22 slides were collected around each positive case.

Annexes XXXI to XXXVI reveal the epidemiological situation in 1964 of the zone on maps.

The activated passive case detection is going on in the zone but it has not been fully organized in all health units. The radical treatment has been organized but the drug in most cases is left with the patient. Follow up has been organized.

From the surrounding zones there is no danger of introduction of the disease and the situation in those zones is quite good, but the unsprayed Zones of West Pakistan may constitute a danger till they are finally taken up by West Pakistan, Malaria Eradication Programme for spraying.

EXPLANATION OF TERMS.

1. **Spleen rate** :—Percentage of persons (usually children) showing palpable enlargement of the spleen at a given time.
2. **Parasite rate** :—Percentage of persons showing microscopically malaria parasite at a given time in their peripheral blood.
3. **Infant parasite rate** :—Percentage of infants showing microscopically malaria parasite at a given time in their peripheral blood.
4. **Gametocyte rate** :—Percentage of individuals showing microscopically sexual forms of malaria parasite in their peripheral blood.
5. **Vivax rate** :—Percentage of individuals showing microscopically *P. vivax* in their peripheral blood.
6. **Falciparum rate** :—Percentage of individuals showing microscopically *P. falciparum* in their peripheral blood.

7. **Annual blood examination** :—Percentage of blood slides examined during a year in relation to the population covered by case detection.
8. **Annual parasite incidence** :—The number, per thousand of population under surveillance, of microscopically confirmed malaria cases detected during a year.
9. **Annual vivax incidence** :—The number, per thousand of population under surveillance, of microscopically confirmed *P. vivax* cases detected during a year.
10. **Annual falciparum incidence** :—The number per thousand of population under surveillance, of microscopically confirmed *P. falciparum* cases detected during a year.

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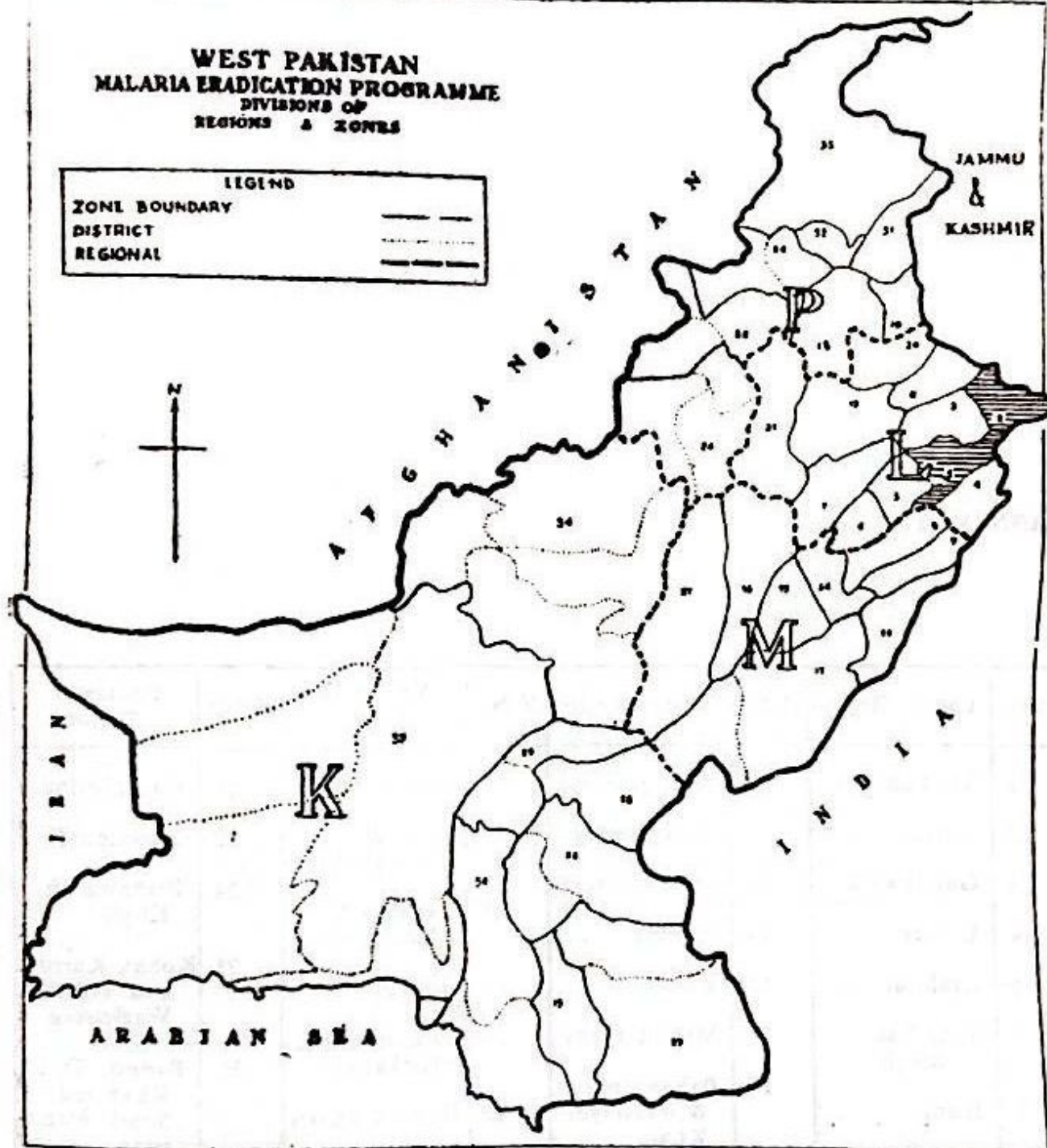
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ANNEX I

**WEST PAKISTAN
MALARIA ERADICATION PROGRAMME
DIVISIONS OF
REGIONS & ZONES**

LEGEND	
ZONE BOUNDARY	---
DISTRICT	----
REGIONAL	=====

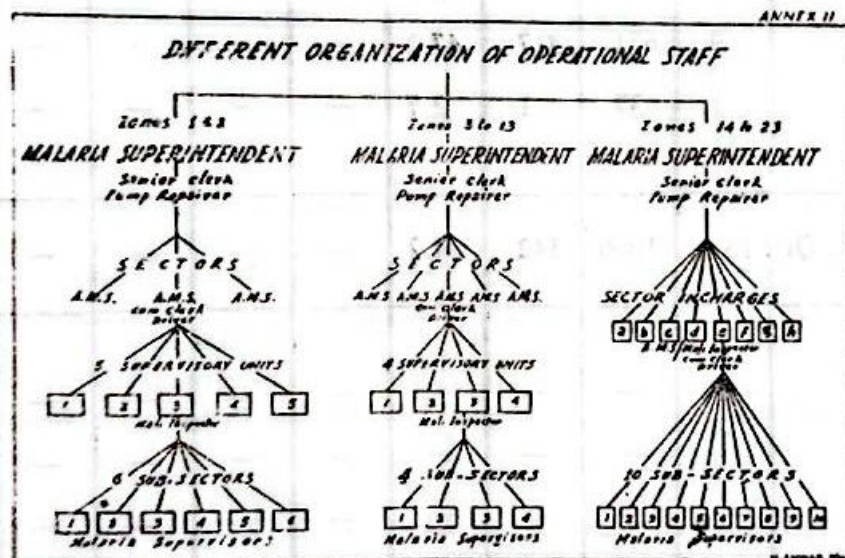


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EXPLANATIONS TO ANNEXES

ANNEX : I

Z No.	Lahore Region	Z No.	Multan Region	Z No.	Khairpur Region	Z No.	Peshawar Region
1	Sheikhpura	8	Montgomery	23	Hyderabad ...	18	Campbellpur
2	Sialkot ...	9	Montgomery	22	Khp. & Nawab Sh.	19	Rawalpindi
3	Gujranwala	10	Bahawalnagar	13	Sanghar & Tharparkar	24	Peshawar & Khyb.
4	Lahore ...	14	Multan ...	28	Sukkur ...	25	Kohat, Kurram and North Waziristan
5	Lyallpur ...	15	Khanewal ...	29	Jacobabad & Larkana.	26	Bannu, D. I. Khan and South Waziristan.
6	Toba Tek Singh	16	Muzaffargarh	30	Dadu & Thatta	31	Hazara ...
7	Jhang ...	17	Bahawalpur & Rahimyar Khan.	34	Quetta Division.	32	Mardan ...
11	Gujrat ...	27	Dera Ghazi Khan.	35	Kalat Division	33	Malakand ...
12	Sargodha ...						
20	Jhelum ...						
21	Mianwali ...						



SHEIKHUPURA
MONTHLY MALARIOMETRIC
(1960—

Year.	Month.	SPLEEN				INFANT				TOTAL
		No. Exam.		+	Sr.	No. Exam.		+	Ipr.	No.
		Vill.	Inh.			Vill.	Inh.			Vill.
1960	Jan.	3	292	24	8.2	—	—	—	—	30
	Feb.	9	671	317	47.2	—	—	—	—	21
	Mar.	1	37	1	2.7	—	—	—	—	3
	Tot. 1st. Qr : 13		1000	342	34.2	—	—	—	—	54
	Apr.	—	—	—	—	—	—	—	—	—
	May.	—	—	—	—	—	—	—	—	—
	Jun.	—	—	—	—	—	—	—	—	—
	Tot. 2nd Qr : —		—	—	—	—	—	—	—	—
	Jul.	—	—	—	—	—	—	—	—	—
	Aug.	—	—	—	—	—	—	—	—	—
	Sep.	—	—	—	—	113	332	32	9.6	232
	Tot. 3rd. Qr : —		—	—	—	113	332	32	9.6	232

ZONE

RECORD

1962)—(contd)

EXAMINED (Including Infants).

Exam.	V.	M.	F.	M i x.	Tot.	Pr.	Gam.	
Inh.							+	G. R.
838	5	7	65	3	74	9.1	56	5.6
1229	26	14	138	10	168	13.6	103	8.3
197	6	3	26	1	34	17.0	14	7.0
2264	37	24	229	14	276	12.2	173	7.6
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
8504	1117	0	466	68	1515	17.8	81232	14.4
8504	1117	0	466	68	1515	17.8	81232	14.4

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SHEIKHUPURA
MONTHLY MALARIOMETRIC
(1960 -

Year.	Month.	SPLEEN				INFANT				TOTAL
		No. Exam.		+	Sr.	No. Exam.		+	Ipr.	No.
		Vill.	Inh.			Vill.	Inh.			Vill.
1960	Oct.	—	—	—	—	128	721	34	4.7	301
	Nov.	40	1607	388	22.9	55	262	23	8.7	224
	Dec.	50	2001	768	38.3	3	24	3	12.5	3
	Tot. 4th. Qr : 90		3608	1156	32.0	185	1007	60	5.9	528
YEAR TOTAL : —		103	4608	1498	32.5	299	1339	92	6.8	814
1961	Jan.	—	—	—	—	5	55	0	1.0	5
	Feb.	—	—	—	—	7	75	0	0.0	7
	Mar.	—	—	—	—	12	70	0	0.0	22
	Tot. 1st Qr:	—	—	—	—	24	200	0	0.0	34
	Apr.	2	85	28	32.9	37	358	4	1.1	53
	May.	1	24	3	12.5	17	145	1	0.7	21
	Jun.	—	—	—	—	24	163	1	0.6	35
	Tot. 2nd Qr : 3		109	31	28.4	78	666	6	0.9	109

ZONE

RECORD

1962—contd.)

EXAMINED (Including Infants)

Exam.	V.	M.	F.	M i x.	Tot.	Pr.	Gam.	
Inh.							+	G. R.
6750	505	0	303	21	787	11.6	647	9.5
4003	474	0	347	32	789	19.7	638	15.9
24	0	0	3	0	3	12.5	2	8.3
10777	979	0	653	53	1579	14.6	1287	11.9
21545	2133	24	1348	135	3370	15.4	2693	12.4
55	0	0	0	0	0	0.0	0	0.0
55	0	0	0	0	0	0.0	0	0.0
494	9	0	3	11	11	2.2	5	1.0
634	9	0	3	11	11	1.7	5	0.8
1565	4	0	24	0	28	1.8	23	1.4
757	2	0	19	0	21	2.7	20	2.6
1346	5	0	40	1	44	3.2	38	2.8
3668	11	0	83	1	93	2.5	82	2.2

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SHEIKHUPURA
MONTHLY MALARIOMETRIC

(1960—

Year.	Month.	SPLEEN				INFANT				TOTAL
		No. Exam.		+	Sr.	No. Exam.		+	Ipr.	No.
		Vill.	Inh.			Vill.	Inh.			Vill.
1961	Jul.	1	27	8	29.6	41	330	1	0.3	46
	Aug.	6	429	89	20.7	51	430	7	1.6	67
	Sep.	4	222	46	20.7	41	383	7	1.8	54
	Tot. 3rd Qr : 11		678	143	21.0	133	1143	15	1.3	167
	Oct.	2	90	38	42.2	28	160	4	2.5	46
	Nov.	1	62	14	22.5	39	169	3	1.7	62
	Dec.	—	—	—	—	37	241	2	0.8	54
	Tot. 4th Qr : 3		152	52	34.2	104	570	9	1.5	162
YEAR TOTAL :—		17	939	226	24.0	339	2579	30	1.1	472
1962	Jan.	—	—	—	—	12	115	0	0.0	20
	Feb.	—	—	—	—	27	167	0	0.0	39
	Mar.	8	404	228	56.4	30	232	2	0.8	44
	Tot. 1st Qr : 8		404	228	56.4	69	514	2	0.3	103

ZONE

RECORD

1962) — (contd).

EXAMINED (Including Infants).

Exam.	V.	M.	F.	M i x.	Tot.	Pr.	Gam.	
Inh.							+	G. R.
2276	8	0	40	2	46	2.0	43	1.9
3644	33	0	72	2	93	2.5	86	2.3
3084	22	0	75	1	96	3.1	86	2.7
9004	63	0	187	5	235	2.6	215	2.3
1828	20	0	34	1	53	2.9	41	2.2
2659	36	0	74	1	109	4.1	73	2.7
2744	62	0	91	6	147	5.3	111	4.0
7231	118	0	199	8	309	4.2	225	3.1
20527	191	0	472	15	648	2.8	527	2.5
1161	23	0	9	0	32	2.7	29	2.5
2608	26	0	32	0	58	2.2	39	1.5
2203	15	0	27	3	39	1.7	35	1.6
5972	64	0	68	3	129	2.1	103	1.7

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SHEIKHUPURA
MONTHLY MALARIOMETRIC
(1960 -

Year	Month.	SPLEEN				INFANT				TOTAL
		No. Exam.		+	SR.	No. Exam.		+	Ipr.	No.
		Vill.	Inh.			Vill.	Inh.			Vill.
1962	Apr.	5	237	72	26.3	27	177	0	0.0	33
	May.	7	313	40	12.7	31	170	0	0.0	42
	Jun.	3	142	24	16.9	31	195	0	0.0	42
	Tot. 2nd Qr : 15		692	136	19.6	89	542	0	0.0	117
	Jul.	7	642	43	9.3	39	258	0	0.0	51
	Aug.	12	756	33	4.3	33	276	0	0.0	48
	Sep.	3	105	18	17.1	17	87	0	0.0	31
	Tot. 3rd Qr : 22		1323	94	7.1	89	621	0	0.0	130
	Oct.	—	—	—	—	16	75	0	0.0	38
	Nov.	—	—	—	—	414	3175	16	0.5	851
	Dec.	—	—	—	—	530	3598	8	0.2	1511
	Tot. 4th Qr : —		—	—	—	960	6848	24	0.3	2400
	YEAR TOTAL :— 45		2419	458	18.9	1207	8525	26	0.3	2730

— S. R. = Spleen Rate %
 — I. P. R. = Infant Parasite Rate %
 — P. R. = Parasite Rate %
 — G. R. = Gametocyte Rate %

**ZONE
RECORD
1962 - conold)**

EXAMINED Including Infants).

Exam.	V.	M.	F.	M i x.	Tot.	Pr.	Gam.	
Inh.							+	G. R.
2367	19	0	21	2	38	1.6	24	1.0
2534	7	0	8	0	15	0.6	13	0.5
2433	0	0	3	0	3	0.1	3	0.1
7334	26	0	32	2	56	0.7	40	0.5
3216	3	0	15	0	18	0.5	14	0.4
3070	0	0	4	0	4	0.1	3	0.1
1523	0	0	4	0	4	0.2	2	0.1
7809	3	0	23	0	26	0.3	19	0.2
2411	1	0	2	0	3	0.1	3	0.1
7838	34	0	75	0	109	1.4	77	0.9
9671	26	0	80	2	104	1.0	83	0.8
19920	61	0	157	2	216	1.1	163	0.8
41035	154	0	280	7	427	1.3	325	0.7

- v = P. vivax

- m = P. malariae

- f = P. falciparum

- Mixed are to be deleted from the total of P. v, P. m & P. f. to obtain totals.

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SHEIKHUPURA ZONE
MONTHLY MALARIOMETRIC RECORD
(1963-1964)

TOTAL EXAMINED (Including Infants.)

TOTAL EXAMINED (Including Infants).														
		INFANT.												
Year	Month	No. Exam.		+	No. Exam.		V	M	F	M i x.	Tot.	B. B. R %	P. I. °/∞	
		Vill.	INH.		Vill.	INH.								
1963	Jan.	375	2449	0	1391	6210	9	0	21	3	27	0.5	0.02	
	Feb.	213	1421	0	746	2811	1	0	6	0	7	0.2	0.006	
	Mar.	277	1304	0	880	3240	5	0	6	0	11	0.28	0.009	
Tot. 1st Qr.		855	5174	0	3017	12261	15	0	33	3	45	1.07	0.039	
	Apr.	46	189	0	186	556	0	0	0	0	0	0.05	0.01	
	May.	52	216	0	208	2822	3	0	9	0	12	0.2	0.01	
	Jun.	18	75	0	54	709	0	0	1	0	1	0.5	0.0008	
Tot. 2nd Qr.		116	480	0	448	4087	3	0	10	0	13	0.35	0.01	

Jul.	23	170	0	37	1354	0	0	0	0	0	0.1	0.0
Aug.	31	306	0	53	2579	0	0	0	0	0	0.22	0.0
Sep.	10	64	0	28	1633	0	0	0	0	0	0.14	0.0
Tot. 3rd Qr.												
	64	540	0	118	5566	0	0	0	0	0	0.48	0.0
Oct.	26	104	0	40	2215	0	0	3	0	3	0.19	0.002
Nov.	208	1540	0	910	6345	5	0	4	0	9	0.55	0.07
Dec.	135	736	0	639	3676	4	0	2	21	5	0.32	0.004
Tot. 4th Qr.												
	369	2380	0	1589	12236	9	0	9	1	17	1.07	0.014
TOTAL YEAR :—												
	1474	8574	0	5172	34150	27	0	52	4	75	3.0	0.066
1964 Jan.	170	774	0	958	4678	1	0	6	0	7	0.4	0.006
Feb.	345	958	0	1150	7300	1	0	0	0	1	0.64	0.0008
Mar.	197	755	0	894	4389	4	0	0	0	4	0.38	0.003
Tot. 1st Qr.												
	612	2487	0	3002	16367	6	0	6	0	12	1.44	0.01

" Pak : Jour : Hlth : 15 (3) "

SHEIKHUPURA ZONE
MONTHLY MALARIOMETRIC RECORD
 (1963-1964)---(concl'd)

		INFANT.						TOTAL EXAMINED (Including Infants.					
Year	Month	No. Exam.		+	No Exam.		V	M	F	M i x.	Tot.	B. E. R %	P. I. %/100.
		Vill.	INH.		Vill.	INH.							
	Apr.	162	455	0	952	3918	1	0	0	0	1	0.34	0.0008
	May.	75	152	0	431	1942	0	0	1	0	1	0.17	0.0008
	Jun.	38	59	0	388	1339	1	0	2	0	3	0.11	0.002
Tot. 2nd Qr.		275	666	0	1771	7199	2	0	3	0	5	0.63	0.004
	Jul.	9	25	0	164	589	0	0	0	0	0	0.05	0.0
	Aug.	35	72	0	422	2096	0	0	0	0	0	0.18	0.0
	Sep.	104	158	0	619	4223	1	0	6	0	7	0.37	0.006
Tot. 3rd. Qr.		148	255	0	1205	6908	1	0	6	0	7	.60	0.006

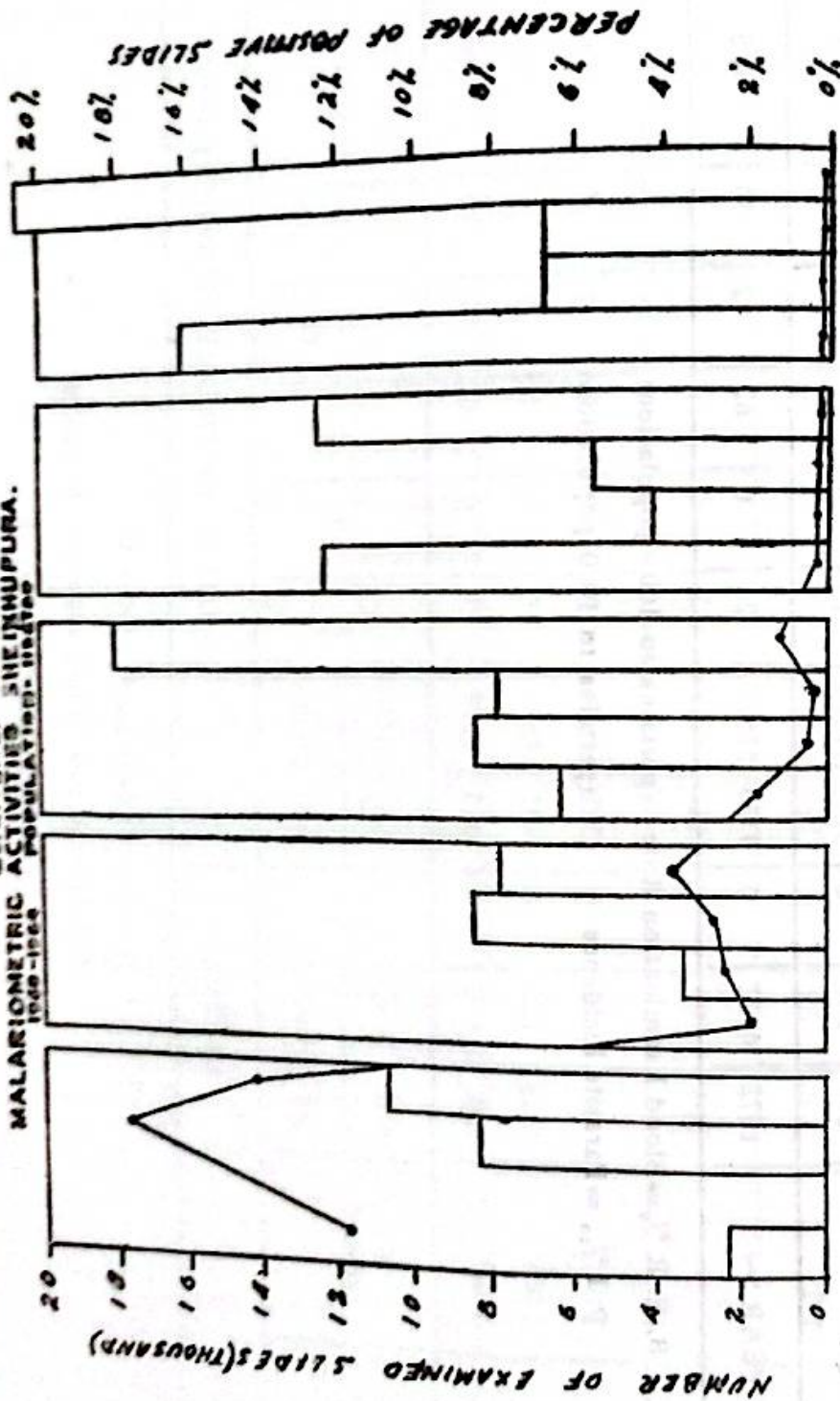
Oct.	152	252	0	561	4777	5	0	16	1	20	0.42	0.018
Nov.	320	320	0	1182	7896	4	0	21	0	25	0.69	0.02
Dec.	255	332	0	1412	8420	6	0	10	1	15	0.74	0.014
Tot. 4th. Qr.	637	940	0	3155	21093	15	0	47	2	60	1.85	0.052
TOTAL YEAR:—	1672	4322	0	9133	51567	24	0	62	2	84	4.5	0.07

B. E. R % = Blood Examination Rate (pertains to 100 population)

P. I %₁₀₀ = Parasite Incidence (pertains to 1000 population)

ANNEX II

QUARTERLY MALARIONETRIC ACTIVITIES SHEIKHUPURA. 1960-1962



QUARTER	1	2	3	4
YEAR	1960			
ACTIVITY	SURVEYS			

1	2	3	4
1961			
SURVEYS			

1	2	3	4
1962			
SURVEYS			

1	2	3	4
1963			
SURVEILLANCE			

1	2	3	4
1964			
SURVEILLANCE			

% SURVEILLANCE OPERATIONS STARTED IN OCTOBER 1962.

EXPLANATIONS TO ANNEXES

ANNEX V

BASIC FACTS.

Starting Date of Zone.	November, 1961.
General Survey.	February-March 1962.
Sketch Mapping.	April-May 1962.
Numbering Houses.	January-March 1963.
First Starting of Spraying.	June 1962 (spraying two cycles June : July Aug : Sep : 1 Gm/m ² per cycle).
Base line Malariometric investigation.	January 1961.
Base line Entomological investigation.	September, 1960.
Epidemiological Assessment :—	
Malariometric.	July. 1962.
Entomological.	July. 1962.
Start of Surveillance Operation.	November, 1962.
Method of surveillance :—	November-April.
1st Year.	November-April.
2nd Year.	(i) November-April.
3rd Year.	(ii) During May-Oct. case detection with spraying.
Vectors.	{ A. Culifacies A. Stephensi.
Transmission Period,	August-November.

" Pak : Jour : Hlth : 15 (3) "

SHEIKHUPURA ZONE & SECTORS COMPARATIVE (MALARIOMETRIC RESULTS

1960-1964

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(a)	ABER %	3.2	2.1	3.4	ABER %	4.4	4.7
	P. R. %	8.7	2.0	0.9	A. P. I. ‰	0.09	0.73
	I. P. R. %	1.9	1.4	0.2	I. P. R. %	0.0	0.0
	V. R. %	4.9	0.3	0.3	A. V. I. ‰	0.04	0.01
	F. R. %	3.8	1.7	0.6	A. F. I. ‰	0.07	0.063
(b)	ABER %	2.9	2.2	3.0	ABER %	3.3	4.7
	P. R. %	19.4	2.1	1.1	A. P. I. ‰	0.07	0.04
	I. P. R. %	8.2	0.7	0.5	I. P. R. %	0.0	0.0
	V. R. %	12.3	0.9	0.4	A. V. I. ‰	0.01	0.004
	F. R. %	8.0	1.2	0.7	A. F. I. ‰	0.06	0.038

(ANNEX VI) — (contd.)

**SHEIKHUPURA ZONE & SECTORS COMPARATIVE MALARIOMETRIC
RESULTS
1960 - 1964**

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(c)	ABER ‰	1.5	1.5	3.8	ABER ‰	2.6	4.0
	P. R. ‰	13.8	3.8	1.2	A. P. I. ‰‰	0.05	0.06
	I. P. R. ‰	7.4	0.7	0.2	I. P. R. ‰	0.0	0.1
	V. R. ‰	8.2	0.8	0.4	A. V. I. ‰‰	0.02	0.02
	F. R. ‰	5.7	3.0	0.7	A. F. I. ‰‰	0.03	0.04
(d)	ABER ‰	1.6	1.5	6.0	ABER ‰	1.9	4.4
	P. R. ‰	22.4	3.7	1.3	A. P. I. ‰‰	0.02	0.08
	I. P. R. ‰	14.1	1.6	0.4	I. P. R. ‰	0.0	0.0
	V. R. ‰	14.0	1.3	0.4	A. V. I. ‰‰	0.01	0.023
	F. R. ‰	9.1	2.4	0.8	A. F. I. ‰‰	0.03	0.065

(ANNEX VI—contd.)

