

ART. XVI.—*A Medico-Statistical Sketch of the North-West Frontier Disturbances, India, June 19th, 1897, to April 6th, 1898.* By Surgeon-General ALBERT A. GORE, F.R.C.S.I.; Principal Medical Officer, Her Majesty's Forces in India.

SINCE the return of the Chitral Expedition there had been peace on the North-West frontier, and it appeared probable that for some time there would be no further disturbances amongst the turbulent tribesmen inhabiting these mountainous regions. The attack on Mr. Gee's escort at Maizar, in the Tochi Valley, in June, 1897, quickly dispelled this idea, and from there to the Malakand, from Malakand to Shabkadar, from the latter to the Khyber, and from the Khyber to Kohat, the Kurrum Valley, and the Samana Range of outposts, the tribes were, in succession, up in arms, and the state of unrest extended for more than five hundred miles of frontier. Troops were pushed to the front with unparalleled despatch, and there was quickly in line the finest force ever sent to meet an enemy, and large enough for any emergency. Those only who were in a position to understand what the organisation, equipment, transport, and supply of such an army meant in countries where, in the main, only pack transport could be used, could appreciate the work which had to be, and was, done so efficiently.

To meet the many enemies on the North-West frontier the following were the mobilised forces and the corresponding medical arrangements required:—

FIELD FORCES.

Tochi Valley, Kohat-Kurrum (including the operations on the Samana), Malakand, Mohmund, Tirah Expedition, Buner.

Corps Units Mobilised.

Batteries of artillery 16	Companies of sappers and miners 10
Regiments of cavalry 9		
Battalions of infantry, 59		

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Average Strength.—British officers, N.-C. officers and men, 18,688; native officers and men, 41,677; followers, 32,696. Total, 93,061.

MEDICAL ARRANGEMENTS.

Field Hospitals Mobilised.—14 British; 22 Native; beds, 3,600.

Base General Hospitals.—Buner, 200 beds; Kohat, 250; Rawal Pindi, 1,250; Nowshera, 1,250.

Rest Depot Hospitals.—Peshawar, 50; Golra Junction, 25; Khushalgarh, 100. Total, 3,125. Grand total, 6,725.

Personnel, Equipment, Transport.

Corps Units.

Medical officers	. 62	Field stretchers	. 274
Assistant-surgeons and hospital assistants	. 62	Bearers	. 900
Ward orderlies and ward servants	. 88	Pack mules	. 254
Tents G. S., 80 lbs.	. 88	Field panniers, pairs	. 88
Field dandies	. 150	F. M. C.s, F. S. haversacks, &c.	. 264

“Field Hospitals and included Bearer Companies.”

Medical and hospital personnel	. 9,658	Tents G. S., 160, 80, 45, and 40 lbs.	. 1,394
Animals	. 4,180	Maunds, exclusive of tongas	. 7,790
Field dandies	. 720	Trains to rail head	. 36
Ambulance tongas	. 720		

Medical and Surgical Results (Field and General Hospitals).—Diseases and wounds—admissions, 41,055; deaths, 1,602. Ratio per 1,000 admissions to strength, 441·16; ratio per 1,000 deaths to strength, 17·20.

Work of a Base General Hospital, Nowshera.

British.			Native.		
Admitted	Died	Per cent.	Admitted	Died	Per cent.
3,368	60	1·76	6,018	170	2·80

Percentages of Sick in the Field.—Between the 28th of June and the 27th of December, 1897, the following were the percentages of sick British and Native troops in the field:—

Tochi Valley	. 9.08	Kurrum movable	
Kohat-Kurrum	. 1.52	column	. 3.14
Malakand	. 2.16	Peshawar column	. 3.14
Mohmund	. 2.50	Line of communi-	
		cative troops	. 5.14
1st and 2nd divisions,		Reserve brigade	. 5.30
Tirah Expeditionary	3.25	Peshawar and vicinity	10.52
Average, 4.58.			

Sanitation.—Very great attention was paid to the sanitary state of the various posts and camps by the medical officers, and, as a rule, their condition was remarkably good.

The weekly sanitary inspections were very carefully made, and especially with a view to the detection of incipient scurvy, which was entirely absent from the British troops, and in the few cases which occurred amongst the Native troops and followers these were of a very mild type.