SHEIKHUPURA ZONE & SECTORS COMPARATIVE MALARIOMETRIC RESULTS
1960-1964

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(c)	ABER %	1.0	1.2	3.0	ABER %	2.5	4.1
	P. R. %	22.8	4.1	0.7	A. P. I. ‰	0.06	0.083
	I. P. R. %	10.0	1.5	0.2	I. P. R. %	0.0	0.0
	V. R. %	16.7	1.2	0.3	A. V. I. ‰	0.02	0.02
	F. R. %	7.0	2.8	0.4	A. F. I. ‰	0.04	0.062

(ANNEX VI—(concl'd.))

SHEIKHPURA ZONE & SECTORS COMPARATIVE MALARIOMETRIC RESULTS

1960-1964

SECTOR.	YEAR.	1960	1961	1961	YEAR	1963	1964
*Total Zone.	ABER %	1.9	1.8	3.6	ABER %	3.0	4.5
	P. R %	15.4	2.8	1.3	A. P. I. ‰	0.067	0.073
	I. P. R %	6.8	1.1	0.3	I. P. R. ‰	0.0	0.03
	V. R %	9.9	0.9	0.3	A. V. I. ‰	0.02	0.02
	F. R %	6.2	2.3	0.7	A. F. I.	0.045	0.054

A. B. E. R. = Annual Blood Examination Rate % ; A. P. I. ‰
= Annual Parasite Incidence.

P. R. = Parasite Rate %.

I. P. R. = Infant Parasite Rate %. A. V. I. ‰ = Annual Vivax Incidence.

V. R. = Vivax Rate %.

F. R. = Falciparum Rate %. A. F. I. ‰ = Annual Falciparum Incidence.

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960—

Code No.		ABER %					P. R %					A.P. I %		I. P. R. %	
S.	S.S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1960	1961
(a)	1	1.7	6.1	1.5	3.8	6.2	10.8	3.6	0.0	0.0	0.28	0.0	4.1		
	2	3.0	2.3	2.6	9.0	7.3	16.3	2.3	0.2	0.06	0.06	8.6	2.7		
	3	2.2	1.2	5.7	5.3	3.0	4.6	1.7	0.5	0.0	0.0	0.0	0.0		
	4	2.1	0.6	1.2	2.0	4.3	4.3	1.1	0.0	0.0	0.0	2.7	0.0		
	5	2.3	2.0	7.5	5.8	7.3	11.8	1.1	0.4	0.0	0.07	0.0	0.0		
	6	3.2	2.1	1.6	2.6	3.0	5.9	1.0	1.8	0.0	0.07	0.0	0.0		
	7	4.9	0.2	3.8	5.6	4.2	6.5	8.3	0.4	0.07	0.0	6.9	9.1		
	8	1.5	1.0	3.9	2.5	3.3	8.6	0.7	0.2	0.0	0.07	0.0	0.0		
	9	2.4	0.9	2.9	2.5	4.0	3.2	3.6	0.7	0.14	0.0	0.0	13.6		
	10	3.7	2.9	2.1	3.9	3.4	10.3	0.7	1.4	0.07	0.0	6.4	0.0		
	11	5.0	1.8	5.2	3.1	4.2	9.2	1.2	1.5	0.1	0.07	4.2	0.0		
	12	5.5	2.4	5.0	6.4	4.8	16.7	4.1	1.3	0.6	0.0	0.0	0.0		
	13	5.2	6.8	4.3	11.7	6.0	3.6	1.0	2.2	0.2	0.3	0.0	0.0		
	14	4.7	1.8	1.6	2.5	10.7	3.8	0.7	2.6	0.06	0.06	0.0	0.0		
	15	1.5	2.0	2.9	1.1	9.4	8.5	0.6	0.8	0.07	0.2	0.0	0.0		
(b)	1	5.8	2.3	5.1	3.8	4.9	9.4	0.6	1.1	0.07	0.07	4.9	0.0		
	2	3.1	2.9	4.3	4.1	4.7	2.8	0.2	1.3	0.2	0.0	2.0	0.0		
	3	2.1	0.6	3.8	2.8	4.0	10.0	2.2	0.8	0.2	0.0	0.0	0.0		
	4	7.7	4.1	2.2	6.0	4.5	19.5	2.3	1.4	0.08	0.0	9.1	1.2		
	5	2.1	3.7	1.8	5.1	2.9	10.8	1.3	0.0	0.0	0.0	0.0	0.0		
	6	3.8	2.8	2.4	2.9	5.3	28.5	2.5	2.2	0.0	0.08	6.6	0.0		

ZONE MALARIOMETRIC RESULTS

1964.

			V. R. %		A. V. I. %			F. R. %		A. F. I. %		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	8.0	0.5	0.0	0.0	0.1	3.6	3.3	0.0	0.0	0.1
0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	11.3	2.3	0.2	0.06	0.06
0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	1.8	1.7	0.5	0.0	0.0
0.0	0.0	0.0	1.4	1.1	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0
0.4	0.0	0.0	8.0	0.0	0.2	0.0	0.0	4.1	1.1	0.2	0.0	0.07
0.0	0.0	0.0	4.3	0.0	0.9	0.0	0.0	1.6	1.0	0.9	0.0	0.07
0.0	0.0	0.0	4.4	4.1	0.2	0.0	0.0	2.5	4.1	0.2	0.07	0.0
0.0	0.0	0.0	4.3	0.0	0.2	0.0	0.0	4.3	0.7	0.0	0.0	0.07
0.0	0.0	0.0	1.4	1.4	0.0	0.07	0.0	1.7	2.1	0.7	0.07	0.0
0.0	0.0	0.0	4.7	0.0	0.7	0.07	0.0	5.8	0.7	1.0	0.0	0.0
0.9	0.0	0.0	6.4	0.4	0.5	0.0	0.0	2.2	1.2	1.0	0.1	0.07
0.7	0.0	0.0	9.4	0.3	0.4	0.1	0.0	8.2	3.7	0.9	0.5	0.0
0.0	0.0	0.0	3.0	0.3	0.7	0.09	0.0	0.6	0.7	1.5	0.09	0.3
0.0	0.0	0.0	2.2	0.7	0.4	0.06	0.0	1.6	0.0	2.2	0.06	0.06
0.0	0.0	0.0	5.6	0.0	0.4	0.07	0.0	2.8	0.6	0.4	0.07	0.2
1.6	0.0	0.0	6.7	0.0	0.7	0.0	0.0	3.0	0.6	0.4	0.07	0.07
1.6	0.0	0.0	2.4	0.2	0.3	0.0	0.0	0.5	0.0	1.0	0.2	0.0
0.0	0.0	0.0	8.2	1.1	0.3	0.0	0.0	2.5	1.1	0.5	0.2	0.0
2.8	0.0	0.0	13.6	1.7	0.3	0.0	0.0	6.3	0.8	1.1	0.08	0.0
0.0	0.0	0.0	6.4	0.9	0.0	0.0	0.0	4.3	0.5	0.0	0.0	0.0
0.8	0.0	0.0	15.3	1.4	0.9	0.0	0.0	15.3	1.1	1.6	0.0	0.08

" Pak : Jour : Hlth : 15 (3)

SHEIKHUPURA
SUB-SECTORS COMPARATIVE
1960

Code No		ABER %					P. R. % A. P. I‰					I. P. R. %	
S.	S.S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
	7	3.8	2.5	4.2	2.4	7.1	24.2	1.5	0.7	0.2	0.0	8.7	0.0
	8	1.9	6.0	—	1.8	3.5	36.0	0.3	—	0.0	0.08	25.5	—
	9	2.0	0.5	2.7	3.5	4.7	13.7	0.0	2.2	0.0	0.1	40.0	—
	10	0.2	2.1	4.4	4.9	5.2	19.4	0.8	2.0	0.08	0.0	50.0	0.0
	11	3.9	4.6	3.9	4.8	4.2	22.1	2.6	0.7	0.07	0.14	15.0	1.2
	12	2.7	2.3	0.9	1.9	4.2	25.6	3.4	0.0	0.06	0.0	7.6	0.0
	13	2.0	0.6	1.4	2.6	5.3	34.0	1.3	2.7	0.0	0.08	0.0	0.0
	14	2.0	3.5	2.6	2.1	4.2	26.0	4.1	2.1	0.0	0.07	7.1	0.0
	15	1.2	0.3	1.3	2.2	6.0	17.2	0.0	0.6	0.08	0.08	50.0	—
	16	1.3	1.5	1.1	1.9	4.7	24.5	2.0	0.0	0.08	0.0	0.0	0.0
(e)	1	1.4	1.2	6.7	5.2	3.6	8.8	1.9	0.2	0.15	0.0	—	0.0
	2	2.7	3.2	5.0	3.1	5.1	6.8	4.4	2.1	0.07	0.0	0.0	3.0
	3	4.7	0.3	2.8	5.9	4.8	14.4	2.3	0.9	0.06	0.0	8.8	—
	4	3.0	1.6	5.3	1.8	4.3	18.1	2.0	0.8	0.0	0.0	8.0	0.0
	5	1.1	1.2	7.1	3.4	3.8	10.5	1.0	0.8	0.1	0.06	0.0	0.0
	6	0.9	0.6	2.1	1.8	4.7	6.8	7.3	1.2	0.06	0.07	0.0	0.0
	7	2.4	1.8	3.5	2.3	3.9	12.6	0.4	0.0	0.0	0.0	2.5	0.0
	8	2.3	1.3	3.0	3.0	4.1	11.3	5.6	1.1	0.2	0.0	5.5	2.5
	9	1.4	2.3	2.9	3.9	4.2	15.3	1.5	0.4	0.0	0.07	—	0.0
	10	1.7	2.1	3.0	3.6	4.5	12.3	1.0	0.2	0.0	0.07	25.0	0.0

ZONE

MALARIOMETRIC RESULTS

1964 - (contd.)

			V.R %		A.V I.‰			F. R. %		A. P. I.‰		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	16.9	0.5	0.0	0.0	0.0	0.8	0.9	0.7	0.2	0.0
—	0.0	0.0	17.4	0.0	—	0.0	0.0	16.2	0.3	—	0.0	0.08
2.0	0.0	0.0	7.9	0.0	0.7	0.0	0.0	6.3	0.0	1.4	0.0	0.1
0.0	0.0	0.0	9.6	0.4	0.2	0.0	0.0	9.6	0.4	1.8	0.08	0.0
0.0	0.0	0.0	17.3	0.8	0.2	0.0	0.07	5.3	1.8	0.5	0.07	0.07
0.0	0.0	0.0	14.5	1.1	0.0	0.06	0.0	13.0	2.6	0.0	0.0	0.0
0.0	0.0	0.0	18.4	0.0	0.5	0.0	0.0	17.2	1.3	2.1	0.0	0.08
0.0	0.0	0.0	16.9	2.6	0.0	0.0	0.0	10.5	1.7	1.0	0.0	0.07
0.0	0.0	0.0	8.6	0.0	0.0	0.0	0.0	8.6	0.0	0.6	0.08	0.08
0.0	0.0	0.0	14.1	0.0	0.0	0.0	0.0	11.0	2.0	0.0	0.08	0.0
0.0	0.0	0.0	3.6	0.0	0.1	0.0	0.0	5.1	1.9	0.1	0.15	0.0
0.4	0.0	0.0	1.8	0.8	0.7	0.0	0.0	5.0	3.5	1.6	0.07	0.0
1.6	0.0	0.0	6.1	0.0	0.5	0.06	0.0	8.3	2.3	0.7	0.0	0.0
0.0	0.0	0.0	14.8	0.8	0.2	0.0	0.0	3.9	1.2	0.6	0.0	0.0
0.0	0.0	0.0	7.2	1.0	0.3	0.1	0.06	3.3	0.0	0.5	0.0	0.0
0.0	0.0	0.0	6.1	0.0	0.0	0.06	0.0	2.3	7.3	1.2	0.0	0.07
0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	2.9	0.4	0.0	0.0	0.0
0.0	0.0	0.0	3.4	0.5	0.7	0.1	0.0	7.8	5.1	0.4	0.1	0.0
0.0	0.0	0.0	10.9	0.0	0.2	0.0	0.07	4.4	1.5	0.2	0.0	0.0
0.0	0.0	0.0	7.5	0.0	0.0	0.0	0.0	4.7	1.0	0.2	0.0	0.07

Pak : Jour : Hlth : 15 (3)

SHEIKHUPURA
SUB-SECTORS COMPARATIVE
1960—

Code No		ABER %					P. R %					A.P. I ‰		I. P. R. ‰	
S.	S.S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1960	1961
	11	0.9	1.7	3.7	2.5	3.9	16.2	0.4	6.4	0.0	0.3			0.0	0.0
	12	0.6	0.7	2.9	0.8	2.0	37.2	14.5	0.6	0.0	0.0			50.0	7.7
	13	2.3	1.7	4.8	3.7	3.4	12.5	1.3	1.2	0.03	0.1			20.0	0.0
	14	0.3	1.7	2.7	1.5	3.1	6.0	4.9	0.0	0.07	0.1			—	0.0
	15	0.3	0.6	7.5	1.4	3.3	28.0	5.6	0.2	0.06	0.06			0.0	0.0
	16	1.0	1.3	1.3	3.0	1.9	7.7	0.0	0.0	0.0	0.0			0.0	0.0
	17	0.5	2.3	2.6	1.1	2.3	12.3	2.3	0.7	0.0	0.0			0.0	0.0
	18	0.3	0.7	3.4	1.7	4.4	9.2	3.9	0.5	0.1	0.06			—	—
	19	—	1.8	2.8	0.8	3.0	—	2.9	0.0	0.0	0.12			—	0.0
	20	1.5	2.3	5.0	2.5	2.6	22.7	9.4	1.1	0.0	0.0			0.0	5.5
	21	1.1	4.4	4.9	1.3	3.6	24.1	12.8	4.1	0.0	0.08			41.6	1.7
(d)	1	2.1	0.7	2.3	1.9	3.2	12.1	2.0	0.3	0.0	0.0			6.2	0.0
	2	—	0.9	0.07	1.1	3.7	—	1.7	0.0	0.07	0.07			—	0.0
	3	1.0	4.1	3.0	2.8	6.4	36.9	6.3	2.7	0.0	0.0			0.0	2.0
	4	0.5	1.5	3.7	1.9	6.0	30.0	7.7	0.4	0.0	0.15			—	2.8
	5	1.6	2.9	4.9	2.1	4.1	20.9	1.9	1.1	0.1	0.2			16.6	0.0
	6	0.9	3.1	2.6	1.3	3.1	21.8	4.8	0.0	0.0	0.07			—	3.5
	7	0.2	0.6	3.2	1.6	3.0	8.0	0.8	0.6	0.0	0.16			50.0	—
	8	1.1	0.6	7.6	2.5	4.2	15.6	0.0	1.2	0.0	0.0			0.0	0.0
	9	0.8	1.6	5.6	2.0	4.6	42.2	4.1	2.3	0.07	0.2			25.0	5.5

ZONE

MALARIOMETRIC RESULTS

1964—(contd.)

			V. R. %		A. V. I. ‰			F. R. %		A. F. I. ‰		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	8.5	0.0	2.8	0.0	0.0	7.7	0.4	3.6	0.0	0.3
0.0	0.0	0.0	28.4	3.1	0.0	0.0	0.0	9.0	11.4	0.6	0.0	0.0
0.0	0.0	0.0	7.4	0.5	0.1	0.01	0.0	5.4	0.8	1.1	0.02	0.1
0.0	0.0	0.0	6.0	0.1	0.0	0.07	0.0	0.0	4.8	0.0	0.0	0.1
0.9	0.0	0.0	20.0	1.1	0.1	0.06	0.06	8.0	4.5	0.1	0.0	0.0
0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0
0.0	0.0	0.0	9.8	0.3	0.0	0.0	0.0	2.4	2.3	0.7	0.0	0.0
0.0	0.0	0.0	5.5	0.0	0.2	0.0	0.0	3.7	3.9	0.3	0.1	0.06
0.0	0.0	0.0	—	0.0	0.0	0.0	0.06	—	2.9	0.0	0.0	0.06
0.0	0.0	0.0	17.5	3.9	0.9	0.0	0.0	5.2	6.0	0.2	0.0	0.0
0.0	0.0	0.0	6.9	3.3	2.0	0.0	0.08	17.2	9.6	2.2	0.0	0.0
0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	3.6	2.0	0.3	0.0	0.0
—	0.0	0.0	—	1.7	0.0	0.0	0.0	—	0.0	0.0	0.0	0.07
0.0	0.0	0.0	18.4	1.6	0.2	0.0	0.0	19.2	5.0	2.5	0.0	0.0
0.0	0.0	0.0	18.3	2.7	0.0	0.0	0.09	13.3	5.0	0.4	0.0	0.08
2.4	0.0	0.0	16.1	0.5	0.7	0.1	0.0	5.2	1.4	0.4	0.0	0.2
0.0	0.0	0.0	10.9	3.4	0.0	0.0	0.07	10.9	1.3	0.0	0.0	0.0
0.0	0.0	0.0	8.0	0.0	0.1	0.0	0.0	0.0	0.8	0.5	0.0	0.16
0.0	0.0	0.0	9.3	0.0	0.3	0.0	0.0	6.0	0.0	0.9	0.0	0.0
0.0	0.0	0.0	33.6	2.7	1.5	0.0	0.1	11.2	1.3	0.9	0.07	0.07

" Pak : Jour : Hlth : 15 (3)

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960—

Code No		ABER %					P. R % A.P. I ‰					I. P. R. ‰	
S.	S.S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
	10	2.0	3.7	7.3	2.6	5.5	11.8	1.4	0.8	0.0	0.09	7.6	0.0
	11	1.1	0.3	4.2	2.0	3.8	34.4	0.0	1.1	0.0	0.06	25.0	0.0
	12	0.5	1.7	5.8	1.7	4.1	27.7	1.7	0.6	0.0	0.07	—	0.0
	13	0.3	—	5.7	2.6	5.5	34.2	—	1.1	0.13	0.0	0.0	—
	14	0.9	1.4	5.1	1.3	3.3	13.8	8.4	0.6	0.08	0.0	—	14.2
	15	0.3	1.0	2.0	2.5	4.8	7.1	2.2	2.5	0.0	0.07	5.8	0.0
	16	1.0	—	1.3	1.2	5.2	39.1	—	1.8	0.0	0.08	33.3	—
(e)	1	0.6	3.9	1.1	2.0	4.1	70.5	3.4	1.2	0.1	0.07	—	0.0
	2	1.6	1.5	4.1	1.5	2.8	42.8	8.6	0.3	0.0	0.0	0.0	0.0
	3	—	0.2	2.8	2.6	2.9	—	2.4	0.4	0.1	0.06	—	0.0
	4	1.9	0.4	3.1	3.0	4.2	14.6	1.9	1.1	0.0	0.0	0.0	0.0
	5	1.3	1.7	3.9	3.9	3.1	15.5	2.1	0.3	0.1	0.0	—	0.0
	6	1.3	2.2	4.5	1.7	7.4	11.9	5.1	0.4	0.1	0.1	0.0	9.1
	7	0.1	0.8	3.7	1.8	3.7	46.7	1.7	1.5	0.0	0.0	—	0.0
	8	—	—	3.7	2.1	4.4	—	—	0.3	0.07	0.07	—	—
	9	0.8	3.6	6.2	6.7	4.5	18.9	6.9	0.1	0.2	0.3	—	11.4
	10	0.7	0.3	3.1	1.6	4.2	3.8	0.0	0.9	0.0	0.38	—	0.0
	11	0.8	—	6.1	6.4	7.5	28.0	—	0.7	0.09	0.0	0.0	—
	12	0.3	—	1.2	1.6	3.1	28.0	—	1.8	0.05	0.0	—	—
	13	1.0	1.6	3.1	2.2	4.5	26.9	1.2	0.4	0.0	0.06	37.5	0.0

ZONE

(ANNEX VII)

MALARIOMETRIC RESULTS

1964 - (contd.)

			V.R. %		A.V.I. ‰			F. R. %		A. P. I. ‰		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	7.0	0.7	0.0	0.0	0.09	5.7	0.7	0.8	0.0	0.0
0.0	0.0	0.0	22.6	0.0	0.8	0.0	0.0	12.4	0.0	0.3	0.0	0.06
0.0	0.0	0.0	20.8	0.0	0.1	0.0	0.0	8.3	1.7	0.5	0.0	0.07
0.0	0.0	0.0	17.1	—	0.1	0.07	0.0	17.1	—	1.0	0.07	0.0
0.0	0.0	0.0	5.5	0.5	0.1	0.08	0.0	7.4	7.9	0.5	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	7.1	2.2	2.1	0.0	0.07
3.5	0.0	0.0	20.8	—	0.0	0.0	0.08	10.9	—	1.8	0.0	0.0
0.0	0.0	0.0	57.9	1.0	0.0	0.07	0.0	12.5	2.3	1.2	0.07	0.07
0.0	0.0	0.0	37.8	0.9	0.17	0.0	0.0	8.4	7.7	0.17	0.0	0.0
0.0	0.0	0.0	—	0.0	0.2	0.0	0.0	—	2.4	0.2	0.1	0.06
0.0	0.0	0.0	12.0	0.0	0.3	0.0	0.0	3.5	1.9	0.8	0.0	0.0
0.0	0.0	0.0	9.2	0.0	0.0	0.07	0.0	8.0	2.1	0.3	0.07	0.0
0.0	0.0	0.0	5.1	1.5	0.2	0.1	0.1	6.8	3.5	0.2	0.0	0.0
0.6	0.0	0.0	26.6	0.0	0.4	0.0	0.0	20.0	1.7	1.2	0.0	0.0
0.0	0.0	0.0	—	—	0.3	0.0	0.0	—	—	0.0	0.07	0.07
0.0	0.0	0.0	5.0	2.6	0.1	0.1	0.2	13.9	4.6	0.0	0.1	0.1
0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.1	0.7	0.0	0.9	0.0	0.3
0.0	0.0	0.0	22.4	—	0.1	0.0	0.0	6.7	—	0.6	0.09	0.0
2.9	0.0	0.0	24.0	—	0.9	0.0	0.0	4.0	—	0.9	0.05	0.0
0.0	0.0	0.0	23.4	0.4	0.2	0.0	0.0	4.8	0.8	0.2	0.0	0.06

Pak : Jour : Hlth : 15 (3)

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960

Code No		ABER %					P. R. %		A. P. I‰			I. P. R. %	
S.	S.S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
	14	1.2	1.5	3.0	2.8	4.6	25.2	3.5	0.9	0.05	0.0	0.0	0.0
	15	1.2	1.0	1.4	2.1	1.9	8.7	0.6	0.8	0.1	0.1	—	0.0
	16	2.1	1.1	3.5	1.4	3.8	15.3	0.5	1.1	0.0	0.0	5.0	0.0
	17	2.3	3.5	1.2	2.9	5.6	23.2	6.3	0.0	0.0	0.14	33.3	0.0

ABER = Annual Blood Examination Rate. %.

P. R. = Parasite Rate %.

A. P. I. = Annual Parasite Incidence ‰.

I. P. R. = Infant Parasite Rate %.

V. R. = Vivax Rate %.

A. V. I. = Annual Vivax Incidence.

ZONE

MALARIOMETRIC RESULTS

1964 (concl.)

			V. R. %		A. V. I. ‰			F. R. %		A. F. I. ‰		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	20.4	1.1	0.5	0.0	0.0	5.2	2.4	0.3	0.05	0.0
0.0	0.0	0.0	4.6	0.0	0.4	0.03	0.0	4.0	0.6	0.4	0.07	0.1
0.0	0.0	0.0	9.0	0.0	0.6	0.0	0.0	6.8	0.5	0.5	0.0	0.0
0.0	0.0	0.0	16.4	3.0	0.0	0.0	0.07	11.4	3.2	0.0	0.0	0.07

F. R. = Falciparum Rate ‰

A. F. I. = Annual Falciparum Incidence ‰

(NNEX VIII)

**SUB.-SECTORS COMPARATIVE MALARIOMETRIC RESULTS
OF SURROUNDING DISTRICTS OF SHEIKHUPURA ZONE**

1960 -- 1964.

Code No.	ABER %			P.R.%			A.P.I %.			I.P.R %		
	S	S. S	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964

SIALKOT

d-11	—	—	—	—	—	—	—	—	—	—	—	—
d-15	08	—	—	—	—	—	—	26.1	—	0.0	0.0	44.4
d-16	1.4	0.1	1.0	2.5	4.0	—	—	28.4	0.0	2.7	0.26	0.06

GUJRANWALA

b-10	—	1.1	—	2.5	2.0	—	—	—	2.8	—	1.6	0.03
b-11	—	0.5	—	4.1	2.1	—	—	—	1.5	—	0.4	0.08
b-12	—	0.4	—	2.3	2.5	—	—	—	0.0	—	0.3	0.0

b-13	—	1.3	—	4.6	3.1	—	2.0	—	0.0	0.0	—	0.0	—	0.0	0.0
d-1	—	—	—	2.8	3.9	—	—	—	0.9	0.0	—	0.0	—	0.0	0.0
d-2	—	—	—	2.7	2.3	—	—	—	14.4	0.0	—	8.3	—	0.0	0.0
d-3	—	4.8	—	1.5	2.4	—	1.3	—	0.0	0.0	—	0.0	—	0.0	0.0
d-8	—	—	—	4.7	2.8	—	—	—	0.5	0.17	—	0.0	—	0.0	0.0
d-9	—	—	—	2.4	2.0	—	—	—	1.6	0.0	—	0.0	—	0.0	0.0
d-10	—	—	—	3.9	3.1	—	—	—	0.2	0.23	—	0.0	—	0.0	0.0
d-14	—	0.2	—	5.1	1.9	—	—	—	3.7	0.0	—	0.0	—	0.0	0.0
e-13	—	0.4	—	5.8	2.5	—	24.8	—	1.4	0.0	—	0.0	—	0.0	0.0
f-6	—	—	—	2.2	1.8	—	—	—	2.2	0.0	—	0.0	—	0.0	0.0
f-7	—	0.3	—	4.7	1.9	—	9.4	—	2.9	0.0	—	0.0	—	0.0	0.0

" Pak : Jour : Hlth : 15 (3) "

(ANNEX VIII)

**SUB.-SECTORS COMPARATIVE MALARIOMETRIC RESULTS
OF SURROUNDING DISTRICTS OF SHEIKHUPURA ZONE**

1960-1964.