Rations and Clothing.—The rations, as a rule, were of excellent quality, and the clothing was very good and suitable to the varying conditions of climate.

Water Supply.—The water supplies were safeguarded as far as practicable, and purified as far as possible.

Quinine was used as a prophylactic when considered desirable.

Six military expeditions were being carried on under Field Service conditions, namely :—

The Tochi Valley Field Force was mobilised June 19th—average strength to February 18th, 1898 :—

British officers	. . . 143	} 9,919
„ troops	. . . 709	
Native „	. . . 5,165	
Followers	. . . 3,902	

The Kohat-Kurrum, including the operations on the Samana Range up to the 15th of October, when it merged into the Kurrum Movable Column :—

British officers	. . . 244	} 20,338
„ troops	. . . 2,333	
Native „	. . . 8,602	
Followers	. . . 9,159	

The Malakand Field Force, from July 26th, 1897, to January 21st, 1898 :—

British officers	.	.	217	} 10,630
„ troops	.	.	2,494	
Native „	.	.	4,979	
Followers	.	.	2,940	

The Mohmund Field Force, from the 3rd of September to the 6th of October, 1897 :—

British officers	.	.	112	} 6,374
„ troops	.	.	1,174	
Native „	.	.	3,541	
Followers	.	.	1,547	

The Buner Field Force, from January 1st, 1898, to the 4th of February, 1898 :—

British officers	.	.	176	} 8,696
„ troops	.	.	2,131	
Native „	.	.	3,170	
Followers	.	.	3,219	

And, lastly, the “Tirah Expeditionary Force,” October 9th, 1897, to April 8th, 1898—37,104 troops and followers.

For these several expeditions a very large transport was required.

Field Force	Camels and Bullocks	Other Pack Animals
Tochi . . .	4,200	2,300
Kurram Valley . . .	2,390	280
Kohat Garrison . . .	750	180
Malakand . . .	3,320	2,950
Peshawar Column . . .	980	3,200
„ Garrison . . .	790	500
Tirah Main Column . . .	13,370	29,440
Reserve Brigade . . .	670	460
Reserve Animals . . .	3,000	3,000
	29,470	42,310

The numerous attendants on these animals had to be cared for when ill by the medical officers and their subordinates, whereas in older times special hospitals had been allocated to them.

Of the tribes who were quickly to feel the power of the Government of India, the Karlanis, of whom the Afridi Afghans were but a sub-tribe, consisted of sub-divisions of the Utman-Khel (located between the Swat and the Mohmund country, and *en route* to Chitral); the Shinwaris located in the mountains west of the Khaibar, and some in the Kunar Valley, north of the Kabul river; the Khogianis, who adjoined them on the west; the Wurukzis or Urakzis, who were located in the difficult mountain tracts of Tirah, the Khaibar, and Jallalabad; the Mangalis; Jzadrans; the Shitaks, and other minor Bangash sub-tribes of Karlanis, located round Kohat and adjoining it, as far as the Indus and further north and west into the Kurrum Valley; and some others of lesser note and strength, besides the Khataks and Dilazaks in the Peshawar district; and, lastly, the Waziris, the Mushud and Darwesh Khel, and their ramifications. On the other side "the Karakar Pass" had as yet been unvisited by Europeans. It was through this defile that Akbar's general, Birbar, when he retreated from Swat through the Buner country towards Attock, lost his army and his own life on the way.

The Utman-Khel were supposed to muster 10,000 fighting men; the Mohmunds were also a powerful tribe; the Wurukzis 20,000; the Shinwaris some 12,000; the Shitak and other Bangash branches located further west than these as far as the Kurmak Valley and adjoining, 100,000 families. Allowing one fighting man to every two, they could furnish a formidable number. The total strength of the eight clans of the Afridis was calculated at 26,000 to 27,000 combatants, and the Orakzais about the same number. Tirah was regarded as the headquarters of their forces, hitherto a *terra incognita*. In 1878 two expeditions had entered the Bazar Valley, but neither was strong enough to essay the Raigal or Maidan. As to character, most of these tribes bore the worst possible. Paget and Mason wrote of the most powerful of them, that they were "ruthless, cold-blooded, treacherous." Against the Afridi Afghans more punitive expeditions had been undertaken since the annexation of the Punjab than against any other, and between 1849-63 along the frontier no less than fifteen,

commanded by some of the most distinguished soldiers of the Indian army. In some of these we had been pretty roughly handled, as at Umbeylah and the first Black Mountain, where we lost heavily in killed and wounded. The old jezeel had now given place to arms of precision in the hands of men trained as marksmen from their early youth, and hospital provision had to be made for troops operating from the malarious and hot valleys of the Tochi and Swat to frigid mountain regions where diseases of quite a different nature were to be anticipated—marching and campaigning from the most trying summer season to the most salubrious winter one. As might have been expected, these conditions, as they prevailed the one over the other, influenced the medical history of the different field forces.

Upon receipt of the news of the treacherous attack on the Political Officer's escort at Maizar, the Government of India resolved immediately upon a punitive expedition into the Tochi Valley, and of such a strength as would not invite attack, and would give confidence to any clans who might be hesitating whether they would join the malcontents in the upper end of the valley. In less than a week orders were issued to mobilise two brigades of infantry, with their hospitals and medical *personnel*, and they were well on their way by the end of June. Every precaution was taken to protect the European regiments on their march from Khushalgarh to Buner, *via* Kohat, 110 miles; two sections of a British field hospital, with ambulance carriage, accompanied each battalion. Standing camps of E. P. G. S. tents and a supply of ice and water were provided at each of the halting places. The intense heat at this most trying period of the year, July 3rd to 14th, proved very exhausting, and there were several cases of heat-stroke, but only two succumbed. The Highlanders had to leave behind at Buner a considerable number of cases of foot sore, and others more or less prostrated by the high temperature. They all, however, quickly recovered under a short rest and treatment, and rejoined their respective regiments on the march onwards, and on the 19th of July

the two battalions showed the following effective and sick—

Effective, 1,521. Sick, 38. Total, 1,559.

After two months sojourn in this very malarious valley, with its generally impure water supply and without the stimulating excitement of active war, fevers, dysentery, and diarrhoea became very prevalent, and more especially in particular regiments. The Rifle Brigade and two native battalions were withdrawn later; the Highlanders stood the climate much better, and on the 8th of November had 564 effective out of the total of 774 recorded on the 19th of July; had had comparatively few deaths, and marched into Buner on its return to India, January 20th, 1898, 650 strong. With the advent of the cold weather the health of the troops had improved, and on the breaking up of the force all were "fit and well."

Average strength, troops and followers	9,919
Number of deaths	284
Percentage to strength	2·86

The brigades for service in the Tochi had hardly reached their destination when, on the night of the 26th July, the camp at the Malakand was fiercely and suddenly attacked and as gallantly defended, and, after a few days' desperate fighting, the enemy was in full retreat, severely punished. In the short struggle we lost 23 killed and had 150 wounded. On July 30th, three days after the receipt of the news of the attempt to force the position had reached headquarters, orders were issued to mobilise the "field force," which, with its field, line of communication, base general hospitals, medical store depôt, was by the 10th of August already encamped, in pursuit of the enemy, in the cooler climate of Amandara. The whole valley of the Swat was then beautifully green, the river in full flood and split up into many channels looked highly picturesque, and the troops were in the best spirits and anxious for the further advance. The medical and surgical records of its after-campaigning in all varieties of climates, bivouacking a good deal, were briefly—

Average strength of troops and followers	10,620
Number of deaths	230
Percentage to strength	2·16

The principal diseases and injuries were—

Detail	Admissions to hospital	Deaths in hospitals
Fevers	2,544	28
Dysentery	983	13
Diarrhœa	747	0
Chest affections	275	32
Venereal	186	0
Debility	161	1
Rheumatic	106	0
Heat stroke	78	5
Hepatic	28	2
Scurvy	9	0
Alcoholism	1	0
Gunshot wounds	1,188	28

The Mohmunds having attacked the old Sikh fort of Shabkudar, beyond Peshawar, and being repulsed with heavy loss, the "Mohmund Field Force" came into existence on the 3rd of September, 1897, and continued its operations in the particularly trying country for troops at that time of the year owing to the heat and glare from the sand and rocks and the severe kotals which were constantly met with; rocky, arid, sparsely cultivated, little water, and nothing to be procured on the line of march. Its operations came to an end with the complete submission of the tribes on the 6th of October.