Code No.	ABER %					P. R %					A. P. I %					I. P. R %				
	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
S S. S.																				
f-9	—	0.8	—	7.5	1.5	—	5.2	—	2.7	0.0	—	—	—	—	0.0	—	—	—	0.0	0.0
f-10	—	0.4	—	6.1	1.9	—	2.0	—	5.8	0.0	—	—	—	—	0.0	—	—	—	0.0	0.0
LAHORE																				
a-1	—	—	1.2	0.5	1.7	—	—	0.5	0.0	0.14	—	—	—	—	—	—	—	—	—	0.0
a-3	—	—	0.7	4.1	3.8	—	—	5.8	3.3	0.08	—	—	—	—	—	—	—	—	0.0	0.0
b-11	—	0.6	—	3.2	1.3	—	10.6	—	8.6	0.09	—	—	—	—	—	—	—	—	0.0	0.0
b-12	—	1.3	0.5	5.2	1.1	—	4.3	1.8	1.6	0.0	—	—	—	—	—	—	—	—	0.0	0.0
b-13	—	—	1.1	4.7	1.5	—	—	2.3	2.3	0.0	—	—	—	—	—	—	—	—	0.0	0.0

f-1	—	—	—	—	0.0
f-2	—	—	—	—	0.0
f-10	—	—	—	—	0.0
g-2	—	—	—	—	0.0
g-3	—	—	—	—	0.0

—	4.6	1.4	1.5	0.0
—	10.7	—	0.9	0.08
—	—	—	3.3	0.0
—	—	—	0.4	0.0
—	—	5.5	1.7	0.17

LYALLPUR — A

—	—	—	—	0.0
—	—	—	—	0.0
—	—	—	—	0.0
—	—	—	—	0.0
—	—	—	—	0.0
—	—	—	—	0.0

—	—	—	1.1	0.21
2.0	—	—	11.8	1.39
—	—	—	8.4	0.32
—	—	—	8.8	0.08
32.0	—	7.3	5.1	0.29
—	—	—	1.3	0.0

—	0.8	1.0	8.4	2.5
—	0.4	—	5.7	0.9
—	—	—	5.3	1.6
—	—	—	1.9	1.0
—	—	0.6	2.3	2.6

—	—	—	4.4	3.0
0.4	—	—	7.4	6.5
—	—	—	5.9	4.7
—	—	—	2.0	4.4
0.46	—	1.1	3.1	2.4
—	—	—	2.1	1.8

f-1	—	—	—	—	0.0
f-2	—	—	—	—	0.0
f-10	—	—	—	—	0.0
g-2	—	—	—	—	0.0
g-3	—	—	—	—	0.0

b-5	—	—	—	—	0.0
b-7	—	—	—	—	0.0
b-8	—	—	—	—	0.0
b-9	—	—	—	—	0.0
c-1	—	—	—	—	0.0
c-3	—	—	—	—	0.0

Pak : Jour : Hlth : 15 (3) "

(ANNEX VIII)

**SUB.-SECTORS COMPARATIVE MALARIOMETRIC RESULTS
OF SURROUNDING DISTRICTS OF SHEIKHUPURA ZONE**

1960-1964.

Code No.	ABER %					P. R %					A.P. I‰					I.P.R %				
	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
c-4	—	—	—	2.3	4.2	—	—	—	9.3	0.52	—	—	—	—	—	—	—	—	0.0	0.0
c-8	—	—	—	3.3	5.5	—	—	—	8.0	0.24	—	—	—	—	—	—	—	—	3.8	0.0
c-9	—	—	1.1	2.4	4.7	—	—	15.2	0.7	0.09	—	—	—	—	—	—	—	—	0.0	0.0
c-10	—	—	0.33	2.9	4.3	—	—	17.8	4.3	0.15	—	—	—	—	—	—	—	—	4.3	0.0
c-11	—	—	—	3.6	4.0	—	—	—	0.9	0.08	—	—	—	—	—	—	—	—	0.0	0.0
c-14	—	—	—	1.4	4.7	—	—	—	2.5	0.36	—	—	—	—	—	—	—	—	0.0	0.0
c-15	0.4	—	—	2.2	2.7	16.0	—	—	0.0	0.0	—	—	—	—	—	—	—	—	0.0	0.0

ABER = Annual Blood Examination Rate %
 P.R. = Parasite Rate %
 A.P.I. = Annual Parasitic Incidence %

(ANNEX IX)

CLASSIFICATION OF POSITIVE CASES ACCORDING TO AGE GROUPS

SECTOR	a		b		c		d		e		TOTAL ZONE.	
Age Groups.	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964
0-1	—	—	—	—	—	—	—	—	—	—	—	—
1+	2	3	3	1	1	2	—	1	1	—	7	7
2-4	7	1	2	—	5	4	—	4	2	4	16	13
5-9	7	8	5	2	5	1	3	1	3	4	23	16
10+	4	4	6	6	7	13	3	13	9	12	29	4
Grand Total	20*	16	16*	9	18	20	6	19	15	20	75	84

Mixed cases including.

* Pak : Jour : Hith : 15 (3)

**YEARLY RESULTS OF ANNUAL BLOOD EXAMINATION RATE
PER ZONE & SECTORS OF SHEIKHUPURA**

(1960—1964)

Epidemiological Assessment of Malaria

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PER ZONE & SECTORS OF SHEIKHUPURA (1960—1964)									
ZONE/ SECTOR	YEAR.	NO. OF SUB-SECTORS WITH ABER.							
		0.8 %	0.0—1 %	1—2 %	2—4 %	4—6 %	6—8 %	8—10 %	10—12 %
TOTAL ZONE.	1960	4	23	24	26	7	1	—	—
	1961	5	21	26	26	4	3	—	—
	1962	1	2	14	39	21	8	—	—
	1963	—	1	26	43	9	4	1	1
	1964	—	—	3	31	41	8	2	—

" Pak : Jour : Hlth : 15 (3) "

(ANNEX X)

**YEARLY RESULTS OF ANNUAL BLOOD EXAMINATION RATE
PER ZONE & SECTORS OF SHEIKHUPURA**

(1960-1964)

ZONE/ SECTOR	YEAR.	NO. OF SUB-SECTORS WITH ABER.							
		0.8" or more	0.0-1 %	1-2 %	2-4 %	4-6 %	6-8 %	8-10 %	10-12 %
a	1960	—	—	3	7	5	—	—	—
	1961	—	3	4	6	—	2	—	—
	1962	—	—	1	8	3	1	1	1
	1963	—	—	1	8	3	3	2	—
	1964	—	—	—	5	5	3	2	—

1960	—	1	3	10	1	1	—	—
1961	—	4	1	8	2	1	—	—
1962	1	1	4	6	4	—	—	—
1963	—	—	3	8	4	1	—	—
1964	—	—	1	2	11	2	—	—

1960	1	8	6	5	1	—	—	—
1961	—	5	10	5	1	—	—	—
1962	—	—	1	12	5	3	—	—
1963	—	1	8	10	2	—	—	—
1964	—	—	—	6	9	1	—	—

" Pak : Jour : Hlth : 15 (3) "

d	1960	1	8	5	2	—	—	—	—
	1961	2	5	5	3	1	—	—	—
	1962	—	1	6	6	6	2	—	—
	1963	—	—	8	8	—	—	—	—
	1964	—	—	—	6	9	1	—	—

e	1960	2	6	7	2	—	—	—	—
	1961	3	4	6	4	—	—	—	—
	1962	—	—	4	9	2	2	—	—
	1963	—	—	6	9	—	2	—	—
	1964	—	—	1	6	8	2	—	4

**YEARLY RESULTS OF ANNUAL PARASITE RATE
PER ZONE & SECTORS OF SHEIKHUPURA**

1960-1961.

Zone/ Sector	Year.	NUMBERS OF SUB-SECTORS WITH P. R.											
		N. S.	0%	0-1%	1-2%	2-3%	3-6%	6-9%	9-12%	12-15%	15-30%	30-60%	60-75%
Total Zone	1960	4	—	—	—	1	8	10	10	11	29	11	1
	1961	5	6	13	22	13	15	8	1	2	—	—	—
	1962	1	12	38	21	11	1	1	—	—	—	—	—

a	1960	—	—	—	—	—	6	3	4	—	2	—	—
	1961	—	—	4	6	1	3	1	—	—	—	—	—
	1962	—	2	7	4	2	—	—	—	—	—	—	—

Pak : Jour : Hlth : 15 (3)

b	1960	—	—	—	—	1	—	—	3	1	9	2	—
	1961	—	—	—	—	4	2	—	—	—	—	—	—
	1962	1	3	4	3	5	—	—	—	—	—	—	—

c	1960	1	—	—	—	—	1	4	2	6	6	1	—
	1961	—	1	2	5	4	5	1	1	2	—	—	—
	1962	—	4	10	4	1	1	1	—	—	—	—	—

d	1960	1	—	—	—	—	—	2	1	2	4	6	—
	1961	2	2	1	4	2	2	3	—	—	—	—	—
	1962	—	2	6	5	3	—	—	—	—	—	—	—

(ANNEX XI)

YEARLY RESULTS OF ANNUAL PARASITE RATE
PER ZONE & SECTORS OF SHEIKHUPURA

1960-1961

Zone/ Sector	Year.	NUMBERS OF SUB-SECTORS WITH P. R.												
		N. S.	0%	0-1%	1-2%	2-3%	3-6%	6-9%	9-12%	12-15%	15-30%	30-60%	60-75%	75-100%
c	1960	2	—	—	—	—	1	1	—	2	8	2	1	—
	1961	3	1	2	3	2	3	3	—	—	—	—	—	—
	1962	—	1	11	5	—	—	—	—	—	—	—	—	—

" Pak : Jour : Hlth 15 (3) "

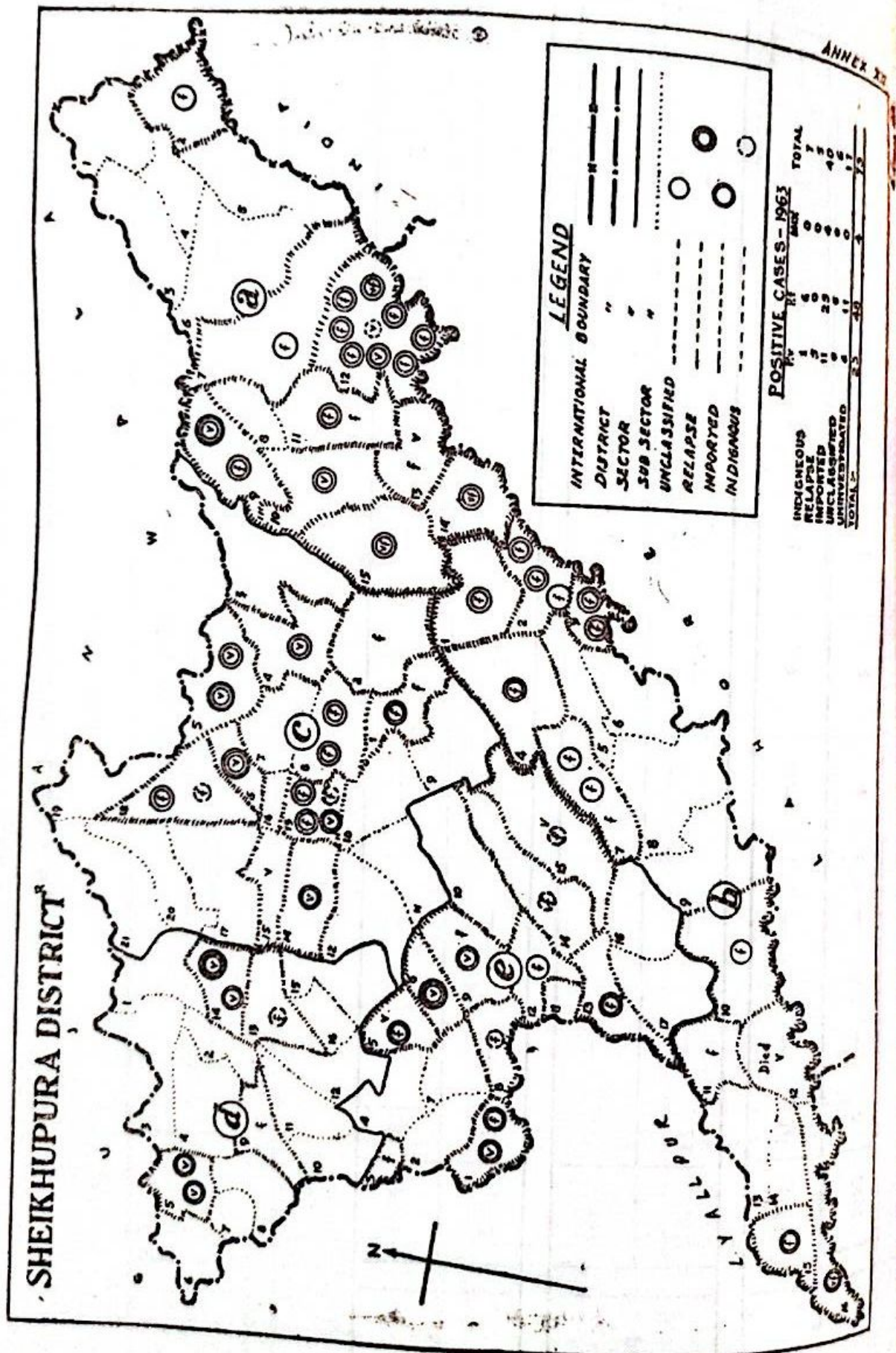
YEARLY RESULTS OF ANNUAL PARASITE INDEX
PER ZONE & SECTORS SHEIKHUPURA

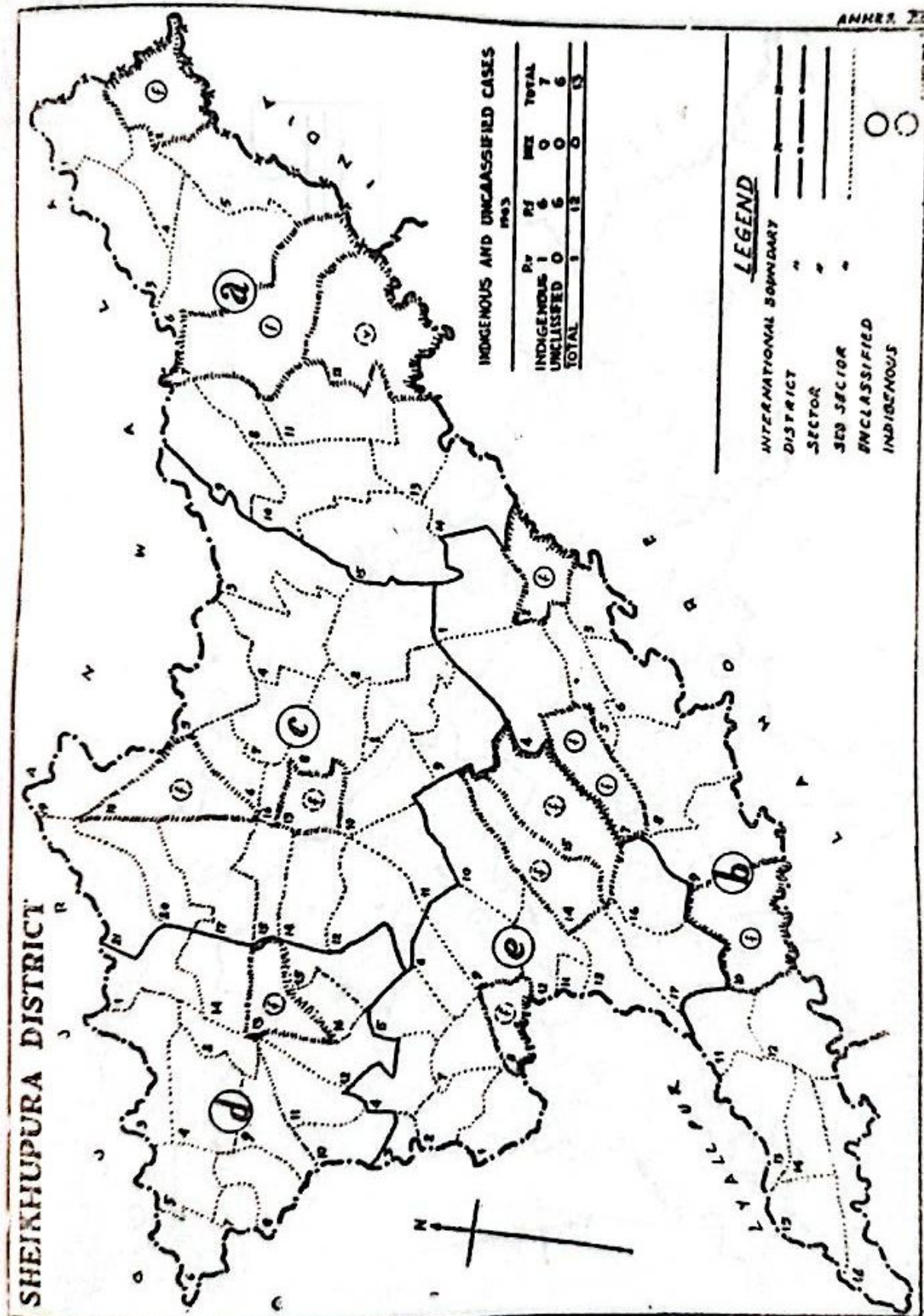
1963-1964.

Zone/ Sector	Year	NUMBERS OF SUB-SECTORS WITH A.P.I. %0									
		0.0	0.0-0.01	0.01-0.03	0.03-0.05	0.05-0.07	0.07-0.09	0.09-0.1	0.1-0.2	0.2-0.4	0.4-0.6
Total Zone	1963	43	—	—	1	8	13	2	13	4	1
	1964	37	—	—	—	23	7	5	2	5	—
a	1963	6	—	—	—	3	2	—	3	—	1
	1964	6	—	—	—	6	—	—	1	2	—
b	1963	6	—	—	—	1	6	—	1	2	—
	1964	8	—	—	—	2	4	1	1	—	—

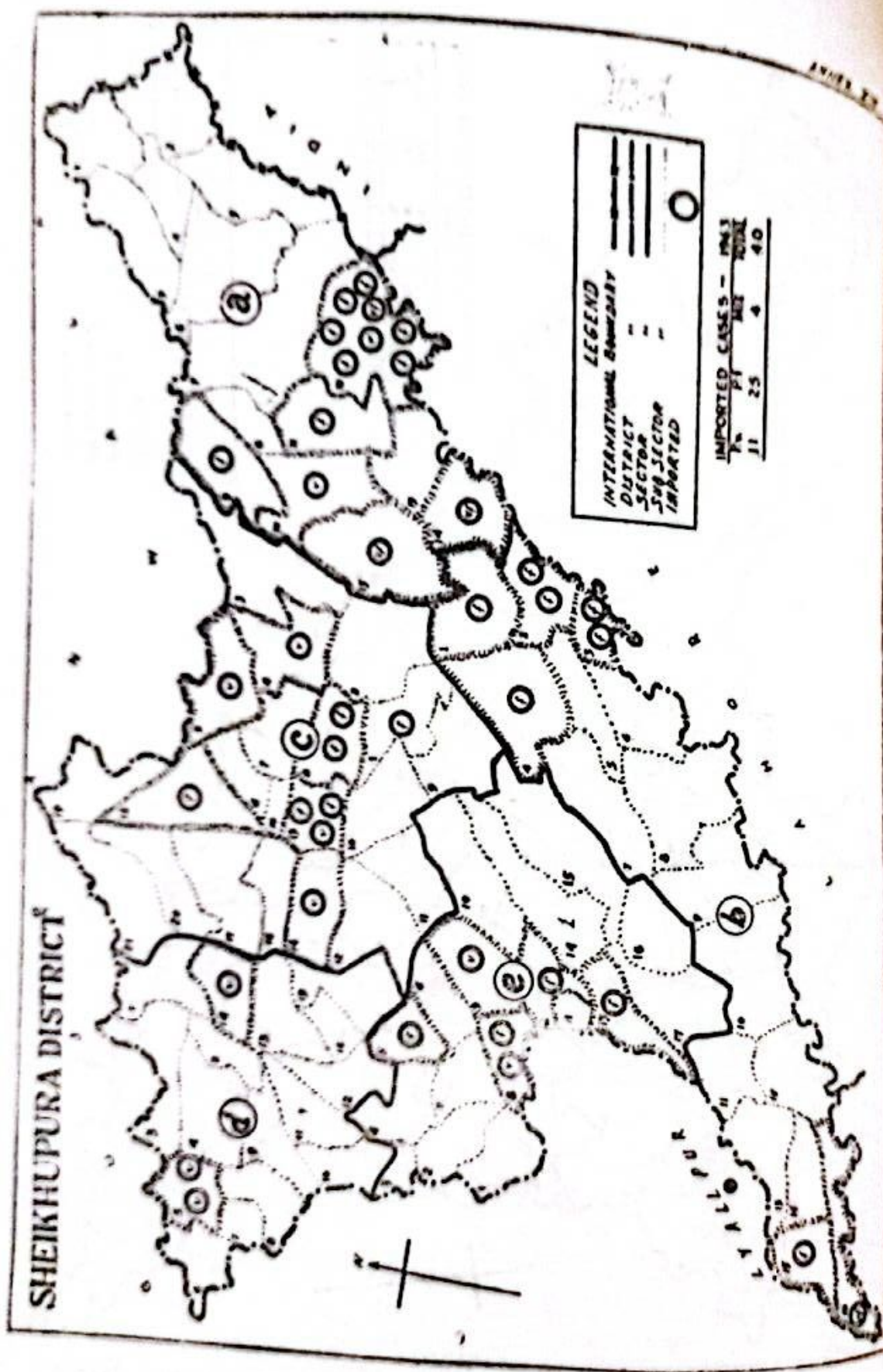
c	1963	12	—	—	1	2	2	1	2	1	—
	1964	10	—	—	—	6	1	2	1	1	—
d	1963	12	—	—	—	—	2	—	2	—	—
	1964	5	—	—	—	5	2	—	4	—	—
e	1963	7	—	—	—	2	1	1	5	1	—
	1964	8	—	—	—	4	—	2	1	2	—

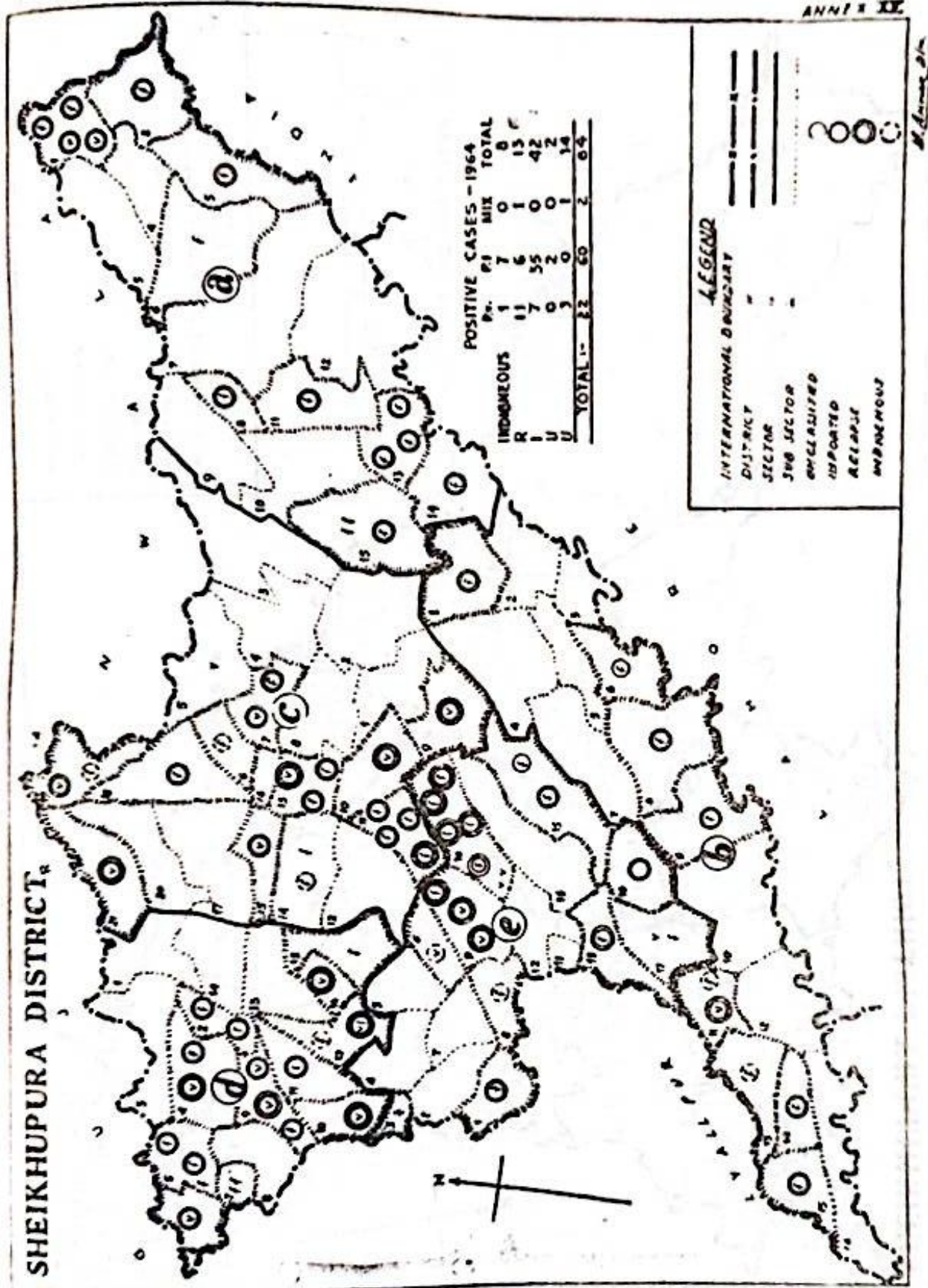
" Pak : Jour : Hlth : 15 (3) "



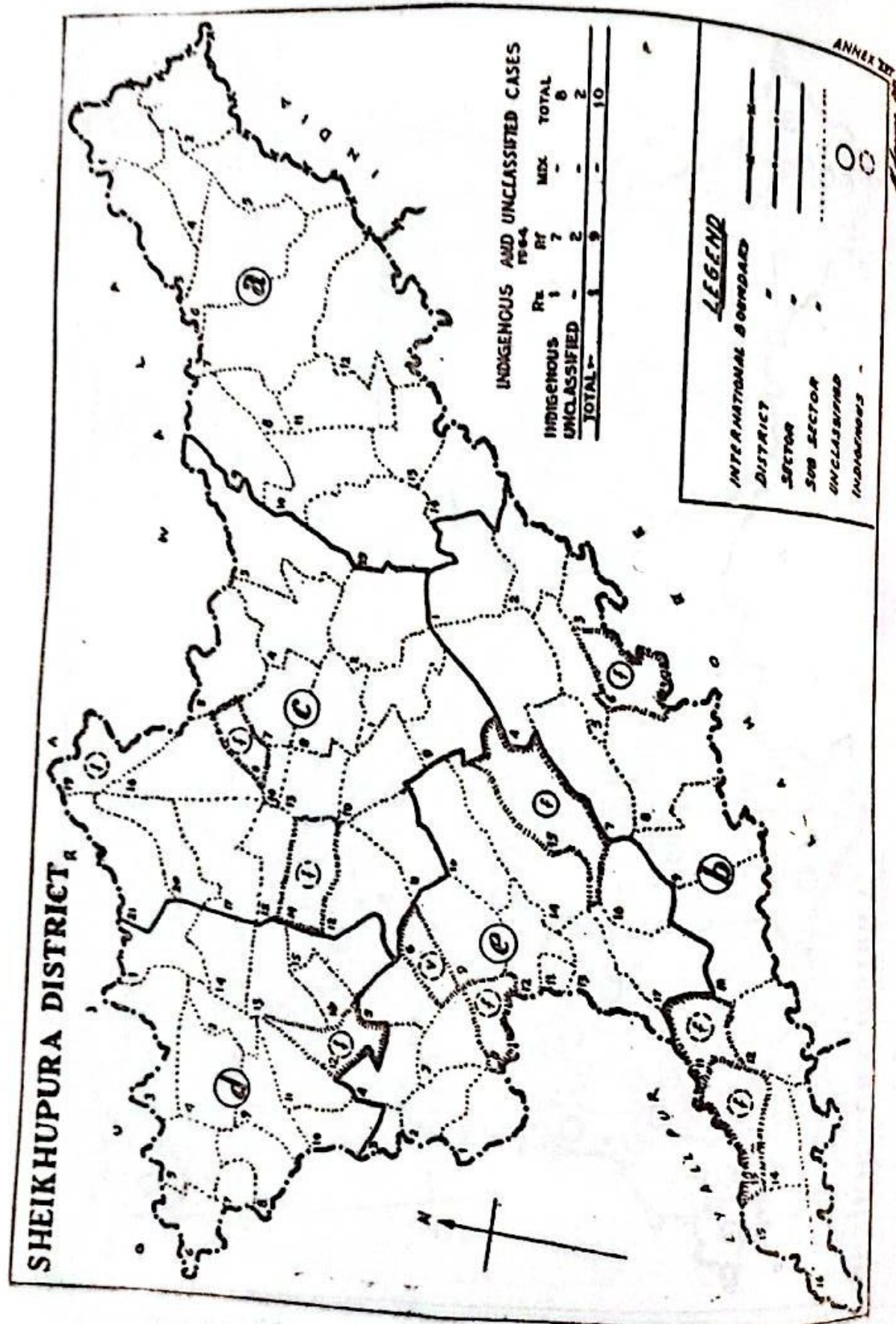


" Pak : Jour : Hlth 15 (3) "