Average strength of troops and followers	6,374
Admissions to hospitals	1,180
Deaths	6
Percentage to strength	·09

Towards the end of October, in view of the increasing unhealthiness of the Swat Valley, the forces in the field there were distributed between the stations of Mardan, Jalala, Dargai, Malakand, and Chakdara, with the base at Nowshera. The general health of the troops was good and its transport in a very satisfactory state. The following were the health statistics on November 1st:—

British Regiments.

Battalions	Sick	Total
Royal West Kent	24	687
Highland Light Infantry	73	713
The Buffs	13	581

Summary.

Detail	Strength	Sick included
Europeans	2,469	175
Native troops	6,061	85

Sick per cent., 2·98.

In December heavy rains fell at intervals, but the weather was fine and cold. The troops reported to be “in good form and health.”

On 23rd a communication was sent to the Bunnervals and Chamlavals that a punitive expedition would shortly be sent against them for their complicity in the recent disturbances in Swat if they did not at once comply with the terms of the Government of India, and two brigades were concentrated with their field hospitals and medical *personnel* at Koonda, on the borders of the Swat canal. The tribes not complying, the troops were quickly launched against them, concentrated at Sanghoo on January 6th, 1898. The Tanga Pass was reconnoitred on the 7th, and the peaks above were in the hands of the troops shortly afterwards and the forces on the well-cultivated plains beyond; the men and followers in excellent spirits. During this short campaign, January 1st to February 6th, the following were its medical statistics:—

Average strength, troops and followers	8,696
Admissions to hospital	340
Deaths	6
Percentage of admissions to strength	3·90
“ „ deaths „ „	0·07

So closed the series of military operations outside the sphere of the invasion of the Tirah Maidan. From the 10th of June, 1897, to the 3rd of January, 1898, the casualties in the field numbered 435 killed, 1,318 wounded, 8 missing. On the 15th of January in the field and general hospitals were—

British officers	71	} 3,922
British soldiers	1,211	
Native troops	1,277	
Followers	1,363	

or 10·7 per cent. of the forces engaged. With the 1st and 2nd Divisions Tirah Expeditionary Force in the field—

	Per cent.
British officers	3·10
British troops	2·50
Native troops	4·03

Medical Staff.

	Tochi	Malakand	Tirah
Administrative	1	1	7
Regimental	8	12	36
Field hospitals	22	20	89
General hospitals	3	0	54
	253		

Stations.—Kohat-Kurram Force : Parachinar, Sadr, Thal, Doaba, Kai, Shinwari, Samana, Hangu, Ustarzai, Khushalgarh. Tirah Expeditionary Force : Jumrud, Ali Masjid, Lundi-Kotal, Bara, Mattiani, Mamani. Peshawar and vicinity : Peshawar, Cherat, Nowshera, Rawal Pindi, Cambellpore, Attock. Malakand : Chakdara, Malakand, Jalala, Dargai, Mardan. Tochi Field Force : Buner, Saidgai, Kajuri, Idak, Miranshah, Boya, Datta-Khel.

FIGHTING UNITS IN DETAIL.

Tirah Expeditionary Force, October 9th, 1897, to April 8th, 1898.

Effective, October 18th, 1897.

Staff and departmental officers	866
European troops	7,967
Native troops	19,713
Followers	19,976

28,546 combatants, 19,976 followers, 49,000 pack animals.

Average Strength by Columns, 1st November, 1897.

1st and 2nd divisions	12,909
Kurram column	2,671
Peshawar column	2,671
Line of communication troops	5,897
Reserve brigade	2,962
Peshawar and vicinity	8,058

Total,	35,168
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Fighting Units in the Field.

Batteries	11
Regiments of cavalry	7
Battalions of infantry	37
Companies of sappers and miners	7

Hospitals.—Field, 16; line of communications, 4; base general, 5; rest depot, 5; field medical store depots, 2.

Transport.—1st and 2nd divisions pack animals, others normal scale.

Distribution of Troops, November 1st, 1897.—Parachinar, Fort Bara, Korappa, Shiniwari, Sadr, Rawal Pindi, Fort Lockhart, Ustarzai, Kai, Hangu, Thal, Sultan, Alizai, Chagru-Kotal, Samana, Kohat, Doaba, Gulistan.

Average Strength, October 9th, 1897, to April 8th, 1898.—British officers, 689; British troops, 8,266; Native troops, 16,220; Followers, 11,929. Total, 37,104.

Field and General Hospitals.

Admissions to field and general hospitals	22,109
Died in	1,130
„ out of	222
Discharged to duty	16,852
„ otherwise	3,599
Transferred to other hospitals	587
Average daily sick	2,282·01
Ratio per 1,000 admissions to field and general hospitals	595·80
Ratio per 1,000 deaths in field and general hospitals	30·40
Percentage of deaths to strength	3·05
„ „ to admissions	5·10
„ of average daily sick to strength	6·15

Work of the Line of Communication Hospitals—Field and Base General Hospitals.

Admitted and Transferred to	Died in Hospital	Discharged to Duty	Otherwise	Transferred to Base
13,899	457	3,010	364	10,066
Percentage of deaths to admissions and transfers, 3·29.				

Base General Hospitals.

Admissions	Deaths	Percentage
11,494	297	2·5

British Troops—ratio per 1,000.

Detail	New Army in the Field, Bengal Mutiny, year 1858		Young Troops in the Field, Tirah Ex- peditionary Force, 1897-'98	
	Admissions	Deaths	Admissions	Deaths
Cholera . . .	5·0	3·00	0	0
Fevers . . .	1333·3	18·57	392·40	7·30
Heat apoplexy . . .	55·8	17·17	·72	·12
Delirium tremens . . .	6·2	·64	·48	·24
Dysentery . . .	231·7	33·67	58·40	2·05
Diarrhoea . . .	303·5	—	60·90	·36
Hepatic . . .	69·0	5·84	16·90	·48
Phthisis . . .	6·0	2·19	·60	·12
Respiratory diseases	92·3	2·42	34·40	1·33
Venereal diseases* . . .	270·6	—	65·40	—
All other causes . . .	725·0	5·92	214·70	5·30
	3,098·4	89·42	843·90	17·30

Regiments in the Field.

Battalions	Admissions	Deaths
1st Royal East Surrey . . .	469	14
2nd Yorkshire . . .	493	27
2nd Derbyshire . . .	495	13
1st Devonshire . . .	525	4
2nd Royal Sussex . . .	269	15
1st Royal Scots Fusiliers . . .	229	8
1st Dorsetshire . . .	318	28
2nd K. O. S. Borderers . . .	489	14
1st Northamptonshire . . .	249	42
2nd K. O. Yorkshire L. I. . .	229	26
1st Gordon Highlanders . . .	464	16
1st D. C. Light Infantry . . .	212	3
2nd R. Inniskilling Fusiliers . . .	641	3
2nd Oxfordshire Light Infantry . . .	247	11
Total average daily sick . . .	508·18	
With each battalion . . .	36·29	
Average number of deaths . . .	17·50	

* A rigid medical inspection for venereal diseases revealed 769 cases among the 21,683 European troops who proceeded on service in 1897-1898, and 494 broke down during the campaign from its effects.

Native Troops.

Total average daily sick	931·87
With each battalion	22·70
Average number of deaths	4·60

PRINCIPAL DISEASES IN ORDER OF FREQUENCY OF OCCURRENCE.

Field and General Hospitals.

Detail.	Admitted.	Died.
Fevers	7,498	190
Dysentery	3,903	357
Respiratory affections	1,848	265
Diarrhœa	1,293	92
Venereal	1,065	—
Anæmia and debility	901	36
Rheumatism and rheumatic fever	698	1
Hepatic	451	13
Skin	437	2
Eye	167	—
Organs of locomotion	108	—
Nervous System	96	10
Scurvy	65	—
Ear Diseases	36	—
Circulatory	35	4
Erysipelas	10	1
Sunstroke and heat apoplexy	9	1
Alcoholism and delirium tremens	4	2
Cholera	—	—
Pyæmia	—	—
Gunshot wounds	934	78
All others	2,551	78
All diseases	22,109	1,130

REMARKS.