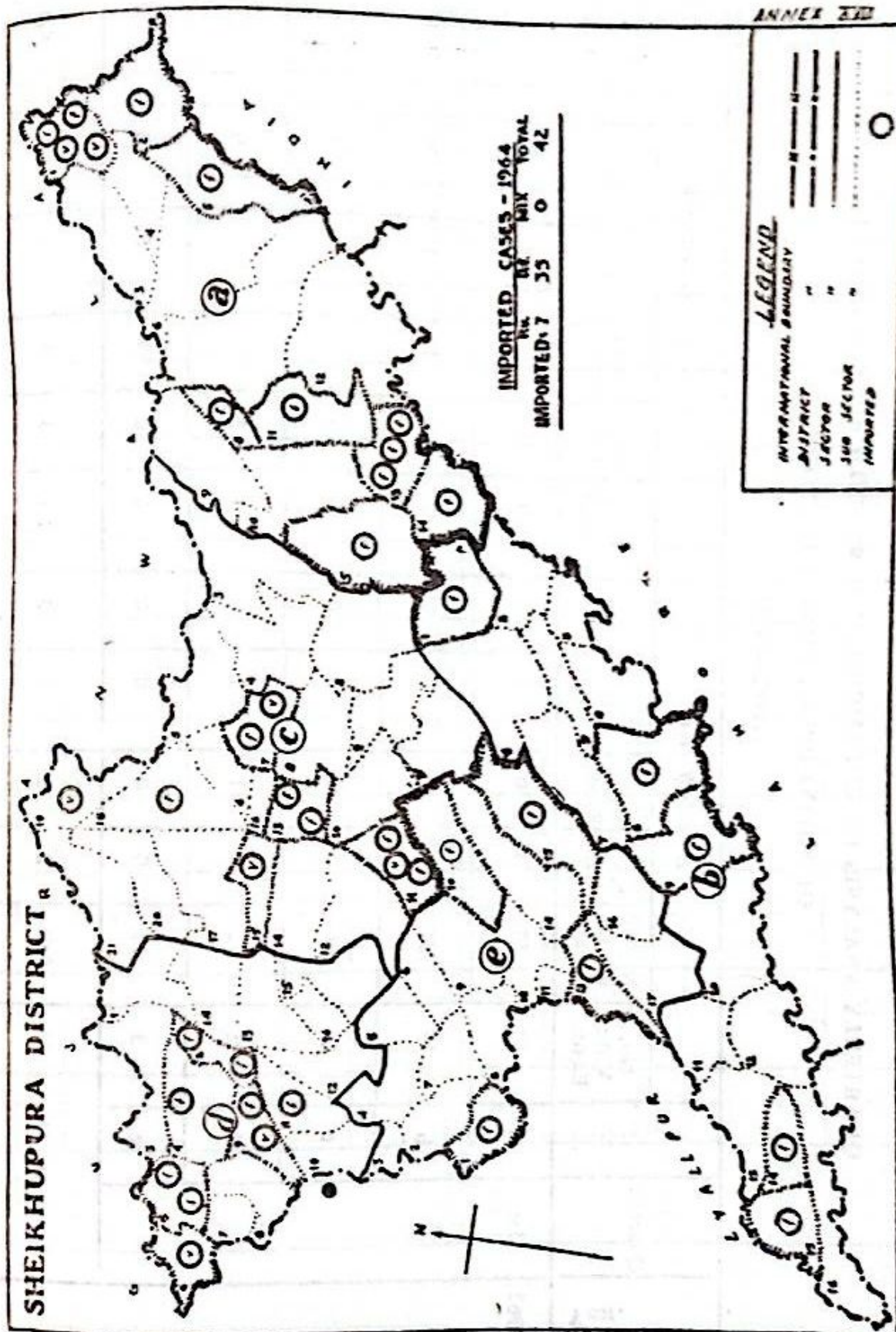




" Pak : Jour : Hlth 15 (3) "



ANNEX III



" Pak : Jour : Hlth : 15 (8) "

(ANNEX XVIII)
QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEY RESULTS
OF SHEIKHUPURA ZONE & SECTORS
(1962—1964)

Year.	Quarter.	Sector.	A. culicifacies.						A. stephensi.					
			No. Vill: Exam.	No. of Rooms Checked	No.+ Vill	No.+ Room.	F	M	Density /+room	No.+ Vill.	No.+ Room	F	M	Density /+room.
1962	1st	a	10	58	0	0	0	0	0	0	0	0	0	0
		b	15	84	1	1	2	0	2	1	1	1	9	10.0
		c	16	96	0	0	0	0	0	0	0	0	0	0
		d	2	12	1	1	1	0	1	2	2	2	0	1.0
		e	3	18	0	0	0	0	0	0	0	0	0	0
Total. 1st. Qr.			46	260	2	2	3	0	1.5	3	3	3	9	4.0

2nd	a	10	49	1	2	11	2	6.5	3	4	6	1	1.75
	b	4	24	1	1	1	0	1.0	0	0	0	1	0
	c	20	112	8	15	189	80	17.2	5	10	22	1	2.3
	d	5	30	3	5	6	2	1.6	2	3	4	0	1.3
	e	18	58	6	6	100	12	18.6	12	14	453	246	49.7
Total. 2nd. Qr.	57	273	19	29	297	96	13.5	22	31	585	248	23.6	
3rd.	a	30	173	10	10	17	11	2.8	13	30	66	23	2.96
	b	8	43	3	3	4	1	1.6	4	4	6	4	2.5
	c	32	189	7	7	23	0	3.2	6	15	54	4	3.8
	d	13	18	3	6	21	21	7.0	3	10	29	1	3.0
	e	12	66	4	5	8	3	2.2	4	12	126	77	16.9
Total. 3rd. Qr.	95	554	27	31	73	36	3.6	30	71	281	109	5.5	

1962—(contd)

Pak : Jour Hlth : 15 (c) "

(ANNEX XVIII)

QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEY RESULTS

OF SHEIKHUPURA ZONE & SECTORS

(1962-1964)

Year.	Quarter.	Sector.	<i>A. culicifacies.</i>						<i>A. stephensi.</i>				
			No. of rooms Checked	No. + Vill	No. + Room.	F	M	Density / + room	No. + Vill.	No. + Room	F	M	Density / + room.
1962—(concl.)	4th.	a	130	0	0	0	0	0	0	0	0	0	0
		b	117	1	1	3	0	3.0	2	7	15	7	3.1
		c	108	0	0	0	0	0	1	1	3	0	3.0
		d	91	2	8	48	21	8.6	2	2	6	0	3.0
		e	84	1	1	1	0	1.0	0	0	0	0	0
Total 4th Qr.			530	4	10	52	21	7.3	5	10	24	7	3.1

1963

* Pak : Jour : Hlth : 15 (3) "

(ANNEX XVIII)

QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEY RESULTS
OF SHEIKHUPURA ZONE & SECTORS

(1962-1964)—contd.

Year.	Quarter.	Sector.	A. culicifacies.						A. stephensi.					
			No. Vill : Exam.	No. of Rooms Checked	No. + Vill	No. + Room.	F	M	Density / + room	No. + Vill.	No. + Room	F	M	Density / + room.
1963	3rd.	a	19	110	6	7	7	1	1.1	1	1	0	1	1.0
		b	6	24	1	1	1	0	1.0	0	0	0	0	0
		c	61	347	0	0	0	0	0	0	0	0	0	0
		d	4	20	1	1	0	1	1.0	0	0	0	0	0
		e	4	31	2	2	1	2	1.5	0	0	0	0	0
Total. 3rd. Qr.			96	530	10	11	9	4	1.1	1	1	0	1	1.0

4th.	a	13	79	5	5	4	1	1.0	0	0	0	0	0
	b	10	57	2	2	2	0	1.0	0	0	0	0	0
	c	6	32	0	0	0	0	0	0	0	0	0	0
	d	6	33	1	1	1	0	1.0	0	0	0	0	0
	e	6	35	0	0	0	0	0	0	0	0	0	0
Total. 4th. Qr.		41	236	8	8	7	1	1.0	0	0	0	0	0
1st.	a	6	32	0	0	0	0	0	0	0	0	0	0
	b	7	42	0	0	0	0	0	0	0	0	0	0
	c	2	12	0	0	0	0	0	0	0	0	0	0
	d	4	24	0	0	0	0	0	0	0	0	0	0
	e	4	22	0	0	0	0	0	0	0	0	0	0
Total. 1st. Qr.		23	132	0	0	0	0	0.0	0	0	0	0	0

1963

1964

" Pak : Jour : Hlth : 15 (3) "

(ANNEX XVIII)

QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEY RESULTS
OF SHEIKHUPURA ZONE & SECTORS

(1962-196

1964-(contd.)

Year.	Quarter.	Sector.	<i>A. culicifacies.</i>						<i>A. stephensi.</i>					Density / + room.
			No. Vill : Exam.	No. of rooms Checked	No. + Vill	No. + Room.	F	M	Density / + room	No. + Vill.	No. + Room	F	M	
2nd.		a	24	136	0	0	0	0	0	2	3	2	1.6	
		b	12	66	0	0	0	0	0	0	0	0	0	
		c	2	7	0	0	0	0	0	1	1	0	1.0	
		d	3	15	0	0	0	0	0	0	0	0	0	
		e	12	63	0	0	0	0	0	1	1	2	2.9	
Total 2nd. Qr.			53	287	0	0	0	0	0.0	4	5	4	1	

1964-(contd.)

1964—(concl'd)

Pak : Jour : Hlth : 15 (8) "

3rd.	a	22	112	22	75	432	62	6.5	1	1	4	1	2.5
	b	9	53	5	6	20	4	4.0	1	1	2	0	2.0
	c	6	29	2	6	26	2	4.6	1	1	1	0	1.0
	d	6	33	1	1	0	1	1.0	0	0	0	0	0
	e	4	24	4	14	39	3	3.0	0	0	0	0	0
Total 3rd Qr.		47	251	34	102	518	72	5.9	3	4	7	1	2.0
4th.	a	13	65	6	16	40	2	2.6	0	0	0	0	0
	b	10	54	5	11	18	1	1.7	0	0	0	0	0
	c	6	27	3	5	7	0	1.4	0	0	0	0	0
	d	6	35	0	0	0	0	0	0	0	0	0	0
	e	8	44	3	3	3	0	1.0	0	0	0	0	0
Total 4th. Qr.		43	225	17	35	68	3	7.0	0	0	0	0	0

(ANNEX. XIX)

SHEIKHUPURA ZONE
FIXED STATIONS QUARTERLY ANALYSIS OF
ENTOMOLOGICAL RESULTS OF ZONE

YEAR & QUARTER	No. of Vill : Exam.	No. of Room Exam.	A. culicifacies					A. stephensi				
			No. + Vill	No. + Room	F	M	Density / + room	No. + Vill	No. + Room	F	M	Density / + room
1962												
1st.	80	480	6	20	84	15	4.9	7	13	15	11	2.0
2nd.	60	360	23	73	1215	324	18.3	31	95	482	90	6.0
3rd.	60	360	16	30	40	7	1.5	8	13	18	2	1.5
4th.	60	360	1	2	3	0	1.5	0	0	0	0	0

1963

1st.	61	366	1	1	1	0	1.0	2	2	6	0	3.0
2nd.	40	240	12	17	45	13	3.5	19	40	202	66	6.7
3rd.	60	360	1	2	3	1	2.0	0	0	0	0	0
4th.	60	360	0	0	0	0	0	0	0	0	0	0

1964

1st.	38	228	0	0	0	0	0	0	0	0	0	0
2nd.	28	174	2	2	0	0	1.0	5	9	11	3	1.5
3rd.	25	150	11	26	38	1	1.5	0	0	0	0	0
4th.	28	168	3	5	6	1	1.4	0	0	0	0	0

" Pak : Jour : Hlth : 15 (3) "

SHEIKHUPURA
SECTORS COMPARATIVE
1960 -

Code No.	EXISTING (LATEST 1964)			1961				1962	
				1st Round		2nd Round		1st Round	
				%sprayed Houses	DDT Dosage/m ²	%sprayed Houses	DDT Dosage/m ²	%sprayed Houses	DDT Dosage/m ²
Sector	Popula	Rooms	Houses						
a	212416	114116	60061	87.9		89.3		83.8	0.95
b	219584	126097	51558	94.1		87.4		93.8	0.99
c	293058	190807	72409	92.7		85.9		89.6	1.16
d	212949	141571	50771	95.8		93.2		92.8	1.32
e	245466	152496	59338	95.0		94.0		94.2	1.10
Tot. Zone	1183473	725087	294137	91.9	1.18	87.6	0.96	91.4	1.1

ZONE

SPRAYING & GR RESULTS

1964

		1963				1964			
2nd Round		1st Round		2nd Round		1st Round		2nd Round	
%sprayed Houses	DDT Dosage/m ²	%sprayed Houses	DDT Dosage/m ²	%sprayed Houses	DDT Dosage/m ²	%sprayed Houses	DDT Dosage/m ²	%sprayed Houses	DDT Dosage/m ²
85.3	0.87	88.2	1.08	96.1	0.92	97.5	0.89	97.7	0.99
95.3	0.96	96.3	0.92	97.8	0.87	99.1	0.96	99.2	0.89
92.8	1.07	91.3	1.06	97.1	0.96	97.5	0.95	98.2	0.99
95.8	1.07	96.3	1.16	97.4	1.12	99.1	1.09	99.5	1.11
93.5	1.13	95.0	1.13	97.8	1.08	98.8	1.03	99.6	1.02
92.6	1.08	93.2	1.04	96.01	0.99	98.9	0.97	99.17	1.01

Pak : Jour : Hlth : 15 (3) "

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960-

Code No.		Existing (Latest-1964)			1961				1962	
					1st. Round		2nd. Round		1st. Round	
S	SS	Pop.	Rooms	Houses	% Houses sprayed	D.D.T. Dosage m ²	% Houses sprayed	D.D.T. Dosage m ²	% Houses sprayed	D.D.T. Dosage m ²
a.	1	14992	9754	3517	75.2		81.2		90.8	1.12
	2	14813	10415	3750	83.1		96.2		94.4	1.13
	3	14010	8239	3221	89.9		90.7		89.3	0.84
	4	16086	9496	3723	93.9		95.3		85.1	0.91
	5	13815	7741	3351	89.3		90.9		99.3	0.68
	6	12760	7474	2830	78.3		91.0		90.2	0.94
	7	13428	7740	3062	95.2		93.0		94.7	1.07
	8	13454	8727	12324	79.4		77.6		98.9	0.90
	9	14150	8257	3444	72.5		88.7		81.6	0.90
	10	13850	7684	3480	89.7		84.8		35.9	1.06
	11	14739	8028	3500	96.2		94.9		88.3	0.96
	12	13434	7651	3283	95.9		96.9		95.7	1.06
	13	13488	7230	3357	80.7		—		—	—
	14	14311	7119	3500	89.8		82.6		55.4	0.77
	15	15026	8218	3719	89.8		86.5		73.3	1.09

ZONE

SPRAYING & G. R. RESULTS

1964

		1963				1964			
2nd Round.		1st. Round		2nd Round.		1st. Round		2nd Round	
% Houses sprayed	D. D. T. Dosage m ²	% Houses sprayed	D. D. T. Dosage m ²	% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed.	D. D. T. Dosage sprayed.	% Houses sprayed.	D.D.T. Dosage m ² .
93.6	1.09	98.2	1.02	98.5	1.16	99.2	1.07	99.7	1.13
96.4	0.89	96.9	8.98	97.3	1.07	97.7	1.07	98.1	1.16
94.8	0.79	94.8	1.11	96.9	0.98	96.7	0.97	97.6	0.95
88.3	0.89	91.6	1.12	92.9	0.83	98.6	0.94	94.8	0.04
97.9	0.80	96.7	1.00	95.9	0.93	98.5	0.88	97.8	1.05
89.0	1.08	78.9	1.00	96.6	1.12	95.5	0.90	97.4	1.04
97.0	0.94	93.3	1.00	97.9	1.11	98.9	0.96	97.9	1.09
74.0	0.74	81.5	1.20	93.5	0.71	96.3	0.95	98.5	1.08
79.2	0.80	81.5	1.31	94.7	0.79	98.1	0.77	97.5	1.06
59.1	0.79	91.0	1.15	95.97	0.97	97.7	0.92	97.7	0.85
91.2	0.81	74.8	1.00	96.6	0.86	95.3	0.74	96.9	0.94
95.9	0.98	98.2	1.12	98.5	0.86	97.8	0.60	98.0	0.87
—	—	82.3	1.00	94.3	0.73	96.3	0.93	96.9	0.87
58.2	0.78	80.8	1.25	97.2	0.76	98.3	0.78	98.1	0.82
79.9	0.83	82.3	1.01	94.3	0.91	97.9	0.86	98.4	0.87

" Pak : Jour : Hlth : 15 (3) "

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960—

Code No.		Esisting (Latest—1964			1961				1962	
					1st Round		2nd Round		1st Round	
S.	SS	Pop.	Rooms	Houses	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .
b.	1	14483	6267	2040	—	—	—	—	—	—
	2	16733	16733	15418	9.39	—	93.9	—	90.0	1.20
	3	15319	9935	3248	85.6	—	71.1	—	81.4	0.86
	4	14330	8127	4078	93.8	—	89.5	—	89.1	0.82
	5	14491	7773	3784	—	—	—	—	94.7	0.89
	6	13222	6619	3231	93.9	—	90.0	—	93.0	0.87
	7	13032	7722	3377	94.5	—	85.3	—	80.8	0.93
	8	13145	7187	3130	95.7	—	94.6	—	92.0	0.77
	9	11248	5929	2795	—	—	—	—	99.8	1.23
	10	12109	7038	3052	99.1	—	—	—	98.1	1.10
	11	12934	7271	3061	80.0	—	—	—	98.5	0.97
	12	14637	7915	3649	97.2	—	Record not available.	—	97.5	0.90
	13	13163	7232	1093	97.4	—		—	99.8	1.00
	14	14528	5216	3503	98.0	—		—	98.6	1.13
	15	127000	8221	3126	97.2	—		—	96.9	1.11
	16	13510	8127	3191	96.16	—		—	95.3	1.02

ZONE

SPRAYING & G. R. RESULTS

1964—(contd.)

		1963				1964			
2nd Round.		1st. Round.		2nd. Round.		1st. Round.		2nd. Round	
% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .
—	—	85.4	0.09	96.7	0.75	97.3	1.11	96.9	0.77
93.9	0.77	95.7	0.84	97.4	0.72	98.7	0.90	98.9	0.66
83.2	1.05	94.9	0.78	96.4	0.78	98.9	0.7	96.9	0.95
94.2	0.79	93.0	0.84	94.1	0.84	98.9	0.9	99.5	0.76
—	—	90.0	0.95	93.6	0.65	97.6	0.8	98.8	0.73
97.8	0.89	95.1	0.84	96.4	0.85	98.6	1.02	99.3	0.81
86.9	0.91	97.3	0.86	98.7	0.92	99.6	0.9	99.7	0.90
95.5	0.74	96.2	0.85	97.9	0.78	98.9	1.08	99.7	1.07
99.2	1.20	98.9	1.00	99.1	0.92	99.7	0.9	100.0	0.86
99.4	1.08	99.5	0.74	99.7	0.81	99.9	1.00	100.0	0.96
98.7	1.00	99.3	0.88	99.4	0.87	99.7	1.01	99.8	0.95
96.7	0.95	98.0	0.94	99.1	0.85	99.7	0.9	99.8	0.90
98.9	0.88	99.8	0.97	99.3	0.94	99.9	1.07	99.8	0.95
96.0	1.12	99.2	1.03	98.9	1.00	99.4	1.08	99.6	1.06
97.7	1.06	99.6	1.20	99.7	1.23	99.9	1.03	99.3	0.99
96.4	1.05	99.1	1.08	98.7	1.06	99.6	1.05	99.9	0.95

" Pak : Jour : Hlth 15 : (8) "

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960-

Code No.		Existing (Latest-1964)			1961				1962	
					1st. Round		2nd. Round		1st. Round	
S	SS	Pop.	Rooms	Houses	% Houses sprayed	D.D.T. Dosage m ² .	% Houses sprayed	D.D.T. Dosage m ² .	% Houses sprayed	D.D.T. Dosage m ² .
c.	1	12950	7646	2831	—	—	—	94.0	1.04	91.5
	2	14014	7981	3172	89.3	—	67.6	91.2	1.00	92.8
	3	15108	9316	3654	94.3	—	93.3	84.2	1.25	85.5
	4	14832	8742	3387	—	—	—	—	—	—
	5	15950	8863	3753	95.0	—	91.5	88.4	1.00	90.0
	6	14160	8720	3716	90.0	—	67.7	91.5	1.06	93.2
	7	14217	8227	3249	96.2	—	93.3	91.2	1.25	86.8
	8	14317	8157	3126	88.8	—	85.6	84.0	1.25	96.6
	9	8537	13327	3117	—	—	—	—	—	—
	10	15375	8177	3457	96.9	—	93.9	89.7	1.00	93.2
	11	14627	8659	3330	94.0	—	88.0	89.4	1.20	92.5
	12	13730	9116	3627	91.0	—	61.7	—	—	—
	13	13226	7570	3184	—	—	83.2	94.8	1.00	92.8
	14	13797	8284	3518	98.6	—	97.1	96.9	1.17	94.8
	15	15344	8837	3713	97.7	—	95.4	86.4	1.12	97.0
	16	14121	11174	3535	83.9	—	86.6	86.6	1.20	84.5

ZONE

SPRAYING & G. R. RESULTS

1964

		1963				1964			
2nd Round.		1st. Round		2nd Round.		1st. Round		2nd Round	
% Houses sprayed	D. D. T. Dosage m ²	% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed.	D. D. T. Dosage sprayed.	% Houses sprayed.	D.D.T. Dosage m ² .
91.5	1.04	95.6	0.82	97.8	0.89	98.4	0.93	97.9	0.90
92.8	1.18	93.1	1.04	98.8	0.86	98.4	0.88	98.4	0.96
85.5	1.15	92.3	0.90	97.1	0.90	98.0	1.00	99.3	1.08
—	—	94.8	0.96	97.6	1.08	97.7	0.92	99.2	0.98
90.0	1.02	97.7	0.90	96.7	0.89	98.7	0.90	98.3	0.97
93.2	1.14	89.7	1.06	96.4	0.97	93.3	0.88	98.5	0.94
86.8	0.91	92.3	1.04	97.5	1.06	98.4	0.92	98.7	0.96
96.6	0.93	89.1	1.01	97.2	0.93	97.3	0.92	98.3	0.97
—	—	93.4	1.09	97.7	1.00	96.6	1.03	98.6	1.03
93.2	0.86	94.3	0.99	98.9	0.80	95.8	0.86	99.4	0.89
92.5	1.88	90.0	1.03	97.1	0.82	97.5	0.87	98.6	0.93
—	—	90.3	1.07	98.0	0.98	97.5	1.00	99.5	1.09
92.8	1.02	93.0	1.19	96.5	0.86	97.2	0.90	97.9	0.96
94.8	1.06	95.7	1.26	97.5	1.03	97.2	0.98	97.2	1.02
97.0	1.16	95.4	0.84	97.6	0.94	98.3	0.86	99.0	0.95
84.5	1.29	92.3	1.02	96.7	1.04	94.2	1.12	95.5	1.07

* Pak : Jour : Hlth 15 : (3) "

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960—

Code No.		Esisting (Latest-1964)			1961				1962	
					1st. Round		2nd. Round		1st. Round	
S	SS	Pop.	Rooms	Houses	% Houses sprayed	D.D.T Dosage m ² .	% Houses sprayed	D.D.T. Dosage m ² .	% Houses sprayed	D.D.T. Dosage m ² .
	17	15197	8787	3535	—	—	—	—	95.5	1.29
	18	15153	10796	3868	94.2	—	90.7	—	90.5	1.09
	19	14044	9015	3666	—	—	—	—	83.2	1.23
	20	13489	9837	3477	83.2	—	92.5	—	80.5	1.63
	21	10870	9571	3494	84.8	—	—	—	85.2	1.20
d.	1	13962	9993	3437	—	—	—	—	92.0	1.35
	2	13306	8415	3284	—	—	—	—	—	—
	3	13174	8796	3163	—	—	—	—	—	—
	4	12782	9057	3100	—	—	—	—	98.8	1.49
	5	14507	9959	3413	94.0	—	98.7	—	96.0	1.59
	6	13923	8283	3156	95.3	—	—	—	96.0	1.17
	7	14588	8722	2954	93.5	—	—	—	47.6	1.17
	8	13618	9205	3085	—	—	87.2	—	97.6	1.34
	9	13787	9659	3420	—	—	—	—	—	—
	10	11320	7969	2880	97.2	—	—	—	98.6	1.21

ZONE

SPRAYING & G. R. RESULTS

1964—(contd.)

		1963				1964			
2nd Round.		1st. Round.		2nd. Round.		1st. Round.		2nd. Round.	
% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .
96.8	1.11	96.9	1.05	96.3	0.95	97.5	0.96	98.2	0.95
95.8	1.01	92.4	0.82	96.7	0.94	98.1	1.05	96.8	1.13
94.8	0.92	82.1	1.11	97.5	1.08	98.9	1.06	97.8	1.05
95.4	1.20	97.4	1.48	94.6	1.03	97.9	0.98	98.1	1.02
99.0	1.07	77.7	1.59	94.9	1.14	94.9	0.98	97.5	1.10
84.3	1.04	89.7	1.36	96.9	1.32	99.7	1.09	99.9	1.00
—	—	96.0	1.24	96.7	1.09	99.9	1.01	99.6	1.02
—	—	93.1	0.93	98.3	1.05	99.3	1.01	99.5	1.05
98.9	0.95	98.8	1.26	99.0	1.14	99.9	1.12	99.7	1.09
97.7	0.94	95.7	1.25	97.3	1.27	96.9	1.16	99.2	1.09
96.7	1.20	96.3	1.29	96.9	0.97	100.0	1.19	99.8	1.08
93.6	1.01	90.4	1.07	92.3	1.03	98.7	1.08	99.0	0.89
96.1	0.98	98.4	1.00	98.1	1.18	98.7	1.11	99.3	1.18
—	—	99.6	0.9	99.8	0.90	98.8	0.99	99.6	1.20
98.1	1.21	98.3	1.14	98.9	1.27	99.2	1.21	99.8	1.24

" Pak : Jour : Hlth ' 15 (3) "

SHEIKHUPURA
SUB-SECTORS COMPARATIVE

1960-1

		1960			1961				1962	
Code No.		Existing (Latest—1964			1st Round		2nd Round		1st Round	
S.	S-S	Pop.	Rooms	Houses	% Houses sprayed	D.D.T. Dosage m ² .	% Houses sprayed	D.D.T. Dosage m ² .	% Houses sprayed	D.D.T. Dosage m ² .
	11	16499	10992	3497	96.6	—	—	—	—	—
	12	13570	8537	3246	95.1	—	92.1	—	96.4	1.02
	13	10824	7618	2755	—	—	—	—	98.7	1.54
	14	11381	6623	2786	96.0	—	95.0	—	93.2	1.23
	15	14274	8517	3425	99.1	—	—	—	98.0	1.47
	16	11434	8525	3134	—	—	—	—	98.7	1.26
e.	1	14827	8285	3463	97.2	—	97.2	—	98.5	0.99
	2	14343	9365	3366	95.8	—	94.4	—	97.9	0.87
	3	14519	9333	3365	90.4	—	97.8	—	91.9	0.98
	4	11657	7518	2793	93.9	—	89.1	—	99.9	1.63
	5	13780	8604	3250	97.4	—	86.0	—	98.1	1.16
	6	9168	5708	2271	96.2	—	96.3	—	95.2	1.38
	7	13871	8426	3230	97.2	—	93.0	—	95.0	1.08
	8	14691	8632	3491	97.2	—	91.6	—	92.9	1.16
	9	10255	6416	2697	93.0	—	87.6	—	92.6	1.40

ZONE

SPRAYING & G. R. RESULTS

1964—(contd.)

		1963				1954			
2nd Round.		1st. Round.		2nd. Round.		1st. Round.		2nd. Round	
% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .
—	—	97.3	1.19	96.7	1.11	99.8	1.01	99.8	1.15
83.3	1.04	98.4	1.05	98.4	1.05	99.6	1.05	99.8	1.07
98.5	1.48	98.0	10.9	97.9	1.42	98.7	1.26	99.5	1.24
95.3	1.20	97.0	1.10	96.9	0.98	98.9	0.95	90.5	0.98
97.9	1.25	97.8	1.41	97.4	0.88	98.7	1.07	99.5	1.23
97.6	128.	97.4	1.32	97.3	1.27	98.9	1.17	99.4	1.33
99.0	0.96	98.5	1.11	97.9	1.10	99.8	1.13	99.9	1.07
98.6	1.34	97.8	1.63	97.5	1.19	99.3	1.11	99.8	1.13
90.8	1.12	91.7	1.01	99.7	1.14	99.2	1.04	99.2	0.98
99.0	1.29	97.0	1.24	96.4	1.47	98.3	1.30	100.0	1.21
98.3	1.15	97.5	1.10	99.5	1.04	99.8	0.90	100.0	0.74
98.8	1.29	99.1	1.05	99.7	1.06	100.0	1.02	100.0	1.07
83.7	1.11	98.4	1.18	99.7	1.14	98.3	1.08	99.6	1.14
99.1	1.12	93.0	1.16	98.6	1.05	99.4	0.89	99.8	1.07
87.4	1.22	88.3	1.16	98.9	1.05	98.8	1.03	99.8	0.99

" Pak : Jour : Hlth - 15 (3) "

SHEIKHUPURA

SUB-SECTORS COMPARATIVE

1960-

					1961				1962	
Code No.		Existing (Latest-1964)			1st Round		2nd Round		1st Round	
S.	SS	Pop.	Rooms	Houses	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .	% Houses sprayed	D. D. T. Dosage m ² .
	10	18547	12222	4496	93.7	—	95.4	—	91.0	1.07
	11	11350	6978	2854	90.8	—	93.5	—	80.6	1.29
	12	20899	15721	4750	96.9	—	96.7	—	98.2	1.03
	13	14119	8087	3368	91.0	—	98.0	—	93.0	1.12
	4	18267	11124	4543	25.8	—	94.9	—	87.6	0.89
	15	14585	8584	2516	98.4	—	98.2	—	96.9	1.15
	16	17144	9780	4301	—	—	—	—	93.0	0.73
	17	13524	7703	3674	94.8	—	—	—	99.8	0.86

ZONE

SPRAYING & G. R. RESULTS

1964—(concl.d.)

		1963				1964			
2nd Round.		1st. Round		2nd Round.		1st. Round		2nd Round	
% Houses sprayed	D. D. T. Dosage m ²	% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed.	D. D. T. Dosage m ² .	% Houses sprayed.	D. D. T. Dosage sprayed.	% Houses sprayed.	D. D. T. Dosage m ² .
90.1	1.17	91.7	1.09	94.9	1.08	97.7	1.05	99.3	1.11
87.0	1.12	97.5	1.08	98.6	0.94	99.6	0.95	100.0	0.99
97.9	0.96	98.1	1.10	99.4	0.93	98.5	0.99	99.2	1.00
89.4	1.08	87.2	1.08	93.8	1.08	97.7	0.90	99.4	0.75
86.4	1.08	94.7	1.08	97.7	1.08	98.8	1.06	99.3	1.10
96.5	1.12	95.1	1.01	96.9	1.06	99.1	1.00	99.2	0.94
90.0	1.09	91.9	1.03	97.5	0.92	97.9	1.00	1.04	99.4
98.7	1.09	97.7	—	97.4	1.09	98.2	1.04	99.7	1.04

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
MONTHLY MALARIOMETRIC
(1960—

Year.	Month.	SPLEEN				INFANT				TOTAL
		No. Exam.		+	SR.	No. Exam.		+	IPR.	No.
		Vill.	Inh.			Vill.	Inh.			Vill.
1960	Jan.	—	—	—	—	—	—	—	—	—
	Feb.	—	—	—	—	—	—	—	—	—
	Mar.	—	—	—	—	—	—	—	—	—
	Apr.	—	—	—	—	—	—	—	—	—
	May.	—	—	—	—	—	—	—	—	—
	Jun.	16	655	232	35.4	6	14	3	21.4	13
	Tot. 2nd Qr.	16	655	232	35.4	6	14	3	21.4	13
	Jul.	2	83	62	74.7	1	7	1	14.2	2
	Aug.	—	—	—	—	—	—	—	—	—
	Sep.	—	—	—	—	4	35	7	20.0	8
	Tot. 3rd. Qr.	2	83	62	74.7	5	42	8	19.0	10

ZONE

RECORD

1962)-(contd)

EXAMINED (Including Infants).

Exam.	V.	M.	F.	M I X.	Tot.	PR.	Gam.	
Inh.							+	G. R.
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	1	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
424	104	0	24	7	121	28.5	79	18.9
424	104	0	24	7	121	28.5	79	18.6
134	52	0	5	2	55	41.0	50	37.3
—	—	—	—	—	—	—	—	—
209	13	0	33	1	45	21.5	38	18.1
343	65	0	38	3	100	29.1	88	25.6

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
MONTHLY MALARIOMETRIC
(1960—

Year.	Month.	SPLEEN				INFANT				(1960 -	
		No. Exam.		+	SR.	No. Exam.		+	IPR.	TOTAL	
		Vill.	Inh.			Vill.	Inh.			No.	
										Vill.	
1960	Oct.	1	39	16	41.0	53	230	41	17.8	146	
	Nov.	—	—	—	—	8	16	3	18.7	67	
	Dec.	—	—	—	—	12	82	7	8.5	13	
	Tot. 4th. Qr.	1	39	16	41.0	73	328	51	15.5	226	
TOTAL YEAR.		19	777	310	39.9	84	384	62	16.1	249	
1961	Jan.	26	700	297	42.4	20	139	3	2.5	46	
	Feb.	12	481	123	45.5	1	5	1	20.0	12	
	Mar.	—	—	—	—	—	—	—	—	—	
	Tot. 1st Qr.	38	1181	420	35.5	21	144	4	2.7	58	
	Apr.	—	—	—	—	—	—	—	—	—	
	May.	—	—	—	—	—	—	—	—	—	
	Jun.	18	741	133	17.9	1	5	0	0.0	18	
Tot. 2nd Qr.		18	741	133	17.9	1	5	0	0.0	18	

ZONE

RECORD

1962—contd.)

EXAMINED (Including Infants).

Exam.	V.	M.	F.	M I X.	Tot.	PR.	Gam.	
Inh.							+	G. R.
3195	412	0	420	24	808	25.2	682	21.3
1336	303	0	162	15	450	33.6	395	29.5
118	6	0	6	0	12	10.9	9	7.6
4649	721	0	588	29	1270	27.3	1086	23.3
5416	890	0	650	49	1491	27.5	1253	23.1
862	97	0	87	5	197	20.7	143	16.5
486	28	0	35	0	63	12.9	49	10.0
—	—	—	—	—	—	—	—	—
1348	125	0	122	5	242	17.9	192	14.2
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
746	73	0	21	3	91	12.1	48	6.4
746	73	0	21	3	91	12.1	48	6.4

Pak : Jour : Hlth : 15 (3) "

SIALKOT
MONTHLY MALARIOMETRIC
(1960—

(1960—										
Year.	Month.	SPLEEN				INFANT				TOTAL
		No. Exam.		+	SR.	No. Exam.		+	IPR.	No.
		Vill.	Inh.			Vill.	Inh.			Vill.
1961	Jul.	3	133	26	19.1	—	—	—	—	3
	Aug.	—	—	—	—	—	—	—	—	—
	Sep.	—	—	—	—	—	—	—	—	—
	Tot. 3rd Qr.	3	133	26	19.1	—	—	—	—	3
	Oct.	—	—	—	—	—	—	—	—	38
	Nov.	—	—	—	—	—	—	—	—	—
	Dec.	33	1249	715	57.2	23	91	1	1.1	41
	Tot. 4th Qr.	33	1249	715	57.2	23	91	1	1.1	79
YEAR TOTAL :		92	3304	1294	39.1	45	240	5	2.0	158
1962	Jan.	23	1417	546	38.5	38	217	1	0.4	56
	Feb.	22	1023	153	14.9	40	286	0	0.0	61
	Mar.	26	934	280	29.0	33	168	0	0.0	72
	Tot. 1st Qr.	71	3374	979	29.0	111	671	1	0.1	189

ZONE
RECORD

1962)-(contd).

EXAMINED (Including Infants).

Exam. Inh.	V.	M.	F.	M I X.	Tot.	PR.	Gam.	
							+	G. R.
133	4	0	3	0	7	5.2	6	4.5
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
133	4	0	3	0	7	5.2	6	4.5
1337	14	0	23	0	37	2.7	23	1.7
—	—	—	—	—	—	—	—	—
1642	23	0	60	0	83	5.0	29	1.7
2979	37	0	83	0	120	4.0	52	1.7
5206	239	0	229	8	460	8.8	298	5.7
2622	23	0	67	0	90	3.4	35	1.3
2494	5	0	12	0	17	0.6	14	0.5
3012	0	0	8	0	8	0.2	8	0.2
8128	28	0	87	0	115	1.4	57	0.7

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
MONTHLY MALARIOMETRIC
(1960—

Year	Month.	SPLEEN				INFANT				(1960—	TOTAL
		No. Exam.		+	SR.	No. Exam.		+	IPR.	No.	
		Vill.	Inh.			Vill.	Inh.				
											Vill.
1962	Apr.	20	596	112	16.1	53	233	0	0.0	72	
	May.	22	852	187	21.9	37	328	0	0.0	54	
	Jun.	—	—	—	—	35	233	1	0.4	47	
	Tot. 2nd Qr.	42	1448	299	20.6	125	794	1	0.1	173	
	Jul.	4	272	46	16.9	26	132	3	2.2	40	
	Aug.	13	806	111	13.7	23	100	1	0.9	42	
	Sep.	—	—	—	—	36	136	0	0.0	52	
	Tot. 3rd Qr.	17	1078	157	14.5	85	376	4	1.0	134	
	Oct.	—	—	—	—	4	74	2	2.8	32	
	Nov.	—	—	—	—	380	2380	1	0.03	1084	
	Dec.	—	—	—	—	174	1069	2	0.2	681	
	Tot. 4th Qr.	—	—	—	—	575	3525	5	0.14	1797	
	YEAR TOTAL :		130	6000	1435	23.9	896	5364	11	0.2	2293

— S. R. = Spleen Rate %.
 — I. P. R. = Infant Parasite Rate %.
 — P. R. = Parasite Rate %.
 — G. R. = Gametocyte Rate %.

ZONE
RECORD
1962 - conold.)

EXAMINED Including Infants).

Exam.	V.	M.	F.	M I X.	Tot.	PR.	Gam.	
Inh.							+	G. R.
2422	0	0	4	0	4	0.1	2	1.08
1878	0	0	9	0	9	0.4	7	0.3
2142	23	0	22	0	45	2.1	23	1.1
6442	23	0	35	0	58	0.9	32	0.5
2067	31	0	20	0	51	2.4	22	1.0
2173	14	0	5	0	19	0.8	13	0.6
1926	11	0	3	0	14	0.7	2	0.1
6160	56	0	28	0	84	1.3	37	0.6
852	6	0	2	0	8	0.9	0	0.0
15630	20	0	31	0	51	0.3	22	0.1
4078	7	0	9	0	16	0.4	8	0.2
20560	33	0	42	0	75	0.3	30	0.14
49210	140	0	192	0	332	0.8	156	0.3

- v = P. vivax
- m = P. malariae
- f = P. falciparum
- Mixed are to be deleted from the total of P v, P m & P f. to obtain totals.

" Pak : Jour : Hlth : 15 (3) "

(ANNEX. XXIII)

SIALKOT ZONE
MONTHLY MALARIOMETRIC RECORD

(1963—1964)

		INFANT.				TOTAL EXAMINED (Including Infants).						
Year.	Month.	No. Exam.		++	No. Exam.	V	M	F	M i x.	Tot.	B. E. R. %	P. I. % 100
		Vill.	INH.		Vill.							
1963	Jan.	87	510	1	305	6	0	7	0	13	0.1	0.008
	Feb.	2	5	0	23	3	0	12	0	15	0.04	0.009
	Mar.	64	308	0	211	6	0	4	0	10	0.19	0.006
	Tot. 1st Qr.	153	823	1	539	15	0	23	0	38	0.3	0.02
	Apr.	44	180	0	167	1	0	4	0	5	0.16	0.003
	May	16	71	0	54	7	0	3	0	10	0.13	0.006
	Jun.	34	146	0	122	4	0	9	0	13	0.18	0.008
	Tot. 2nd Qr.	94	397	0	176	12	0	16	0	28	0.47	0.017

Jul.	48	157	0	176	3167	0	0	1	0	1	0.19	0.0006
Aug.	43	131	0	190	3970	5	0	5	0	10	0.24	0.006
Sep.	35	149	0	232	4371	7	0	4	0	11	0.26	0.006
Tot. 3rd Qr.	126	437	0	598	11508	12	0	10	0	22	0.70	0.013
Oct.	95	130	0	1388	7731	37	0	3	0	40	0.47	0.024
Nov.	85	175	0	1406	5336	15	0	4	0	19	0.32	0.011
Dec.	69	83	0	1029	3545	5	0	5	0	10	0.21	0.006
Tot. 4th Qr.	249	388	0	3823	16612	57	0	12	0	69	1.01	0.042
TOTAL YEAR :—	622	2045	1	5304	41470	96	0	61	0	157	2.5	0.09
1964 Jan.	41	58	0	1187	4059	5	0	3	0	8	0.24	0.004
Feb.	92	114	0	1173	3901	2	0	3	0	5	0.23	0.003
Mar.	138	192	0	926	4496	9	0	2	0	11	0.27	0.006
Tot. 1st Qr.	271	364	0	3286	12456	16	0	8	0	24	0.75	0.014

* Pak : Jour : Hlth : 15 (8) "

(ANNEX. XXIII)

SIALKOT ZONE
MONTHLY MALARIOMETRIC RECORD
 (1963-1964)-(concl'd.)

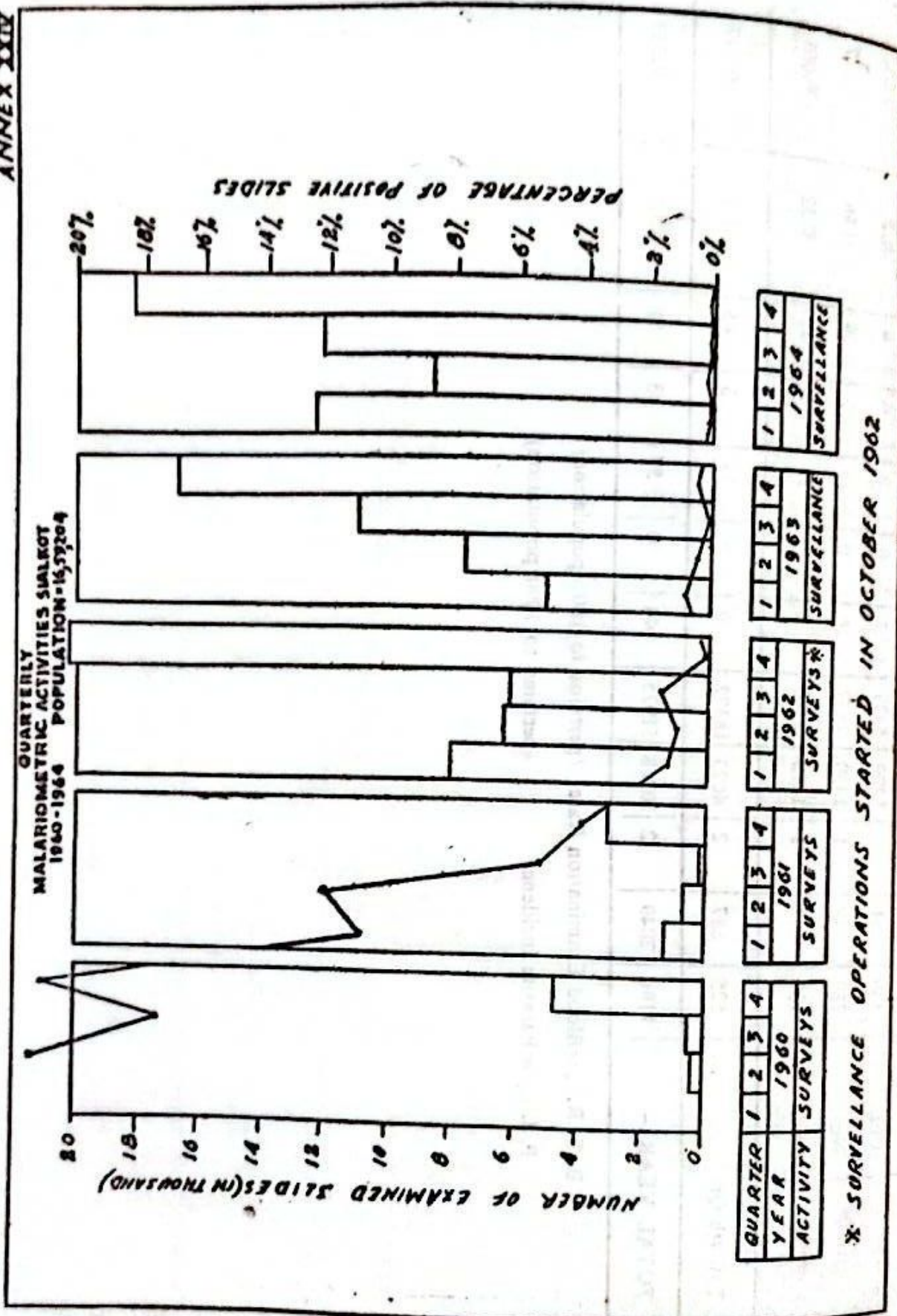
		INFANT.				TOTAL EXAMINED (Including Infants.							
Year.	Month.	No. Exam.		++	No. Exam.		V	M	F	M i x.	Tot.	B. E. R. %	P. I. %/es.
		Vill.	INH.		Vill.	INH.							
	Apr.	113	255	0	707	4527	6	0	2	0	8	0.27	0.004
	May	36	73	0	251	2127	3	0	2	0	5	0.13	0.003
	Jun.	32	48	0	296	2218	2	0	4	0	6	0.13	0.003
Tot. 2nd Qr. ...		181	376	0	1254	8872	11	0	8	0	19	0.54	0.011
	Jul.	24	49	0	382	1864	2	0	0	0	2	0.11	0.001
	Aug.	40	117	0	316	3772	3	0	0	0	3	0.22	0.001
	Sep.	145	256	0	1007	6639	3	0	2	0	5	0.40	0.003
Tot. 3rd Qr. ...		209	422	0	1705	12275	8	0	2	0	10	0.74	0.006

	Oct.	159	251	0	1200	5427	1	0	3	0	4	0.3	0.002
	Nov.	230	449	1	1450	7657	6	0	25	2	29	0.46	0.017
	Dec.	136	187	1	1373	5288	2	0	11	1	12	0.32	0.008
Tot. 4th Qr.	...	525	887	2	4023	18372	9	0	39	3	45	1.1	0.027
TOTAL YEAR:—		1186	2049	2	10268	51975	44	0	57	3	98	3.1	0.059

B. E. R. % = Blood Examination Rate (pertains to 100 population)

P. I. % = Parasite Incidence (pertains to 1000 population)

ANNEX XIV



EXPLANATIONS TO ANNEXES

ANNEX XXIV

BASIC FACTS.

Starting Date of Zone.	March, 1961.
General Survey.	February-March 1961.
Sketch Mapping.	April-May 1961.
Numbering Houses.	January-March 1962.
First Starting of Spraying.	June 1962 (spraying two cycles June : Aug Sep : 1 Gm/m ² per cycle).
Base line Malariometric investigation.	January 1960.
Base line Entomological investigation.	March, 1960.
Epidemiological Assessment :—	
Malariometric.	July. 1961.
Entomological.	July. 1961.
Start of Surveillance Operation.	November, 1962.
Method of surveillance :—	November-April.
1st Year.	November-April.
2nd Year.	(i) November-April.
3rd Year.	(ii) During May-Oct. case detection with spraying.
Vectors.	{ A. Culifacies A. Stephensi.
Transmission Period,	August-November.

" Pak : Jour : Hlth : 15 (3) "

SIALKOT ZONE & SECTORS COMPARATIVE MALARIOMETRIC RESULTS

1960 - 1964

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(a)	ABER %	0.017	0.71	3.1	ABER %	2.8	3.6
	P. R. %	6.8	8.2	0.9	A. P. I. ‰	0.109	0.029
	I. P. R. %	0.0	0.0	0.0	I. P. R. %	0.0	0.0
	V. R. %	6.8	5.6	0.48	A. V. I. ‰	0.05	0.017
	F. R. %	0.0	2.8	0.45	A. F. I. ‰	0.047	0.011
(b)	ABER %	0.2	0.6	3.4	ABER %	2.6	3.0
	P. R. %	19.4	5.2	0.4	A. P. I. ‰	0.07	0.05
	I. P. R. %	10.0	0.0	0.5	I. P. R. %	0.2	0.4
	V. R. %	17.1	2.5	0.17	A. V. I. ‰	0.05	0.015
	F. R. %	2.4	2.6	0.24	A. F. I. ‰	0.02	0.03

(ANNEX XXV) - (contd)

**SIALKOT ZONE & SECTORS COMPARATIVE
MALARIOMETRIC RESULTS**

1960 - 1964

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(c)	ABER %	0.09	0.2	2.9	ABER %	2.4	2.6
	P. R. %	37.0	8.9	1.0	A. P. I. ‰	0.08	0.08
	I. P. R. %	0.0	15.3	0.1	I. P. R. %	0.0	0.0
	V. R. %	32.2	3.3	0.7	A. V. I. ‰	0.07	0.03
	F. R. %	6.3	5.5	0.3	A. F. I. ‰	0.01	0.05
(d)	ABER %	0.3	0.1	1.9	ABER %	2.7	4.1
	P. R. %	27.0	22.2	1.8	A. P. I. ‰	0.25	0.09
	I. P. R. %	26.4	0.0	0.9	I. P. R. %	0.0	0.0
	V. R. %	14.5	13.8	0.5	A. V. I. ‰	0.16	0.04
	F. R. %	14.0	8.4	1.2	A. F. I. ‰	0.09	0.05

Pak : Jour : Hlth : 15 (3) "

**SIALKOT ZONE & SECTORS COMPARATIVE
MALARIOMETRIC RESULTS
1960—1964**

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(e)	ABER %	0.5	0.7	2.9	ABER %	2.3	2.8
	P. R. %	39.3	11.6	1.1	A. P. I. ‰	0.05	0.04
	I. P. R. %	36.7	1.4	0.1	I. P. R. %	0.0	0.0
	V. R. %	26.2	5.1	0.3	A. V. I. ‰	0.03	0.02
	F. R. %	14.7	6.7	0.78	A. F. I. ‰	0.02	0.02
(f)	ABER %	0.47	0.004	1.6	ABER %	2.1	3.1
	P. R. %	31.4	3.2	0.4	A. P. I. ‰	0.06	0.06
	I. P. R. %	10.8	3.2	0.0	I. P. R. %	0.0	0.0
	V. R. %	15.1	3.2	0.1	A. V. I. %	0.03	0.02
	F. R. %	17.2	0.0	0.28	A. F. I. %	0.03	0.04

**SIALKOT ZONE & SECTORS COMPARATIVE
MALARIOMETRIC RESULTS**

1960—1964

SECTOR.	YEAR.	1960	1961	1962	YEAR	1963	1964
(g)	ABER %	0.5	0.1	1.7	ABER %	2.6	2.8
	P. R. %	16.2	2.5	0.3	A. P. I. %	0.03	0.03
	I. P. R. %	16.6	1.3	0.5	I. P. R. %	0.0	0.0
	V. R. %	8.8	0.0	0.15	A. V. I. ‰	0.01	0.02
	F. R. %	7.5	2.2	18.	A. F. I. %	0.02	0.005
(h)	ABER %	0.4	—	2.2	ABER %	2.5	2.2
	P. R. %	22.7	—	0.2	A. P. I. ‰	0.12	0.37
	I. P. R. %	14.5	—	0.0	I. P. R. %	0.0	0.0
	V. R. %	10.0	—	0.04	A. V. I. ‰	0.09	0.016
	F. R. %	13.3	—	0.17	A. F. I. ‰	0.03	0.01

SIALKOT ZONE SECTORS COMPARATIVE MALARIOMETRIC RESULTS

1960-1964

SECTOR.	YEAR.	1960	1961	1962	YEAR.	1961	1964
Total Zone.	ABER %	1.3	0.3	2.5	ABER %	2.5	3.1
	P. R %	27.5	8.8	0.8	A. P. I. % _{co}	0.09	0.059
	I. P. R %	16.1	2.0	0.2	I. P. R. %	0.04	0.1
	V. R %	16.4	4.6	0.34	A.V. I. % _{co}	0.057	0.026
	F. R %	12.0	4.3	0.46	A. F. I.	0.037	0.034

Abbreviations are same as on Annex VI.