Febrile Group.

Detail.	Admitted.	Died.
Small-pox	2	—
Simple continued fever	76	—
Enteric fever	251	60
Ague	6,659	99
Remittent fever	462	31

There were only 7 admissions for eruptive fevers among the British troops; the 2 only of mild small-pox occurred amongst the native troops; 69 of the 76 S. C. fever were confined to Europeans, and 251 of the 258 cases of enteric. Percentage of admissions to strength—Officers, 4·3; N. C. O. and men, 2·6; 7 deaths, ·87 and ·64 respectively. Mortality in cases treated, 23·7. Cantonments, 1897, 27·1, 3,019 of those admitted for malarial fever were among the Europeans, with only 7 deaths. Dysentery and diarrhoea caused only 20 deaths in the Europeans, 34 amongst the native troops, and were more fatal amongst the followers, 395; only 4 of the 10 admissions for erysipelas occurred amongst the Europeans, and there was an entire absence of wound diseases. Venereal admissions—Europeans, 541; native troops, 255; followers, 287; these were admitted in the earlier phases of the campaign. Scurvy was confined to the native troops and followers, but was of a very mild type. There were only 4 admissions for “drink disease” in 181 days. The 7 deaths from rheumatism all occurred amongst the followers. There were only 161 of anæmia and debility amongst the Europeans, 364 native troops, 376 followers. There were few admissions for nervous diseases, and the deaths were principally due to meningitis. Eye diseases accounted for only 167 admissions, mostly mild conjunctivitis. Diseases of the heart for only 11 admissions, with 2 deaths. Hepatic affections were far less common amongst the followers, only 77 admissions out of 451.

Respiratory Group.

Diseases.	Admitted.	Died.
Tubercle of the lung and phthisis	50	9
Bronchitis and bronchial catarrh	1,121	88
Pneumonia	516	190
Other respiratory affections	161	8

The admissions for pneumonia were largely in excess amongst the followers, 276 with 131 deaths out of the total, and among the other respiratory affections included in this class were 83 admissions and 6 deaths from chronic bronchitis. The British troops suffered least, the native troops next, and the followers most from affections of the skin.

There were only 9 admissions, and 1 death from heat-stroke, all confined to Europeans; 4 cases of flat foot, and 22 of blisters of feet are recorded only among British troops.

Gunshot Wounds, Admitted and Died in Field and General Hospitals.

Detail.	Admitted.	Died.	Per cent.
Field and general hospitals .	934	78	8·3
In general hospitals .	654	10	1·53

Many of the cases admitted to the field hospitals were mortally wounded, with no prospect of recovery. The result of the treatment in the Base general hospitals was the best ever recorded, as pyæmia, hospital gangrene, and all wound diseases were conspicuous by their absence. From the Tirah Maidan the wounded had to be transported 111 miles before they could be entrained—40 of which, to Shinawari, was in field dandies, and the remaining 72 in ambulance bullock tongas to Khushalgarh. The first stage over two high mountain passes, steep and difficult. The last by rail in ambulance carriages 74 miles to Rawal Pindi, and if proceeding to Nowshera, 78 further.

Regions of the Body wounded.

Head	33
Face and neck	37
Chest	72
Abdomen	55
Neck and spine	35
Perineum, groin, buttocks	42
Shoulder	37
Upper extremities	147
Hip joint	6
Lower extremities	292
Arteries	3
Parts not defined	146
Other injuries	9

As in all previous campaigns some battalions suffered disproportionately to others. In the early part of 1898 the 22nd Gurkhas, owing to the severe weather at Fort Lockhart, suffered from bronchitis a good deal. But as a rule the

result of exposure to cold and wet and heavy duties, often without tents, predisposed to ague and diarrhoea rather than to chest affections, and rheumatism when these had been latent. The 15th Sikhs and the Royal Scots Fusiliers, who had suffered much from malaria, contracted in the Kurrum Valley in 1897, and the Devonshire regiment, after a tour of previous service in the malarial valley of Peshawar, became ineffective from intermittent fever chiefly.