SIALKOT
SUB-SECTORS COMPARATIVE
1960—

Code No.			ABER %					P. R % A.P. I ‰					I. P. R. ‰	
S.	S.S.		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
(a)	1	6971	—	0.98	5.3	4.4	8.5	—	17.4	0.0	0.0	0.14	—	—
	2	9911	—	1.2	3.7	3.5	8.4	—	11.7	0.0	0.2	0.1	—	—
	3	8131	—	0.6	2.5	2.8	8.7	—	50.0	1.4	0.0	0.0	—	—
	4	11513	—	0.8	3.7	2.3	4.6	—	10.2	0.4	0.17	0.08	—	0.0
	5	9972	—	1.4	3.9	3.7	5.2	—	6.8	1.5	0.4	0.0	—	0.0
	6	12630	—	0.9	2.9	1.5	1.7	—	2.6	0.3	0.15	0.0	—	—
	7	12386	0.2	1.2	5.3	1.3	3.4	6.9	7.9	0.3	0.0	0.08	0.0	—
	8	14316	—	0.2	2.1	3.6	1.7	—	2.4	0.0	0.07	0.0	—	—
	9	11838	—	0.7	4.1	4.3	3.6	—	1.1	0.0	0.16	0.0	—	—
	10	11207	—	1.7	1.8	1.1	2.4	—	4.1	0.0	0.08	0.08	—	—
	11	11932	—	0.2	2.8	4.2	3.4	—	4.3	1.1	0.08	0.0	—	0.0
	12	11466	—	0.6	3.0	3.0	2.0	—	4.3	1.1	0.08	0.0	—	—
	13	11156	—	—	2.4	2.6	2.9	—	—	5.4	0.09	0.0	—	—
	14	12626	—	—	2.5	2.5	0.9	—	—	2.4	0.0	0.0	—	—
	15	14105	—	—	1.4	1.7	1.9	—	—	2.5	0.0	0.07	—	—
Tot. 170160			0.017	70.71	3.1	2.8	3.6	6.8	8.2	0.9	0.099	0.029	0.0	0.0
(b)	1	12395	0.2	0.17	2.0	1.5	7.1	8.9	0.0	0.8	0.0	0.24	—	0.0
	2	12773	0.3	0.4	2.5	3.6	5.4	5.1	2.2	0.3	0.07	0.0	—	—
	3	12544	0.47	0.7	2.7	4.7	4.6	13.3	1.1	0.0	0.16	0.08	—	0.0
	4	12453	0.7	1.0	7.4	2.3	2.4	14.5	0.7	0.3	0.0	0.0	—	—

ZONE
MALARIOMETRIC RESULTS

1964

			V. R. %			A. V. I. ‰			F. R. %			A. F. I. %		
1962	1963	1964	1960	1961	1962	1963	1964		1960	1961	1962	1963	1964	
0.0	0.0	0.0	—	11.6	0.0	0.0	0.14		—	7.2	0.0	0.0	0.0	
0.0	0.0	0.0	—	11.7	0.0	0.2	0.0		—	0.0	0.0	0.0	0.01	
0.0	—	—	—	38.0	0.4	0.0	0.0		—	14.0	0.9	0.0	0.0	
0.0	0.0	0.0	—	6.1	0.2	0.0	0.08		—	4.1	0.2	0.17	0.0	
0.0	0.0	0.0	—	2.0	1.0	0.0	0.0		—	4.7	0.5	0.4	0.0	
0.0	0.0	0.0	—	2.6	0.0	0.0	0.0		—	0.0	0.3	0.15	0.0	
0.0	0.0	0.0	6.9	4.4	0.0	0.0	0.08		0.0	3.1	0.3	0.0	0.0	
0.0	0.0	0.0	—	1.2	0.0	0.07	0.0		—	1.2	0.0	0.0	0.0	
0.0	0.0	0.0	—	0.0	0.0	0.16	0.0		—	1.1	0.0	0.0	0.0	
0.0	—	0.0	—	2.0	0.0	0.08	0.0		—	2.1	0.0	0.0	0.08	
0.0	0.0	0.0	—	4.3	0.3	0.08	0.0		—	4.3	0.8	0.0	0.0	
0.0	0.0	0.0	—	4.3	0.28	0.08	0.0		—	0.0	0.8	0.0	0.0	
0.0	0.0	0.0	—	—	2.9	0.09	0.0		—	—	2.5	0.0	0.0	
0.0	0.0	0.0	—	—	1.5	0.0	0.0		—	—	0.9	0.0	0.0	
0.0	0.0	0.0	—	—	2.5	0.0	0.0		—	—	0.0	0.0	0.07	
0.0	0.0	0.0	6.8	5.6	0.48	0.052	0.017		0.0	2.8	0.45	0.047	0.011	
0.0	0.0	0.0	4.3	0.0	0.8	0.0	0.08		4.3	0.0	0.0	0.0	0.16	
0.0	0.0	0.0	0.0	1.6	0.3	0.07	0.0		5.1	0.5	0.0	0.0	0.0	
0.0	0.0	0.0	13.3	1.1	0.0	0.08	0.08		0.0	0.0	0.0	0.08	0.0	
0.0	0.0	0.0	13.5	0.7	0.1	0.0	0.0		2.0	0.0	0.2	0.0	0.0	

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
SUB-SETORS COMPARATIVE
1960

Code No			ABER %					P. R. % A. P. I %					I. P. R. %	
S.	S.S.		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
b	5	16979	—	1.1	4.9	1.1	0.8	—	1.1	0.1	0.0	0.0	—	—
	6	13259	0.1	0.7	3.3	2.2	2.4	7.1	4.8	0.0	0.0	0.0	—	—
	7	16127	0.2	0.36	3.6	3.1	1.4	15.0	16.9	0.7	0.18	0.0	—	—
	8	14485	—	0.58	4.0	2.9	1.8	—	8.2	0.3	0.07	0.0	—	—
	9	13148	—	0.3	1.5	1.8	2.7	—	45.2	0.0	0.0	0.15	—	—
	10	11811	0.4	0.67	4.8	3.4	3.0	38.7	6.2	0.0	0.0	0.08	0.0	—
	11	15083	0.4	0.5	4.7	3.5	2.3	20.5	2.5	0.2	0.13	0.0	—	—
	12	13375	0.1	2.7	4.6	3.2	4.2	28.0	3.3	0.1	0.2	0.0	—	0.0
	13	12867	0.2	0.17	2.3	4.0	5.1	0.0	0.0	0.0	0.38	0.07	0.0	0.0
	14	13664	—	—	3.0	2.1	1.9	—	—	0.4	0.07	0.0	—	—
	15	12474	—	0.2	3.3	2.8	2.9	—	8.3	2.6	0.0	0.0	—	—
	16	15809	—	—	2.2	0.0	2.3	—	—	0.0	0.0	0.13	—	—
	17	15966	0.2	0.3	2.1	2.3	4.2	50.0	12.0	1.4	0.0	0.25	14.2	—
Tot. 241517			0.2	0.6	3.4	2.6	3.0	19.4	5.2	0.4	0.07	0.05	10.0	0.0
(c)	1	14659	0.1	0.4	3.3	1.2	0.9	50.0	11.6	3.0	0.0	0.0	0.0	—
	2	12390	—	—	2.5	2.1	1.3	—	—	0.8	0.08	0.0	—	—
	3	13731	—	—	2.0	2.1	1.1	—	—	0.4	0.07	0.0	—	—
	4	13253	0.3	0.37	2.2	3.2	2.5	0.0	6.0	0.3	0.0	0.3	—	—
	5	12116	—	2.6	3.0	1.7	2.6	10.5	4.2	0.0	0.0	0.08	—	—
	6	13613	0.9	0.77	1.6	5.5	5.7	50.0	13.1	0.0	0.73	0.36	—	—

ZONE MALARIOMETRIC RESULTS

1964--(contd.)

			V.R.%		A.V I.‰			F. R. %		A. P. I.‰		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	—	0.5	0.1	0.0	0.0	—	0.5	0.0	0.0	0.0
0.0	0.0	0.0	7.1	1.9	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
0.0	0.0	0.0	15.0	6.7	0.3	0.18	0.0	2.5	10.1	0.3	0.0	0.0
0.0	0.0	0.0	—	2.3	0.17	0.0	0.0	—	5.8	1.17	0.07	0.0
0.0	0.0	0.0	—	21.7	0.0	0.0	0.0	—	26.1	0.0	0.0	0.15
0.0	0.0	0.0	36.7	2.5	0.0	0.0	0.0	2.0	3.7	0.0	0.0	0.08
0.0	0.0	0.0	14.7	1.2	0.2	0.06	0.0	5.8	1.2	0.0	0.06	0.0
0.0	0.0	0.0	33.3	1.6	0.0	0.07	0.0	6.6	1.6	0.1	0.14	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.31	0.07	0.0	0.0	0.0	0.07	0.0
5.3	3.6	0.0	—	—	0.0	0.07	0.0	—	—	0.4	0.0	0.0
0.0	0.0	0.0	—	8.3	0.7	0.0	0.0	—	0.0	1.9	0.0	0.0
0.0	0.0	0.0	—	0.0	0.0	0.0	0.0	—	—	0.0	0.0	0.13
0.0	0.0	0.0	50.0	8.0	0.6	0.0	0.06	0.0	4.0	0.8	0.0	0.8
0.5	0.2	0.4	17.1	2.5	0.17	0.05	0.016	2.4	2.6	0.24	0.02	0.03
0.0	0.0	0.0	50.0	8.3	1.6	0.0	0.0	0.0	3.3	1.4	0.0	0.0
0.0	0.0	0.0	—	—	0.8	0.08	0.0	—	—	0.0	0.0	1.0
0.0	0.0	0.0	—	—	0.4	0.0	0.0	—	—	0.5	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.16	0.0	7.3	1.2	0.0	0.07
0.0	0.0	0.0	—	0.0	0.0	0.0	0.0	—	0.4	0.0	0.0	0.0
0.0	0.0	0.0	42.7	5.3	0.0	0.66	0.07	9.6	7.9	0.0	0.07	0.29

SIALKOT
SUB-SECTORS COMPARATIVE
(1960 -

Code No.		ABER %					P. R % A. P. I%					I. P. R%	
S	S. S.	1260	1961	1962	1963	1964	1960	1961	1962	1963	1964	1260	1961
7	12474	—	0.27	5.3	3.7	5.3	—	35.1	2.8	0.08	0.0	—	—
8	12819	—	0.3	3.8	1.8	1.4	—	0.0	1.2	0.0	0.0	—	—
9	12258	—	0.3	2.4	2.4	2.2	—	7.7	0.99	0.0	0.03	—	0.0
10	12924	—	0.3	3.2	2.1	1.5	—	7.5	0.4	0.15	0.0	—	—
11	14508	—	0.3	0.9	1.1	2.6	—	4.1	0.0	0.0	0.2	—	—
12	11887	—	—	1.2	2.7	2.8	—	—	0.0	0.0	0.08	—	—
13	13410	—	0.2	5.4	2.5	4.5	—	6.6	1.3	0.07	0.07	—	20.0
14	14616	—	—	3.3	1.7	1.3	—	—	0.2	0.0	0.0	—	—
15	14050	—	—	2.2	1.6	2.5	—	—	0.0	0.0	0.0	—	—
16	12450	—	—	3.3	3.8	3.9	—	—	0.7	0.16	0.03	—	—
Tot. 241517		0.09	0.2	2.9	2.4	2.6	37.0	8.9	1.0	0.08	0.08	0.0	15.3
(d) 1	11304	—	0.18	1.0	2.3	1.7	—	0.0	3.4	0.17	0.0	—	0.0
2	13882	—	—	2.4	5.9	5.1	—	—	4.7	1.3	0.0	—	—
3	13975	—	—	2.0	1.6	2.6	—	—	0.0	0.07	0.0	—	—
4	12687	0.4	0.17	2.5	3.9	2.6	9.2	36.6	2.4	0.15	0.0	—	—
5	11396	—	0.19	1.1	5.2	1.8	—	15.4	0.0	0.4	0.0	—	—
6	12375	—	—	1.3	1.3	2.9	—	—	0.6	0.2	0.0	—	—
7	14450	—	0.2	2.8	1.5	3.3	—	15.0	0.9	0.06	0.14	—	—
8	12541	0.3	0.5	1.4	2.1	2.4	0.0	25.0	0.8	0.08	0.0	—	—
9	13162	0.3	—	3.2	2.2	3.8	41.4	—	1.6	0.0	0.0	0.0	—

ZONE MALARIOMETRIC RESULTS

1964) - (contd.)

			V. R. %		A. V. I %			F. R. %		A. F. I %		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	—	8.8	2.5	0.08	0.0	—	26.4	0.3	0.0	0.0
0.0	0.0	0.0	—	0.0	1.0	0.0	0.0	—	0.0	0.2	0.0	0.0
0.0	0.0	0.0	—	2.5	0.6	0.0	0.08	—	5.1	0.3	0.0	0.0
0.0	0.0	0.0	—	2.5	0.2	0.15	0.0	—	5.0	0.2	0.0	0.0
0.0	0.0	0.0	—	4.1	0.0	0.0	0.07	—	0.0	0.0	0.0	0.13
0.0	0.0	0.0	—	—	0.0	0.0	0.08	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	3.3	0.9	0.07	0.07	—	3.3	0.4	0.0	0.0
0.0	0.0	0.0	—	—	0.2	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.0	0.06
0.0	0.0	0.0	—	—	0.0	0.08	0.0	—	—	0.7	0.08	0.08
0.1	0.0	0.0	32.2	3.3	0.7	0.07	0.03	6.3	5.5	0.3	0.1	0.05
0.0	0.0	0.0	—	0.0	1.7	0.08	0.0	—	0.0	1.7	0.08	0.0
0.0	0.0	0.0	—	—	0.8	0.5	0.0	—	—	3.8	0.3	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.07	0.0
0.0	0.0	0.0	7.4	27.2	0.9	0.07	0.00	1.8	9.0	1.5	0.07	0.0
0.0	0.0	0.0	—	3.8	0.0	0.3	0.0	—	11.5	0.0	0.08	0.0
0.0	0.0	0.0	—	—	0.0	0.16	0.0	—	—	0.6	0.08	0.0
3.0	0.0	0.0	—	12.5	0.9	0.0	0.14	—	2.5	0.0	0.06	0.0
0.0	0.0	0.0	0.0	20.0	0.8	0.0	0.0	0.0	4.7	0.0	0.08	0.0
0.0	0.0	0.0	34.1	—	0.4	0.0	0.0	7.3	—	1.1	0.0	0.07

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
SUB-SECTORS COMPARATIVE
(1960—

Code No.		ABER %					P. R. % A. P. I %					I. P. R %	
S	S. S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
(d)	10 11781	—	0.3	2.8	2.6	4.6	—	50.0	2.0	0.08	0.0	—	—
	11 12463	—	—	4.4	2.9	6.3	—	—	3.1	0.16	0.0	—	—
	12 13401	—	—	1.2	2.9	9.8	—	—	1.2	0.2	0.29	—	—
	13 14036	0.8	0.1	1.1	1.9	2.6	41.3	0.0	0.6	0.0	0.0	29.0	0.0
	14 1382C	0.3	—	1.7	2.1	6.0	17.4	—	0.8	0.5	0.5	—	—
	15 13941	0.8	—	1.1	2.2	4.4	26.1	—	0.0	0.28	0.14	5.8	0.0
	16 15781	1.3	0.09	0.9	2.4	4.0	28.4	0.0	2.7	0.25	0.06	33.3	—
Tot.	210995	0.3	0.1	1.9	2.7	4.1	27.0	22.0	1.8	0.25	0.09	26.4	0.0
(e)	1 12505	—	0.8	3.2	2.4	3.2	—	2.9	1.2	0.0	0.07	—	0.0
	2 13978	—	1.6	1.7	3.2	2.2	—	1.7	4.4	0.0	0.0	—	0.0
	3 13260	—	—	2.7	1.5	1.6	—	—	2.8	0.07	0.0	—	—
	4 13414	0.07	1.5	0.7	0.7	1.0	40.0	5.4	0.0	0.0	0.0	—	0.0
	5 11338	—	0.36	1.6	4.2	5.1	—	12.2	0.0	0.0	0.0	—	—
	6 11251	—	1.9	2.5	4.6	8.8	—	5.9	1.5	0.17	0.26	—	0.0
	7 13254	—	1.2	2.1	2.7	6.2	—	4.8	0.0	0.15	0.0	—	0.0
	8 14222	1.2	0.5	4.2	2.8	3.1	53.1	14.2	0.5	0.07	0.07	10.0	0.0
	9 12437	2.2	1.2	8.1	2.1	3.2	43.3	6.3	0.7	0.08	0.16	33.3	0.0
	10 13400	0.88	1.1	4.1	1.7	3.6	35.5	40.3	1.8	0.0	0.0	57.1	—
	11 14642	0.4	0.13	1.8	1.7	4.1	21.0	45.0	5.1	0.13	0.0	—	—
	12 16619	—	1.27	2.3	0.8	1.4	—	17.7	1.2	0.06	0.06	—	—

ZONE
MALARIOMETRIC RESULTS

1964—(contd.)

			V. R. %		A. V. I. %			F. R. %		A. P. I. %		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
2.0	0.0	0.0	—	21.0	0.6	0.08	0.0	—	28.9	1.4	0.0	0.0
1.4	0.0	0.0	—	—	0.2	0.16	0.0	—	—	2.9	0.0	0.0
0.0	0.0	0.0	—	—	0.6	0.2	0.15	—	—	0.6	0.0	0.14
0.0	0.0	0.0	18.1	0.0	0.0	0.0	0.0	26.4	0.0	1.6	0.0	0.0
0.0	0.0	0.0	13.0	—	0.4	0.5	0.29	6.5	—	0.4	0.0	0.29
0.0	0.0	0.0	13.9	—	0.0	0.28	0.07	13.0	—	0.0	0.0	0.07
0.0	0.0	0.0	13.7	—	0.0	0.25	0.0	16.1	0.0	2.0	0.0	0.06
0.9	0.0	0.0	14.5	13.8	0.5	0.16	0.04	14.0	8.4	1.2	0.09	0.05
2.3	0.0	0.0	—	0.0	0.5	0.0	0.0	—	0.9	0.7	0.0	0.07
7.6	0.0	0.0	—	0.4	2.8	0.0	0.0	—	1.3	1.6	0.1	0.07
0.0	0.0	0.0	—	—	0.8	0.0	0.0	—	—	1.9	0.07	0.0
—	0.0	0.0	10.0	2.4	0.0	0.0	0.0	30.0	2.9	0.3	0.0	0.0
—	0.0	0.0	—	0.0	0.0	0.0	0.0	—	12.0	0.0	0.0	0.0
0.0	0.0	0.0	—	1.8	0.0	0.08	0.17	—	4.1	0.0	0.08	0.08
0.0	0.0	0.0	—	0.0	0.0	0.07	0.0	—	4.8	0.0	0.07	0.0
0.0	0.0	0.0	38.4	6.5	0.16	0.07	0.0	18.6	7.8	0.3	0.0	0.07
0.0	0.0	0.0	31.5	2.6	0.2	0.08	0.16	13.6	3.8	0.5	0.0	0.3
1.2	0.0	0.0	27.9	2.1	0.7	0.0	0.0	10.1	2.05	1.1	0.0	0.0
0.0	0.0	0.0	13.3	30.0	0.3	0.07	0.0	8.3	15.0	2.6	0.07	0.0
0.0	—	0.0	—	15.5	0.2	0.0	0.0	—	4.4	1.0	0.06	0.06

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
SUB-SECTORS COMPARATIVE
1960-

Code No.			ABER %					P. R %		A. P. I %			I P. R%	
S	S.S		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
(e)	13	12622	0.9	0.3	4.4	1.8	2.0	33.0	34.0	0.5	0.0	0.0	—	—
	14	14207	0.6	0.18	2.9	2.5	4.0	51.0	7.7	0.4	0.0	0.67	—	—
	15	13536	0.3	—	0.03	3.6	2.3	28.0	—	0.0	0.07	0.0	—	—
	16	13088	2.2	0.4	5.3	2.1	2.4	33.8	33.9	0.2	0.0	0.0	—	—
	17	13095	0.5	0.09	2.8	2.0	2.3	36.3	16.6	2.6	0.07	0.0	—	—
Tot. 206960			0.5	0.7	2.9	2.3	2.8	39.3	11.6	1.1	0.05	0.04	36.7	1.4
(f)	1	12183	0.37	—	2.2	3.8	2.9	23.9	—	0.3	0.08	0.16	—	—
	2	13154	0.38	—	1.3	2.5	2.0	21.3	—	0.0	0.07	0.0	—	—
	3	13860	—	—	2.3	2.3	3.7	—	—	0.0	0.14	0.0	—	—
	4	13153	1.2	—	1.3	1.7	3.8	14.3	—	0.6	0.0	0.0	—	—
	5	13663	—	—	0.98	1.9	1.9	—	—	0.0	0.0	0.0	—	—
	6	11367	2.2	0.06	0.58	1.4	2.5	33.3	14.2	0.0	0.0	0.0	3.4	14.3
	7	12822	—	—	0.7	1.2	1.5	—	—	0.0	0.0	0.0	—	—
	8	13313	1.2	0.06	1.1	1.5	1.4	47.9	0.0	1.3	0.0	0.0	14.2	0.0
	9	12552	0.58	0.04	1.5	0.8	3.4	39.7	0.0	1.0	0.0	0.08	16.7	0.0
	10	12778	0.27	0.07	1.3	3.1	6.3	25.7	0.0	0.0	0.0	0.0	20.0	0.0
	11	13945	0.26	—	1.6	2.9	2.6	29.7	—	0.0	0.07	0.0	0.0	—
	12	11894	0.2	—	3.2	2.3	5.3	28.0	—	0.2	0.17	0.08	0.0	—
	13	12758	0.6	—	0.8	1.6	1.7	44.4	—	0.2	0.08	0.0	0.0	—
	14	14115	0.1	—	2.2	1.7	4.1	70.0	—	1.4	0.07	0.28	100.0	—

ZONE MALARIOMETRIC RESULTS

1964—(contd.)

			V. R. %		A. V. I. ‰			F. R. %		A. F. I. ‰		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	20.3	23.4	0.0	0.0	0.0	13.5	6.3	0.5	0.0	0.0
0.0	0.0	0.0	26.5	0.0	0.2	0.0	0.0	26.5	7.7	0.2	0.0	0.07
0.0	0.0	0.0	8.0	—	0.0	0.07	0.0	20.0	—	0.0	0.0	0.0
0.0	0.0	0.0	24.0	8.9	0.0	0.0	0.0	10.5	26.7	0.2	0.0	0.0
0.0	—	0.0	15.1	0.0	0.2	0.07	0.0	21.2	16.6	2.4	0.0	0.07
0.1	0.0	0.0	26.2	5.1	0.3	0.03	0.02	14.7	6.7	0.78	0.02	0.02
0.0	0.0	0.0	6.5	—	0.0	0.0	0.0	17.3	—	0.3	0.08	0.16
0.0	0.0	0.0	11.7	—	0.0	0.07	0.0	9.8	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.14	0.0	—	0.0	0.0	0.0	0.0
0.0	0.0	0.0	5.3	—	0.6	0.0	0.0	8.9	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.7	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	6.6	14.2	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.6	0.0	0.0	17.9	0.0	0.6	0.0	0.0
0.0	0.0	0.0	33.5	0.0	0.0	0.0	0.08	19.1	0.0	1.0	0.0	0.0
0.0	—	0.0	21.9	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	22.8	0.0	0.0	0.0	0.0	10.8	—	0.0	0.0	0.0
0.0	0.0	0.0	18.9	—	0.0	0.07	0.0	24.0	—	0.2	0.0	0.08
0.0	0.0	0.0	4.0	—	0.0	0.17	0.0	11.6	—	0.2	0.08	0.0
0.0	0.0	0.0	14.2	—	0.0	0.0	0.0	15.0	—	1.4	0.07	0.21
0.0	0.0	0.0	60.0	—	0.7	0.0	0.07					

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
SUB-SECTORS COMPARATIVE
1960

Code No		ABER %					P. R. %					I. P. R %	
S.	S.S.	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
15	12504	—	—	2.2	2.0	2.6	—	—	1.0	0.07	0.15	—	—
16	12489	0.2	—	2.5	3.4	4.7	25.8	—	0.0	0.0	0.40	0.0	—
Tot. 206960		0.47	0.04	1.6	2.1		31.4	3.2	0.0	0.06	0.06	10.8	0.2
1	10276	0.17	—	2.9	2.5	6.3	22.2	—	0.0	0.0	0.09	—	—
2	12379	1.7	—	1.5	2.2	1.1	8.8	—	1.0	0.0	0.0	12.5	—
3	13733	0.8	—	1.6	1.5	1.8	8.2	—	0.0	0.14	0.07	0.0	—
4	10051	1.4	—	1.7	2.2	4.2	5.0	—	0.0	0.0	0.0	0.0	—
5	9515	—	—	1.9	4.7	5.7	—	—	0.0	0.8	0.0	—	—
6	11733	—	—	1.2	2.3	1.5	—	—	0.0	0.0	0.0	—	—
7	12648	—	—	1.7	3.0	4.1	—	—	0.4	0.0	0.0	—	—
8	13371	1.4	0.2	0.4	1.8	3.1	8.8	0.0	0.0	0.0	0.0	10.4	0.0
9	12433	0.9	0.08	1.8	6.5	3.2	15.9	0.0	0.0	0.16	0.0	20.0	0.0
10	10750	0.3	—	3.6	4.3	2.7	28.1	—	0.5	0.09	0.0	33.3	—
11	12734	0.6	—	2.0	1.6	1.6	15.7	—	0.0	0.0	0.0	0.0	—
12	12360	—	—	0.88	2.3	2.5	—	—	1.0	0.09	0.0	—	—
13	9404	—	—	2.2	3.2	4.4	—	—	0.0	0.0	0.0	—	—
14	12539	—	—	1.8	1.5	0.6	—	—	0.0	0.0	0.0	—	—
15	13101	0.4	0.05	1.7	1.2	1.2	27.7	0.0	0.8	0.0	0.0	30.7	0.0
16	13457	1.1	0.19	0.4	2.0	2.3	45.6	3.8	0.0	0.0	0.07	29.1	4.5
Tot. 190480		0.5	0.1	1.7	2.6	2.8	16.2	2.5	0.3	0.03	0.03	16.6	3.2

ZONE MALARIOMETRIC RESULTS

1964 SUB-SECTORS COMPARATIVE

			V. R. %		A. V. I. ‰			F. R. %		A. F. I. %		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	1.0	0.07	0.07
0.0	0.0	0.0	9.6	—	0.0	0.0	0.8	16.1	—	0.0	0.0	0.32
0.0	0.0	0.0	15.1	3.2	0.1	0.03	0.02	17.2	0.0	0.28	0.03	0.04
0.0	0.0	0.0	16.6	—	0.0	0.0	0.09	5.5	—	0.3	0.0	0.0
0.0	0.0	0.0	5.1	—	0.5	0.0	0.0	3.7	—	0.5	0.0	0.0
0.0	0.0	0.0	5.5	—	0.0	0.14	0.07	2.7	—	0.0	0.0	0.0
0.0	0.0	0.0	3.5	—	0.0	0.0	0.0	1.4	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.8	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.4	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0
0.0	0.0	0.0	5.3	0.0	0.0	0.8	0.0	10.6	0.0	0.0	0.08	0.0
0.0	0.0	0.0	12.5	—	0.0	0.0	0.0	15.6	—	0.5	0.9	0.0
0.0	0.0	0.0	6.5	—	0.0	0.0	0.0	9.2	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.9	0.0	0.8	—	—	0.9	0.8	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.8	0.0	0.0
4.1	0.0	0.0	9.2	0.0	0.0	0.0	0.0	18.5	0.0	0.8	0.0	0.0
0.0	0.0	0.0	27.5	3.8	0.0	0.0	0.07	19.4	0.0	0.0	0.0	0.0
0.5	0.0	0.0	8.8	0.0	0.15	0.01	0.02	7.5	2.5	2.18	0.02	0.05

" Pak : Jour : Hlth : 15 (3) "

SIALKOT
SUB-SECTORS COMPARATIVE

1960—

Code No.		ABER %					P. R %		A. P. I %			I. P. R %	
S	S.S	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961
1	15127	0.15	—	2.5	1.8	2.2	8.3	—	0.0	0.0	0.0	—	—
2	10090	—	—	1.3	2.9	2.5	—	—	0.0	0.0	0.9	—	—
3	10616	—	—	3.6	2.1	6.0	—	—	0.0	0.0	0.0	—	—
4	11056	—	—	3.5	2.2	1.7	—	—	0.0	0.0	0.0	—	—
5	10858	—	—	4.6	5.1	3.9	—	—	0.9	0.9	0.0	—	—
6	11503	—	—	2.1	2.3	3.7	—	—	0.0	0.17	0.17	—	—
7	10998	1.6	—	0.6	2.2	2.1	19.8	—	0.0	0.07	0.0	17.1	—
8	14248	0.9	—	1.9	2.0	1.4	16.5	—	0.0	0.07	0.0	10.5	—
9	13501	1.6	—	2.1	2.1	1.2	22.7	—	0.3	0.0	0.0	33.3	—
10	13819	—	—	2.3	1.9	1.9	—	—	0.2	0.0	0.0	—	—
11	11578	1.1	—	1.0	1.8	2.4	37.6	—	0.0	0.8	0.0	0.0	—
12	12925	—	—	2.1	2.3	1.9	—	—	0.0	0.23	0.0	—	—
13	11270	—	—	1.8	2.2	2.0	—	—	0.4	0.0	0.0	—	—
14	12096	—	—	2.0	2.5	2.3	—	—	0.0	0.25	0.0	—	—
15	10982	—	—	2.7	4.9	11.3	—	—	0.3	0.09	0.18	—	—
Tot.	183666	0.4	—	2.2	2.5	2.0	22.7	—	0.2	0.12	0.27	14.5	—

"Pak : Jour : Hith : 15 (9)"

ZONE
MALARIOMETRIC RESULTS
1964)-(contd.)

			V. R. %		A. V. I %			F. R. %		A. F. I %		
1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
0.0	0.0	0.0	4.1	—	0.0	0.0	0.0	4.1	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.6	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.8	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.4	0.5	0.0	—	—	0.5	0.39	0.0
0.0	0.0	0.0	—	—	0.0	0.07	0.08	—	—	0.0	0.0	0.03
0.0	0.0	0.0	5.7	—	0.0	0.07	0.0	14.5	—	0.0	0.0	0.0
0.0	0.0	0.0	9.7	—	0.0	0.07	6.7	6.7	—	0.0	0.0	0.0
0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	14.1	—	0.3	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.07	—	—	0.2	0.0	0.0
0.0	0.0	0.0	20.8	—	0.0	0.0	0.0	18.4	—	0.0	0.3	0.0
0.0	0.0	0.0	—	—	0.0	0.23	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	0.0	0.0	—	—	0.4	0.0	0.0
0.0	0.0	0.0	—	—	0.0	2.5	0.0	—	—	0.0	0.0	0.0
0.0	0.0	0.0	—	—	0.0	2.09	0.09	—	—	0.3	0.0	0.09
0.0	0.0	0.0	10.0	—	0.04	0.09	0.015	13.3	—	0.17	0.03	0.01

Abbreviations are same as in Annex VII.

ANNEX XXVII

SUB-SECTORS COMPARATIVE MALARIOMETRIC RESULTS OF
SURROUNDING DISTRICT OF SIALKOT ZONE 1960-1964

Code No.	ABER %					P. R. %					A. P. I. %					I. P. R. %					
	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964	
S. S. S.																					

GUJRANWALA ZONE No. 3

a-1	—	0.79	—	4.5	.44	—	1.0	—	0.0	0.0	—	0.0	—	0.0	0.0	0.0
a-5	—	—	—	5.4	3.6	—	—	—	1.3	0.07	—	—	—	0.0	0.0	0.0
a-7	—	0.34	—	5.0	2.6	—	0.0	—	0.22	0.0	—	—	—	0.0	0.0	0.0
a-15	—	—	—	5.4	3.0	—	—	—	0.0	0.0	—	—	—	0.0	0.0	0.0
a-16	—	—	—	5.6	4.3	—	—	—	0.47	0.0	—	—	—	0.0	0.0	0.0
b-1	—	0.48	—	4.7	2.5	—	0.0	—	0.29	0.07	—	—	—	0.0	0.0	0.0
b-2	—	—	—	4.5	3.6	—	—	—	0.31	0.07	—	—	—	0.0	0.0	0.0

b-5	—	—	2.6	1.4	—	—	—	0.19	0.0	—	—	2.9	0.0
b-6	—	—	1.9	1.5	—	—	—	0.08	0.08	—	—	0.0	0.0
b-10	—	0.95	2.1	1.9	—	—	2.8	0.27	0.07	—	4.5	0.0	0.0

SHEIKHUPURA ZONE I

a-1	1.7	6.1	1.5	3.8	7.2	10.8	3.6	0.0	0.0	0.28	4.0	0.0	0.0	0.0	0.0
a-2	3.0	2.3	2.6	9.0	8.1	16.3	2.3	0.2	0.06	0.06	2.8	0.0	0.0	0.0	0.0

GUJRAT ZONE

a-1	—	—	—	—	0.5	—	—	—	—	0.0
a-2	—	—	—	—	0.4	—	—	—	—	0.0
a-9	—	—	—	—	1.2	—	—	—	—	0.0
a-10	—	—	—	—	1.7	—	—	—	—	0.0

Abbreviations are as in Annex VIII.

" Pak : Jour : Hlth : 15 (3) "

EPIDEMIOLOGICAL CLASSIFICATION OF POSITIVE CASES DURING QUARTERS OF 1963 AND 1964 IN SECTORS OF SIALKOT

Sector.	a				b				c				d				e				f				g				h				Total Zone.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	1963		1964		1963		1964		1963		1964		1963		1964		1963		1964		1963		1964		1963		1964		1963	1964																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Year	1963		1964		1963		1964		1963		1964		1963		1964		1963		1964		1963		1964		1963		1964		1963	1964																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Imported...	1	-	-	4	1	-	-	-	1	1	-	-	7	-	-	1	4	1	-	5	1	1	-	13	-	11	-	1	3	3	1	1	4	-	1	1	-	2	1	1	3	-	3	1	2	1	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3

" Pak : Jour : Mich : 15 (3) "

CLASSIFICATION OF POSITIVE CASES ACCORDING TO AGE GROUPS

SECTOR	a		b		c		d		e		f		g		h		TOTAL ZONE.	
	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964
Age Groups.																		
0-1	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	1	2
1+	—	—	2	—	1	2	1	1	2	1	—	1	1	—	2	1	9	6
2-4	1	—	2	2	2	1	6	4	1	2	—	4	4	1	1	2	14	16
5-9	4	3	3	5	6	5	37	4	2	1	4	5	5	3	10	—	69	24
10+	13	2	9	6	7	9	13	12	6	8	6	5	5	4	6	4	64	50
Grand Total	18	5	17	15	16	17	57	21	11	12	10	15	9	6	19	7	157	98

" Pak : Jour: Hicb : 15 (3) "

**YEARLY RESULTS OF ANNUAL BLOOD EXAMINATION RATE
PER ZONE & SECTORS OF SIALKOT
(1960-1964)**

ZONE/ SECTOR	YEAR.	NO. OF SUB-SECTORS WITH ABER.							
		0.0%	0.0-1%	1-2%	2-4%	4-6%	6-8%	8-10%	10-12%
TOTAL ZONE.	1960	69	45	11	3	—	—	—	—
	1961	60	55	12	1	—	—	—	—
	1962	—	14	38	59	15	1	1	—
	1963	1	3	40	70	13	1	—	—
	1964	—	5	33	55	23	6	5	1

" Pak : Jour : Hlth : 15 (3) "

**YEARLY RESULTS OF ANNUAL BLOOD EXAMINATION RATE
PER ZONE & SECTORS OF SIALKOT**

(1960-1964) -- (contd.)

ZONE/ SECTOR	YEAR.	NO. OF SUB-SECTORS WITH ABER.							
		0.0%	0.0-1 %	1-2 %	2-4 %	4-6 %	6-8 %	8-10 %	10-12 %
a	1960	14	1	—	—	—	—	—	—
	1961	3	8	4	—	—	—	—	—
	1962	—	—	2	10	3	—	—	—
	1963	—	—	4	8	3	—	—	—
	1964	—	1	4	5	2	—	3	—

b	1960	6	11	—	—	—	—	—	—	—
	1961	2	12	2	1	—	—	—	—	—
	1962	—	—	2	10	4	1	—	—	—
	1963	1	—	3	12	1	—	—	—	—
	1964	—	1	3	7	5	1	—	—	—

c	1960	13	3	—	—	—	—	—	—	—
	1961	6	10	—	—	—	—	—	—	—
	1962	—	1	10	2	2	—	—	—	—
	1963	—	—	9	1	1	—	—	—	—
	1964	—	1	7	3	3	—	—	—	—

" Pak : Jour : Hlch : 15 (3) "

(ANNEX XXIX)

**YEARLY RESULTS OF ANNUAL BLOOD EXAMINATION RATE
PER ZONE & SECTORS OF SIALKOT
(1960-1964)---(contd.)**

ZONE/ SECTOR	YEAR.	NO. OF SUB-SECTORS WITH ABER.							
		0.0%	0.0-1 %	1-2 %	2-4 %	4-6 %	6-8 %	8-10 %	10-12 %
d	1960	9	6	1	—	—	—	—	—
	1961	8	8	—	—	—	—	—	—
	1962	—	2	8	5	1	—	—	—
	1963	—	—	4	10	2	—	—	—
	1964	—	—	2	6	4	1	1	—

e	1960	7	7	1	2	—	—	—	—
	1961	2	9	6	—	—	—	—	—
	1962	—	2	3	7	4	—	—	—
	1963	—	2	5	8	2	—	—	—
	1964	—	1	3	6	2	1	—	—

f	1960	4	9	2	1	—	—	—	—
	1961	12	4	—	—	—	—	—	—
	1962	—	4	6	6	—	—	—	—
	1963	—	1	8	7	—	—	—	—
	1964	—	—	5	7	3	1	—	—

" Pak Jour : Hlth : 15 (3) "

(ANNEX XXIX)

**YEARLY RESULTS OF ANNUAL BLOOD EXAMINATION RATE
PER ZONE & SECTORS OF SIALKOT**

(1960-1964)

ZONE/ SECTOR	YEAR.	NO. OF SUB-SECTORS WITH ABER.							
		0.0%	0.0-1 %	1-2 %	2-4 %	4-6 %	6-8 %	8-10 %	10-12 %
8	1960	6	6	4	—	—	—	—	—
	1961	12	4	—	—	—	—	—	—
	1962	—	3	01	3	—	—	—	—
	1963	—	—	6	7	2	1	—	—
	1964	—	1	5	5	3	2	—	—

h	1960	10	2	3	—	—	—	—	—	—
	1961	15	—	—	—	—	—	—	—	—
	1962	—	2	4	8	1	—	—	—	—
	1963	—	—	4	9	2	—	—	—	—
	1964	—	—	6	7	1	—	—	—	—

" Pak : Jour : Hlth • 15 (3) "

(ANNEX XXX)

**YEARLY RESULTS OF ANNUAL PARASITE RATE
PER ZONE & SECTORS OF SIALKOT**

(1960-1962)

Zone/ Sector	Year.	NUMBERS OF SUB-SECTORS WITH P. R.											
		N. S.	0%	0-1%	1-2%	2-3%	3-6%	6-9%	9-12%	12-15%	15-30%	30-60%	60-75%
Total Zone	1960	69	3	—	—	—	2	7	1	4	21	20	1
	1961	60	12	1	4	5	12	10	4	5	6	9	—
	1962	—	49	48	17	8	6	—	—	—	—	—	—
a	1960	14	—	—	—	—	—	1	—	—	—	—	—
	1961	3	—	4	1	2	3	2	2	—	1	1	—
	1962	—	5	3	4	2	1	—	—	—	—	—	—

b	1960	6	1	—	—	—	1	2	—	3	2	2	—
	1961	2	2	1	2	2	—	3	1	—	1	1	—
	1962	—	6	9	1	1	—	—	—	—	—	—	—

c	1960	13	1	—	—	—	—	—	—	—	—	2	—
	1961	6	1	2	—	—	3	3	1	1	—	1	—
	1962	—	5	7	2	2	—	—	—	—	—	—	—

d.	1960	9	1	—	—	—	—	—	1	—	3	2	—
	1961	8	3	—	—	—	—	—	—	1	2	2	—
	1962	—	3	5	4	1	3	—	—	—	—	—	—

" Pak : Jour : Hlch : 15 (3) "

(ANNEX XXX)

**YEARLY RESULTS OF ANNUAL PARASITE RATE
PER ZONE & SECTORS OF SIALKOT**

(1960-1962)

Zone/ Sector	Year.	NUMBERS OF SUB-SECTORS WITH P. R.											
		N.S.	0%	0-1%	1-2%	2-3%	3-6%	6-9%	9-12%	12-15%	15-30%	30-60%	60-75%
e	1960	7	-	-	-	-	-	-	-	-	2	8	1
	1961	2	-	-	1	1	3	2	-	2	2	4	-
	1962	-	4	6	3	2	2	-	-	-	-	-	-
f	1960	4	-	-	-	-	-	-	-	1	6	4	1
	1961	12	3	-	-	-	-	-	-	1	-	-	-
	1962	-	7	7	7	2	-	-	-	-	-	-	-

8	1960	6	—	—	—	—	1	3	—	3	1	—
	1961	12	3	—	—	—	1	—	—	—	—	—
	1962	—	9	6	1	—	—	—	—	—	—	—

h	1960	10	—	—	—	—	—	1	—	3	1	—
	1961	15	—	—	—	—	—	—	—	—	—	—
	1962	—	10	5	—	—	—	—	—	—	—	—

" Pak : Jour : Hlth : 15 (3) "

(ANNEX XXX)

**YEARLY RESULTS OF ANNUAL PARASITE INDEX
PER ZONE & SECTORS SIALKOT**

(1963—1964)

Zone/ Sector	Year	NUMBERS OF SUB-SECTORS WITH A.P.I. %									
		0.0—0.01	0.01—0.03	0.03—0.05	0.05—0.07	0.07—0.09	0.09—0.1	0.1—0.2	0.2—0.4	0.4—0.6	
Total Zone	1963	—	—	—	19	16	—	23	7	4	
	1964	—	—	5	7	14	1	12	8	1	
a	1963	—	—	—	1	4	—	4	1	—	
	1964	—	—	—	1	3	1	1	2	—	
b	1963	—	—	—	3	—	—	4	1	—	
	1964	—	—	—	1	2	—	2	2	—	

c	1963	9	-	-	-	2	2	-	2	-	1
	1964	8	-	-	-	1	4	-	1	2	-

d	1963	2	-	-	-	2	2	-	5	3	2
	1964	11	-	-	-	1	-	-	2	-	1

e	1963	8	-	-	-	5	1	-	3	1	-
	1964	10	-	-	5	-	-	-	1	-	-

f	1963	8	-	-	-	4	2	-	2	-	-
	1964	10	-	-	-	-	2	-	2	2	-

" Pak : Jour : Hlth : 15 (3) "

(ANNEX XXX)

YEARLY RESULTS OF ANNUAL PARASITE INDEX

PER ZONE & SECTORS OF SIALKOT

(1963-1964)

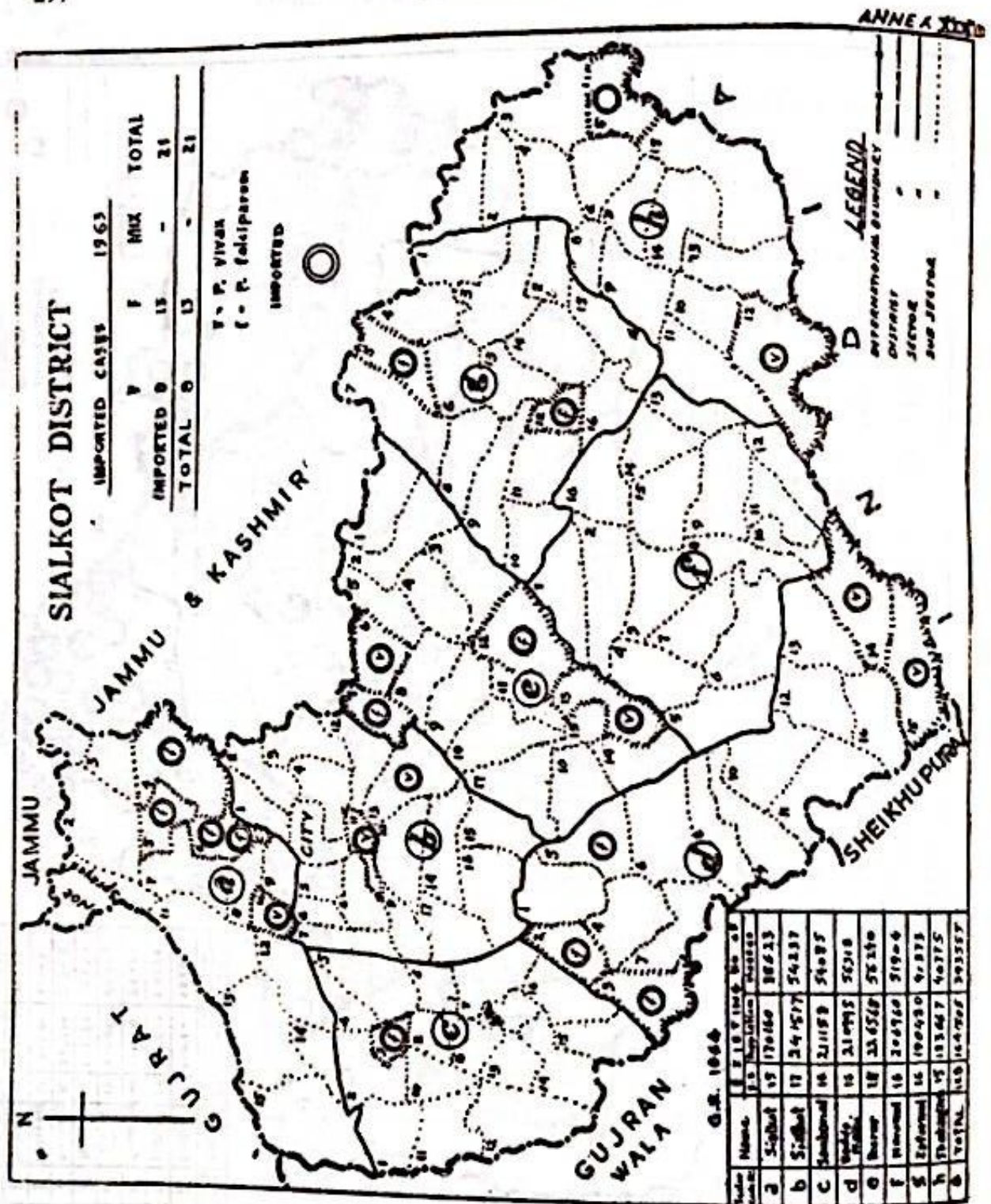
Zone/ Sector	Year	NUMBERS OF SUB-SECTORS WITH A. P. I. %							
		0.0-0.01	0.01-0.03	0.03-0.05	0.05-0.07	0.07-0.09	0.09-0.1	0.1-0.2	0.2-0.4

0.48

g	1963	11	-	-	-	3	-	2	-
	1964	12	-	-	2	1	-	1	-

h	1963	7	-	-	2	2	-	1	2
	1964	10	-	-	1	2	-	2	-

Dr. M. Jamil Khan



SIALKOT DISTRICT

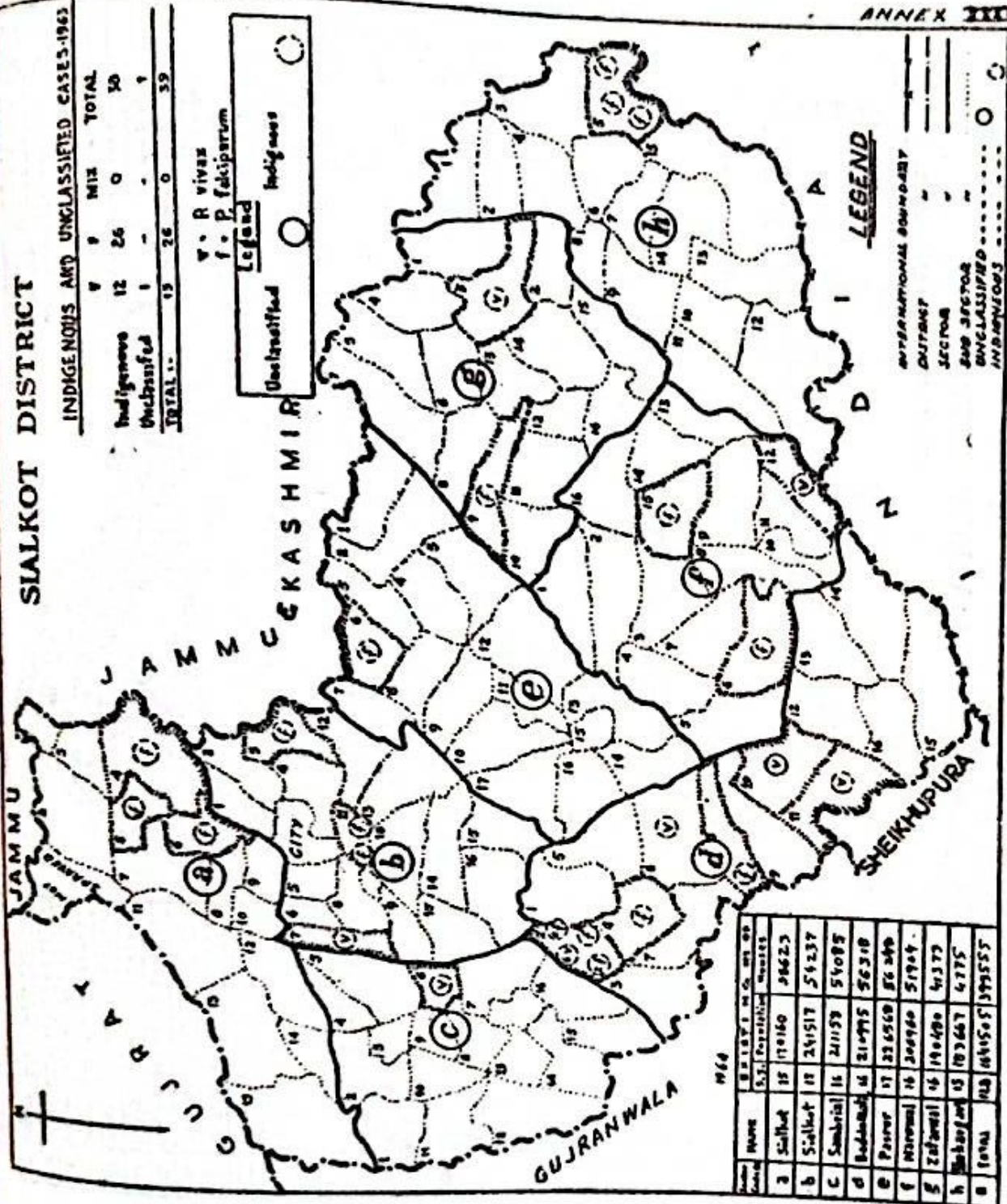
INDIGENOUS AND UNCLASSIFIED CASES-1963

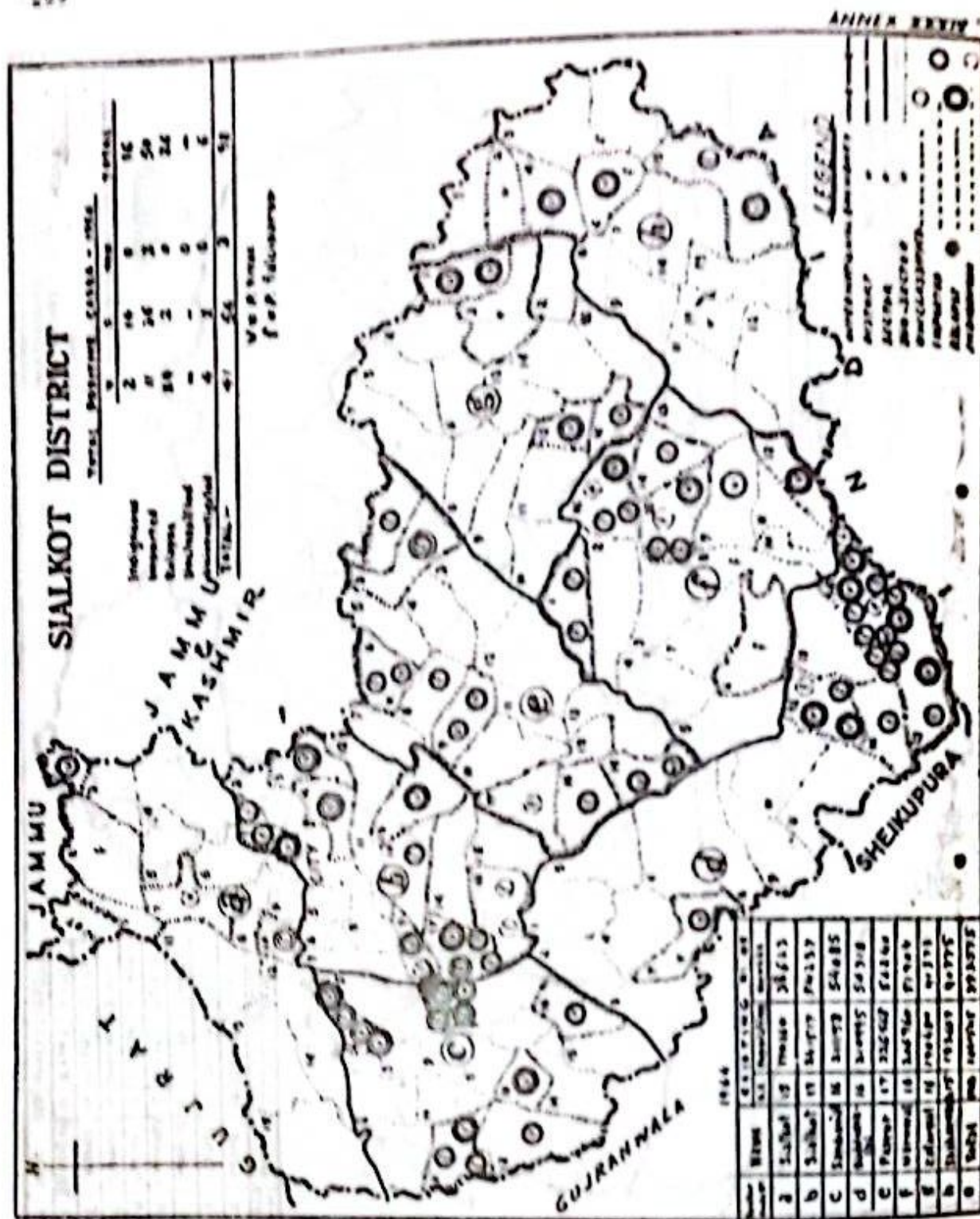
	V	P	MIX	TOTAL
Indigenous	12	26	0	38
Unclassified	1	-	-	1
TOTAL	13	26	0	39