The preponderance of malarial fevers is very well portrayed in the short note given below by the medical officer who accompanied the 1st battalion, Devon regiment, 1st brigade, Tirah Expeditionary Force:—

“Arrived in Peshawar 1st August, 1897, after an absence from the district of five months spent at Jullundur, the regiment having proceeded there on completion of a tour of duty in the Peshawar district. No fresh draft had arrived from England in the meantime. Half the battalion (A, E, F, H Companies) left the same night to garrison Cherat. Headquarters and wing (B, C, D and G Companies) went out to Bara Fort on 21st August. The wing at Cherat returned on 19th September, and rejoined at Bara on 3rd October.

“Mobilised on 20th September. Left for active service, 8th October. Strength, 739 non-commissioned officers and men. Men left behind on line of communication for baggage guard, &c.:—

Kohat	60	16th October.
Shinawari	63	21st „
Mastura Valley	32	25th November.
Arrived at Jumrud		9th December.
Left the Tirah expeditionary force		22nd „
Arrived at Jullundur		24th „
Number of admissions to hospital		343
Returned to duty		84

Total loss 259

“The large majority of admissions have been from ague. Men apparently in good health, with no cachectic appearance, being suddenly prostrated and unfit for duty.

“The companies that proceeded to Cherat suffered equally with those that proceeded from Bara direct.

"A special medical inspection was made at Bara on the 6th December: strength, 266; considered fit for duty, 176; unfit, 90."

The admissions and deaths amongst the followers were very much more than those which occurred among the troops, and more especially in this expedition, as will be seen in the general summary. The followers for the earlier expeditions were better selected; a large proportion in the latter had been drawn from the famine district of the North West provinces and Oudh, the Punjab, and Madras, and they were as a rule the dregs of the population of the larger cities, many being either too young or too old. 7,250 of them passed through the hospitals of the expedition, and 788 died out of the average strength of 11,929, as against 345 deaths among the native troops, with an average strength of 16,220.

Percentage of Deaths to admissions by Diseases.

Enteric fever	23.36
Ague	1.49
Other fevers	5.99
Dysentery	9.15
Diarrhœa	7.35
Debility	4.11
Rheumatism	1.00
Bronchitis	5.16
Pneumonia	36.43
Gunshot wounds	8.30
Other complaints	2.28

Followers.

Principal diseases and deaths compared with those of the native troops:—

Detail	Followers, Strength. 16,220			Native Troops, Strength. 11,929		
	Admitted	Died	Per cent.	Admitted	Died	Per cent.
Malarial fevers	2,486	27	.16	1,624	97	0.81
Dysentery and diarrhœa	1,721	34	.20	2,342	395	3.30
Respiratory diseases	656	61	.37	892	192	1.60
Anæmia and debility	864	5	.03	376	20	.17

Ratio per 1,000:—

Detail.	Admissions.	Deaths.
Native troops	595.3	13.7
Followers	607.7	66.0

General Summary.

DETAIL	British Officers		British Troops		Native Troops		Followers		Grand Total		Ratio per 1,000	
	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.
Average strength	689		8,266	16,220	11,929	87,104	599.87	30.54				
Daily sick	48.97		686.67	931.87	699.50	2,282.01						
Diseases and Injuries—												
Enteric fever	30	6	221	53	1	268	6.95	1.64				
Ague	85	—	2,765	4	1,589	6,610	178.14	2.67				
Other fevers	36	—	248	4	102	551	14.89	.89				
Dysentery	88	—	483	17	1,950	3,992	105.16	9.62				
Diarrhoea	30	—	504	3	393	1,292	34.82	2.56				
Veneral diseases	2	—	541	—	287	1,065	28.71	.0				
Scurvy	2	—	—	—	23	65	1.75	.0				
Debility	3	—	141	2	344	803	21.64	.89				
Rheumatism	3	—	231	—	258	697	18.78	.19				
Bronchitis	8	—	222	2	576	1,240	33.42	1.75				
Pneumonia	1	—	50	9	276	516	13.91	5.05				
Gunshot wounds	51	3	364	33	96	948	25.55	2.64				
Other complaints	92	3	1,199	17	1,405	4,292	115.67	2.64				
Total	379	12	6,969	143	7,250	22,239	599.87	30.54				
				190	788	1,183						