V. P. R. vivax
f. P. falciparum

Legend

Unclassified ○ Indigenous ○





SIALKOT DISTRICT

INDIGENOUS AND IMMIGRANT CASES

	INDIGENOUS	IMMIGRANT	TOTAL
Indigenous	2	14	16
Immigrant	-	-	-
Total	2	14	16

INDIGENOUS



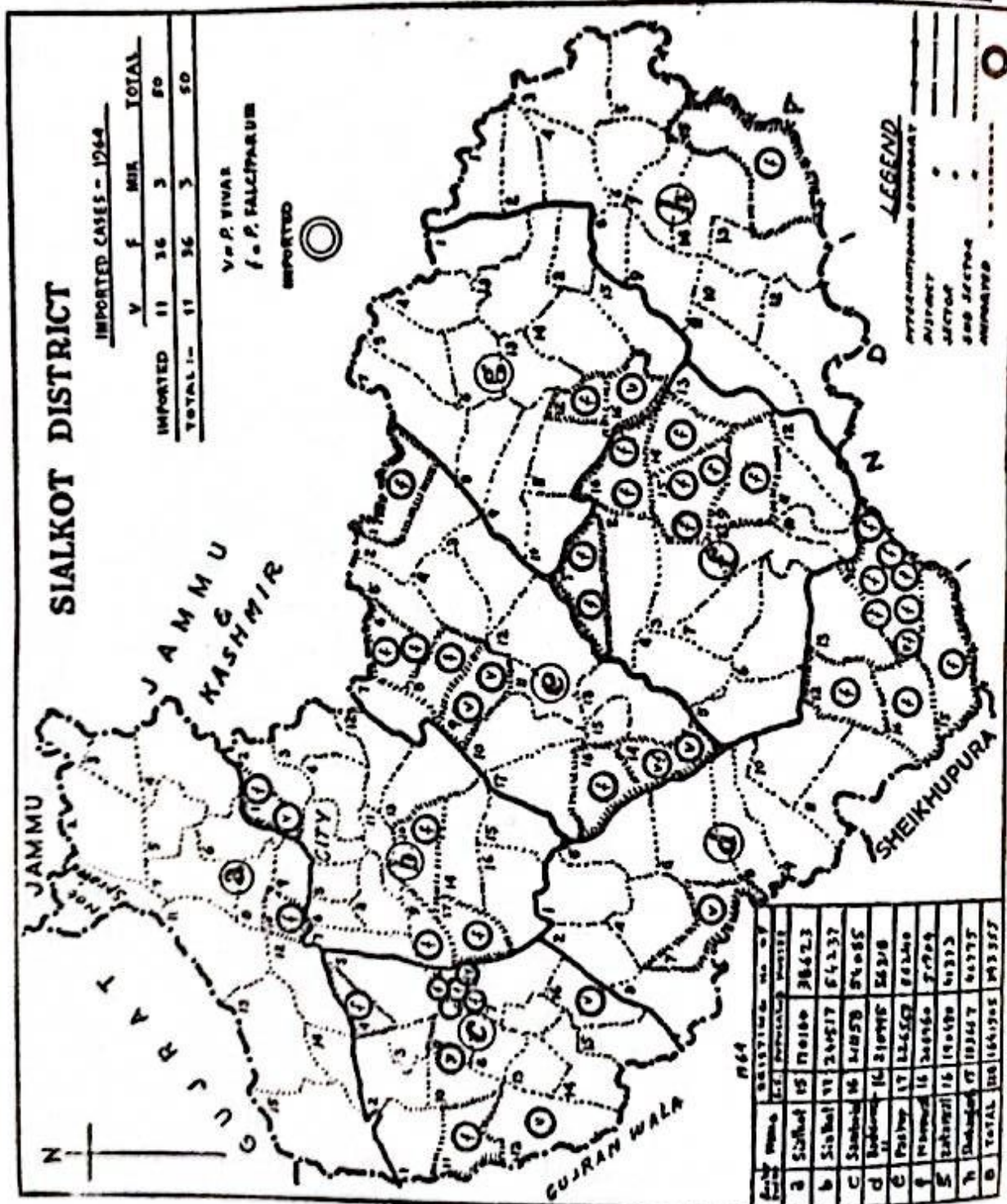
IMMIGRANT



1954

Sub-District	Indigenous	Immigrant	Total
1. Sialkot	15	1	16
2. Sialkot	15	1	16
3. Sialkot	15	1	16
4. Sialkot	15	1	16
5. Sialkot	15	1	16
6. Sialkot	15	1	16
7. Sialkot	15	1	16
8. Sialkot	15	1	16
9. Sialkot	15	1	16
10. Sialkot	15	1	16
11. Sialkot	15	1	16
12. Sialkot	15	1	16
13. Sialkot	15	1	16
14. Sialkot	15	1	16
15. Sialkot	15	1	16
16. Sialkot	15	1	16
17. Sialkot	15	1	16
18. Sialkot	15	1	16
19. Sialkot	15	1	16
20. Sialkot	15	1	16

" Pak - Jour - Hith - 15 (3) "



QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEYS RESULTS

OF SIALKOT ZONE

(1962—1964)

Year.	Quarter.	Sector.	A. culicifacies.						A. stephensi.					
			No. Vill : Exam.	No. of Rooms Checked	No.+ Vill	No.+ Room.	F	M	Density / + room.	No.+ Vill.	No.+ Room	F	M	Density / + room.
1962	1st.	a	0	0	0	0	0	0	0	0	0	0	0	0
		b	8	64	0	0	0	0	0	0	0	0	0	0
		c	6	36	2	2	2	0	1.0	3	3	5	0	1.6
		d	0	0	0	0	0	0	0.0	0	0	0	0	0.0
		e	2	8	1	1	33	17	50.0	0	0	0	0	0.0
		f	7	42	5	10	47	39	8.6	2	2	2	0	1.0
		g	0	0	0	0	0	0	0.0	0	0	0	0	0.0
		h	0	0	0	0	0	0	0.0	0	0	0	0	0.0
Total. 1st. Qr.			96	150	8	13	82	56	10.6	5	5	7	0	1.4

" Pak : Jour : Hich : 15 (3) "

(ANNEX XXXVII)

QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEYS RESULTS
OF SIALKOT ZONE

(1962-1964)

Year.	Quarter.	Sector.	A. culicifacies.					A. stephensi.						
			No. Vill: Exam.	No. of rooms Checked	No.+ Vill	No. + Room	F	M	Density /+room	No. + Vill.	No. + Room	F	M	Density /+room.
1962 - (contd.)	2nd.	a	6	26	3	3	46	36	27.3	1	1	32	15	47.0
		b	2	8	0	0	0	0	0.0	0	0	0	0	0.0
		c	2	8	1	2	3	0	1.5	1	1	1	0	1.0
		d	8	18	0	0	0	0	0.0	0	0	0	0	0.0
		e	6	28	2	9	54	16	7.7	2	2	2	0	1.0
		f	2	10	2	7	269	67	48.0	1	3	1	0	2.6
		g	3	16	3	13	55	27	6.3	3	13	150	30	13.8
		h	9	48	8	27	84	18	3.7	7	18	34	5	2.1
Total 2nd Qr.			38	162	19	61	511	164	11.0	15	58	227	50	7.3

Land:

[illegible]

(ANNEX XXXVII)

QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEYS RESULTS
OF SIALKOT ZONE

(1962-1964)

Year.	Quarter.	Sector.	A. culicifacies						A. stephensi.					
			No. Vill: Exam.	No. of Rooms Checked	No. + Vill	No + Room	F	M	Density ----- / + room	No. + Vill.	No. + Room	F	M	Density ----- / + room
1963	1st.	a	8	38	0	0	0	0	0.0	0	0	0	0	0.0
		b	10	59	0	0	0	0	0.0	0	0	0	0	0.0
		c	1	4	0	0	0	0	0.0	0	0	0	0	0.0
		d	22	127	1	1	0	1	1.0	2	3	3	0	1.0
		e	3	15	0	0	0	0	0.0	0	0	0	0	0.0
		f	6	29	0	0	0	0	0.0	0	0	0	0	0.0
		g	9	40	0	0	0	0	0.0	0	0	0	0	0.0
		h	3	18	0	0	0	0	0.0	0	0	0	0	0.0
	Total 1st. Qr.		62	330	1	1	0	1	1.0	2	3	3	0	1.0

1" Pak : Jour : Hlth 15 (3)

(ANNEX XXXVII)

QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEYS RESULTS

OF SIALKOT ZONE

(1962-1964)

Year.	Quarter.	Sector.	<i>A. culicifacies.</i>						<i>A. stephensi.</i>				
			No. of Vill : Exam.	No. of Rooms checked	No. of Vill : No. of Room.	F	M	Density --- /+ oom.	No. + Vill : 4	No. Room.	F	M.	Density --- /+ room.
4th.	a		4	18	1	1	1	0	0	0	0	0	0
	b		6	24	1	1	0	1	0	0	0	0	0
	c		1	6	0	0	0	0	0	0	0	0	0
	d		10	44	0	0	0	0	0	0	0	0	0
	e		9	44	5	8	9	5	0	0	0	0	0
	f		1	6	1	3	3	0	0	0	0	0	0
	g		3	15	3	13	89	63	0	0	0	0	0
	h		7	35	4	9	20	5	0	0	0	0	0
Total 4th. Qr.			41	192	15	35	122	74	0	0	0	0	0

1963 - (concl.)

(ANNEX XXXVII)

**QUARTERLY ANALYSIS OF ENTOMOLOGICAL RANDOM SURVEYS RESULTS
OF SIALKOI ZONE
(1962-1964)**

Year.	Quarter	Sector	<i>A. culicifacies</i>						<i>A. stephensi</i>			
			No. Vill. Exam.	No. of Rooms Checked	No. + Vill. Room.	F	M	Density + room	No. + Vill. Room	F	M	Density + room
3rd.	a		9	28	7	21	320	94	0	0	0	0
	b		25	107	15	45	506	379	0	0	0	0
	c		3	12	2	7	21	15	0	0	0	0
	d		11	36	8	12	54	14	0	0	0	0
	e		10	71	13	42	258	68	0	0	0	0
	f		0	0	0	0	0	0	0	0	0	0
	g		6	22	6	13	58	32	1	1	0	1.0
	h		11	44	10	21	94	50	0	0	0	0.0
Total. 3rd. Qr :			83	320	61	161	1311	652	1	1	0	1.0

1964-(contd.)

" Pak : Jour : Hlth : 15 (3) "

[illegible]

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NON FORNIRE

Discussion

(ANNEX. XXXXIII)

SIALKOT ZONE

FIXED STATIONS QUARTERLY ANALYSIS OF
ENTOMOLOGICAL RESULTS OF ZONE.

YEAR & QUARTER.	No. of Vill: Exam.	No. of Room Exam.	<i>A. culicifacies.</i>					<i>A. stephensi.</i>				
			No. + Vill	No. + Room	F	M	Density / + room.	No. + Vill	No. + Room	F	M	Density + room

1962

1st.	79	474	10	23	43	18	2.6	3	3	3	0	1.0
2nd.	60	360	23	46	137	118	5.5	18	30	36	12	1.6
3rd.	62	372	10	10	11	6	1.7	7	11	16	11	2.4
4th.	60	360	2	2	2	0	1.0	0	0	0	0	0.0

1963

1st.	61	366	0	0	0	0	0	0	0	0	0	0.0
2nd.	46	276	0	0	0	0	1	1	2	0	2.0	
3rd.	56	336	33	77	222	25	0	0	0	0	0.0	
4th.	60	360	6	15	13	8	0	0	0	0	0.0	

1964

1st.	57	342	0	0	0	0	0	0	0	0	0	0
2nd.	30	180	0	0	0	0	0	0	0	0	0	0
3rd.	28	168	17	65	267	127	0	0	0	0	0	0
4th.	28	168	3	8	17	0	2.0	0	0	0	0	0

" Pak : Jour : Hlth : 15 (3) "

SIALKOT ZONE
SUB-SECTOR COMPARATIVE SPRAYING & G. R. RESULTS
(1963—1964)

Code No EXISTING (Latest 1964)				1963				1964			
S S. S	Popul:	Rooms.	Houses	1st Round.		2nd Round.		1st Round.		2nd Sound.	
				% Houses Sprayed	DDT Dosa: sq. m.	% Houses Sprayed	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.
a-1	7180	3410	1966	100	1.3	99	1.00	100	1.1	100	.9
a-2	10683	4863	2579	100	1.2	100	.94	100	1.1	100	.85
a-3	8305	3615	1714	100	1.3	100	.88	100	1.00	100	.9
a-4	12199	6114	2528	96	1.00	99	.98	95	.9	97	1.1
a-5	9908	5078	2300	99	1.2	100	1.00	99	1.01	98	1.1
a-6	13,97	7609	2813	94	1.1	94	.87	98	1.00	99	1.00
a-7	12675	6580	2590	98	1.2	100	.82	99	1.00	99	.9
a-8	15386	10932	3083	90	1.1	87	1.00	92	.9	96	1.00
a-9	12494	2713	2737	96	1.00	95	.97	95	.89	97	.09

a-10	11344	7469	2727	97	1.4	99	.97	96	.86	97	.96
a-11	11867	7735	2874	94	1.1	94	1.00	26	.96	97	.9
a-12	11476	7884	2928	93	1.1	97	.94	94	.83	85	.9
a-13	11621	7810	2932	94	.93	98	1.2	85	.92	97	.9
a-14	12605	6159	2172	100	.92	100	.98	100	.82	99	.93
a-15	14124	8656	3217	100	1.00	100	.91	100	1.00	99	.9
b-1	12441	7317	2483	97	.99	95	1.00	97	.9	98	1.00
b-2	12953	8486	2750	98	1.1	99	.9	98	.99	98	1.00
b-3	12601	8440	2767	98	1.00	96	.9	97	1.00	93	1.00
b-4	12756	6977	3200	97	1.4	96	1.00	55	.9	95	.96
b-5	17472	11010	977	97	1.4	96	1.00	95	.9	95	.96
b-6	13 92	19021	3097	98	1.00	93	1.00	95	1.1	97	1.1
b-7	16214	10962	4169	97	1.2	96	.9	95	1.1	95	.9
b-8	14672	9082	3189	98	1.1	97	.96	93	1.1	94	1.00
b-9	13872	9521	3137	98	1.1	97	.8	97	.9	96	1.00
b-10	13373	10894	3691	92	.97	97	.9	93	.8	98	1.00
b-11	15795	8257	3121	98	.93	99	.9	97	.96	98	1.1
b-12	13610	9099	3170	99	1.00	98	1.00	98	1.00	99	1.00

" Pak Jour. Hlth. 15 (3) "

(ANNEX. XXXIX)

SIALKOT ZONE
SUB-SECTOR
COMPARATIVE SPRAYING & G. R RESULTS
(1963-1964)

Code No EXISTING (Latest 1963)			
S S. S	Popul:	Rooms.	Houses
b-13	13356	8568	2884
b-14	14382	9433	3494
b-15	12512	8662	3244
b-16	12850	10813	3832
b-17	16548	10945	3804
c-1	14937	10309	3818
c-2	11693	8517	2952
c-3	13437	9462	2952
c-4	13467	11212	3334
c-5	11374	8228	3138

1963			
1st Round.		2nd Round.	
% Houses Sprayed.	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.
98	1.00	98	1.00
98	1.1	99	.9
98	1.1	97	.96
98	.93	98	.91
97	.9	97	.92

96	1.2	97	.91
97	.9	94	1.1
97	1.1	98	1.2
93	1.1	96	1.1
96	1.2	94	1.2

1964			
1st Round.		2nd Round	
% Houses Sprayed.	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.
98	.9	99	.96
98	.96	99	1.00
96	1.00	97	1.00
97	1.00	98	1.1
98	1.09	98	1.1

95	.97	97	.99
95	1.00	96	.97
97	.82	98	.94
94	.94	97	.98
92	1.00	96	.98

c-6	13903	9910	3645	93	1.00	94	1.00	96	1.00	98	1.1
c-7	13722	9598	3702	96	.9	97	.9	97	.9	99	.88
c-8	12762	8110	3182	96	1.00	96	.92	98	.92	99	.91
c-9	12315	7121	2921	99	.9	99	.95	98	.04	98	.99
c-10	12927	5012	3167	98	1.00	97	.92	99	.97	99	.96
c-11	13578	7874	3278	91	1.2	98	1.1	98	1.00	99	1.00
c-12	12155	8010	3019	95	1.1	97	1.1	98	1.1	100	1.00
c-13	13953	9161	3513	96	1.2	97	1.00	98	1.00	99	.99
c-14	14376	9815	4125	99	1.00	99	.96	98	1.00	99	.98
c-15	14928	10330	3755	95	1.1	95	1.1	98	1.1	98	.92
c-16	12459	9526	3634	98	1.00	97	1.00	99	.99	98	1.00

d-1	16642	2817	3275	96	.96	96	1-2	97	.98	98	.99
d-2	14356	10360	3781	98	1.1	98	1.1	99	1.00	99	.91
d-3	13884	9568	3667	96	1.1	96	1.00	99	.98	99	.97
d-4	12983	9226	3648	96	1.1	97	1.00	99	.99	99	.98
d-5	11746	7438	3298	97	1.00	99	1.00	99	1.00	100	.99
d-9	12444	8845	3543	98	1.1	99	.97	99	1.00	99	.98
d-7	14218	10317	3842	96	.99	97	1.1	99	.97	88	1.00

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(ANNEX. XXXIX)

SIALKOT ZONE
SUB-SECTOR COMPARATIVE SPRAYING & G. R. RESULTS
(1963-1964)

Code No EXISTING (Latest 1964)				1963				1964			
				1st Round.		2nd Round.		1st Round.		2nd Round.	
S S. S	Popul.	Rooms.	Houses	% Houses Sprayed.	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.	% Houses Sprayed.	DDT Dosa: sq. m.
d-8	12336	8069	3185	98	1.1	99	9	99	.98	100	.93
d-9	13116	9032	3156	99	1.2	101	1.00	99	.91	100	.87
d-10	11871	8816	3151	100	.91	100	1.00	99	1.00	99	1.00
d-11	12660	8936	3260	99	1.00	100	.95	99	.99	100	.9
d-12	12908	10292	3830	98	.98	100	1.1	98	1.1	100	1.00
d-13	14074	10000	3739	99	1.1	100	1.00	99	.88	99	.94
d-14	13546	9641	3704	98	1.00	99	.85	99	.89	90	.94
d-15	13953	8171	3414	96	1.00	97	.88	88	.84	99	.93
d-16	13916	1983	3916	99	1.92	99	1.00	98	.99	99	.96

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(ANNEX XXXIX)

SIALKOT ZONE

SUB-SECTOR COMPARATIVE SPRAYING & G. R. RESULTS

(1963-1964)

Code No EXISTING (Latest 1964)				1963			1964		
				1st Round.		2nd Round.	1st Round.		2nd Round.
S.S. S	Popul :	Rooms.	Houses	% Houses Sprayed	DDT Dosa : sq. m.	% Houses Sprayed	DDT Dosa : sq. m.	% Houses Sprayed	DDT Dosa : sq. m.
f-3	14267	10460	3697	99	1.00	99	.94	100	.96
f-4	13169	10423	3601	99	1.1	99	.82	99	1.1
f-5	13607	9871	3603	99	1.3	99	1.2	99	.9
f-6	11506	8412	3052	99	1.2	98	1.1	97	.97
f-7	13439	10306	3425	98	1.00	99	.9	98	1.00
f-8	13442	10216	3569	99	1.2	99	.91	99	1.20
f-9	12482	8887	3036	99	.99	100	.98	99	1.00
f-10	12209	6961	2472	99	1.00	99	.85	100	1.00
f-11	14507	9159	3407	97	.57	98	.86	99	.98

f-12	12004	7396	2011	99	.93	99	.91	99	.99	100	1.00
f-13	12425	9159	3132	99	1.1	98	.93	100	.99	100	1.00
f-14	14162	11095	3387	99	1.2	99	.91	99	1.00	99	.95
f-15	12964	9640	3170	99	1.00	99	1.00	99	.97	100	.96
f-16	12446	8334	2734	99	1.1	100	1.00	99	.97	100	.96
g-1	10303	5675	2215	100	1.1	100	.80	99	1.00	99	1.00
g-2	11845	8000	2810	99	1.00	99	.81	98	1.00	99	1.00
g-3	13023	10051	2157	99	1.00	98	.8	99	.97	99	.9
g-4	10209	6063	2064	100	1.2	99	1.00	99	1.00	99	1.00
g-5	9769	6742	2066	100	1.1	100	.9	99	1.2	99	.9
g-6	11946	7380	2405	100	1.00	99	.8	99	.9	99	.9
g-7	12653	7508	2403	99	1.1	99	.89	99	.94	99	1.00
g-8	14247	9143	4108	100	1.00	100	.98	98	.8	99	.9
g-9	12293	9358	3216	100	1.1	100	1.00	99	1.1	100	.9
g-10	11359	8323	2907	100	1.1	100	1.1	99	.9	99	.9
g-11	12288	8354	2815	100	1.2	100	1.00	98	1.1	99	1.00
g-12	12381	8108	2687	99	.98	99	.89	99	1.00	99	.94
g-13	9792	6948	2054	100	1.2	100	.99	96	.9	97	.9

(ANNEX XXXIX)

SIALKOT ZONE
SUB-SECTOR COMPARATIVE SPRAYING & G. R. RESULTS
(1963-1964)

Code No EXISTING (Latest 1964)				1963				1964			
				1st Round.		2nd Round.		1st Round		2nd Sound.	
S S. S	Popul :	Rooms.	Houses	% Houses Sprayed	DDT Dosa : sq. m.	% Houses Sprayed	DDT Dosa : sq. m.	% Houses Sprayed	DDT Dosa : sq. m.	% House Sprayed	DNT Dosa : sq. m.
g-14	12553	8249	2719	100	.8	100	.8	100	1.0	100	.9
g-15	13810	8509	2718	100	.96	100	.83	99	1.00	100	1.00
g-16	13774	9613	2963	100	1.00	100	.86	99	1.1	100	.8
h-1	11659	7325	2644	100	1.2	100	.98	97	1.00	100	1.00
h-2	10153	6919	2211	100	1.1	100	.8	100	1.00	99	1.00
h-3	11433	6334	2484	99	1.1	99	1.00	99	1.2	99	.9
h-4	10976	7213	2554	99	1.2	99	.8	97	.9	99	1.00
h-5	11566	6805	2714	99	1.00	99	1.00	98	1.1	99	.97
h-6	12340	7634	2667	99	1.3	99	1.00	99	1.00	99	.9

h-7	14074	7408	3001	98	1.00	98	.92	95	.9	96	1.00
h-8	14431	9351	3446	98	1.1	99	1.00	96	.99	98	1.00
h-9	13864	9549	3175	97	1.1	99	.86	99	1.1	99	1.00
h-10	11237	8946	2958	99	1.2	98	.93	99	1.1	99	1.00
h-11	11237	8956	2958	98	1.1	88	.84	98	.93	99	1.00
h-12	13726	8157	3218	99	1.1	99	.88	97	1.00	96	1.00
h-13	11137	7032	2593	99	1.3	99	.9	98	1.00	96	1.00
h-14	12583	6866	2691	99	1.1	99	.9	98	1.00	96	1.00
h-15	10946	5604	2373	98	1.2	99	.85	96	1.00	98	1.00

Role of Occupational Health in the Rural Health Programme with Special Reference to Agricultural Population

by

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Occupational Health in agriculture is a relatively new concept. Farming is definitely an industry, and from the stand point of capital investment and number of persons employed may be termed as "big business."

Agriculture work includes all forms of activities connected with growing, harvesting and primary processing of all types of crops, with the breeding, raising and caring for animals, and with tending gardens and nurseries.

AGRICULTURAL WORKER

Means any person employed either permanently or temporarily in activities mentioned as above.

According to the last census the number of persons working in agriculture was 21,79,547 in an economically active population of 30,20,591 persons, thus giving a proportion of 72.16 percent, as the working force in agriculture

Occupational Health in agriculture is a very special problem because of the following reasons :—

- (1) Agricultural workers are usually dispersed in remote rural areas where all types of public services are below desirable standards.
- (2) The agricultural workers perform a variety of tasks.
- (3) The working week is not limited a prescribed number of hours; great seasonal variations usually occur.
- (4) The agricultural worker's home and workshop are together.
- (5) The agricultural worker does not labour in sheltered areas, but out of doors and exposed to extremes of climate.
- (6) Personal protective equipment and clothes may not be so readily available as for industrial workers.

Occupational in the Rural Health Programme

(7) Labour laws concerning the employment of women and children are applicable to agricultural workers ; and work is therefore performed by all members of the family, beginning generally at a tender age.

(8) Workmen's compensation laws and other social legislation are not fully applied to agricultural workers.

(9) Emergency and first aid services, as well as medical care and hospital services may be lacking or out of reach.

(10) Working and living conditions of migratory farm workers make *medical supervision even more difficult.*

Objectives of occupational Health in Rural Health Programme.

Occupational Health Programme should aim at :—

- (a) Promotion and maintenance of the highest degree of physical, mental and social well being.
- b) The prevention among workers of departures from health caused by their working conditions.
- (c) The protection of workers in their employment from risks resulting from factors adverse to health.
- (b) The placing and maintenance of worker in an occupational environment, adopted to his physiological and psychological equipment.

Rural Health Programme: Can discharge these functions of occupational health programme in respect to agricultural workers in the following ways :

(I) **Medical Examinations :** These medical examinations must be the responsibility of rural health services as a part and parcel of rural health centres. These examinations will enable the rural medical officers to have a picture of the health situation and can give advice to individuals, for example on the work for which they are best fitted. They also make it possible to detect any early signs of unsuitability for the work. Medical examinations should be selective in nature and repeated at intervals in the case of workers engaged in certain tasks e. g. handling of toxic products or exposed to occupational hazards. They should also be supplemented by biological and radiological examinations where necessary.

(II) **Supervision of the Working environments :** It includes supervision of operations which bring workers into contact with toxic substances ; contact with livestock. Certain operations such as planting rice or handling manure can expose workers to risk of various infections. An occupational health service, as an integral part of rural health programme can do much to prevent these hazards.

(III) **Supervision of the Hygiene of Sanitary Installation for agricultural workers:** The occupational health can play an important part to ensure the hygiene

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and well being of agricultural workers. Supervision, advice on hygiene and health, on rural housing and on special facilities for agricultural workers, such as sanitation, showers, or drinking water supply. By supervision of this kind an occupational health service will help to improve existing conditions and safeguard the worker's health; and it can continue the workers education in hygiene and health matters. This calls for close liaison between the doctor and the other services such as public health engineering

(IV) Accident Prevention : In agriculture the human factor is very important and a common cause of injuries at work. Occupational health should therefore concern itself with education of workers in safety measures and make sure that protective devices are properly used and maintained.

(V) First Aid and Emergency treatment. First aid in agriculture is particularly important, because farms are usually remote from hospitals and transport facilities and communication may be inadequate.

(VI) Measures for Health Protection and Promotion. Many public health measures can be applied to workers at their place of employment. These include immunization against infectious diseases, mass health surveys and institution of treatment or control measures against tuberculosis, malaria and other endemic diseases.

(VII) Medical Care : The physician can provide ambulatory treatment for minor ailments. This service can include all necessary medical care to the agriculture worker as well to his family.

(VIII) Health Education Occupational health service on account of its wide function is an ideal position to ascertain the state of health of agricultural workers and the hazards to which they are exposed. Thus it can give practical advice to both employers and workers. This educational process is carried on individually when a doctor examines workers and also in small groups by means of audio-visual devices.

(IX) Maintenance of records and compilation of statistics. Proper records are essential for the efficient working of an occupational health service. The periodic review of statistics enable the services to watch over the health of the workers, to assess the hazard inherent in certain types of work and to devise or improve preventive measures.

(B) ADMINISTRATIVE AND ORGANISATIONAL PROBLEMS

Occupational health services in rural health programme should be organised in such a way as to fulfil the above mentioned functions taking into account the special features of agricultural work and local conditions. It is considered opinion that the protection and promotion of the health of the agricultural worker can be

achieved efficiently and economically only when the plans are integrated with the existing health programme of the community, in which the agricultural worker performs his duties.

The agricultural worker is liable to occupational hazards peculiar to his work as well as to non-occupational health risks common to people living in rural areas. When planning to provide an adequate occupational health service for the agricultural worker, therefore it is necessary to bear in mind the prevailing, social and economic conditions and the availability of resources in personnel and finance.

Working level of occupational Health Programme: In Pakistan to the great advantage of agricultural workers the occupational health services may be organised as a part of rural public health services in the community. The close co-operation and co-ordination of these two services enhances the health protection of the agricultural worker and should be encouraged.

In a developing country like Pakistan encouraging results can be obtained not by organising rural health centres, alone, but community development centres. These should be multipurpose and comprehensive centres, where all the services should be integrated – health, veterinary agricultural, educational and social welfare. Public Health and especially occupational health are of prime importance in these centres and can give maximum help to the agricultural worker.

Educational and training in occupational Health In order to launch successful programme of occupational health as a part of rural health service there is a great need that professional workers in the field of health and medicine such as physicians, nurses, midwives, health inspectors and public health engineers be specially trained.

The teaching programmes at undergraduate level should include general knowledge of the agricultural environments, and its impact on the health of the population with special emphasis on the type of work involved in agriculture and how it effects the workers. The undergraduate student must be made aware of possible accidents on the farm and of diseases arising from poisoning and zoonosis.

It is necessary to include intensive training programme at a post-graduate level for those who take up position of responsibility in health. This intensive training should include comprehensive knowledge of working conditions on the farm; the climate and social environment, the special hygiene factors and sanitary environments, peculiar to farm, the farm equipment, and the hours of work. In addition, training should include occupational pathology in relation to occupational hazards and zoonosis, and also the prevention of accidents and diseases commonly encountered on farm.