

the total cost on original works has been 11.6 lakhs (exclusive of the 1.7 lakhs spent on the new Kingwāh Canal), and on repairs and establishment 23.4 lakhs. The average area irrigated during the five years ending 1905-6 was 277 square miles. The canals are remarkable as being constructed and maintained on the co-operative system without any direct aid from Government, except a small grant towards the cost of establishment in Fāzilka which has been stopped since the last settlement (1902). The excavation work was performed by the agriculturists whose lands the canal was to benefit, supervised by the ordinary revenue staff of the District. Since 1881 the special establishment required for their up-keep has been met by a charge of 3 to 4 annas per *ghumao* (five-sixths of an acre); and the annual silt clearance and other works have been carried out at the expense of the irrigators at the average rate of 8 to 10 annas per irrigated *ghumao*. In addition to these charges for maintenance, a royalty of 12 annas per *ghumao* of superior, and 6 annas per *ghumao* of inferior, crops is taken by Government.

**Ghaggar Canals.**—An Imperial system of minor canals in the Punjab, taking off from the Ghaggar. Owing to the waste of water in the lakes and swamps of that river, and the insanitary condition to which the low-lying lands in the valley below Sirsa were reduced, it was agreed between the British Government and the State of Bikaner that the Dhanūr lake, about 8 miles from Sirsa, should be converted into a reservoir by the construction of a masonry weir at Otu, and that irrigation should be effected by two canals, the northern and southern, taking off from each end of the weir, with a combined capacity of 1,000 cubic feet per second. The Bikaner State was to share the canal supplies and meet a proportionate part of the cost. The canals were constructed with famine labour in 1896-7, and began to irrigate in the monsoon of 1897. The areas commanded in British and Bikaner territory are 130 and 117 square miles, and the irrigable areas are 53 and 35 square miles, respectively. There are 95 miles of main canals and 24 of distributaries; and the total capital outlay to the end of March, 1904, was 6.3 lakhs, of which 2.8 lakhs was debited to Bikaner. These canals are never likely to show any return on their capital cost, as only part of the irrigated area is assessed to canal occupiers' rates, the remainder being assessed to land revenue only.

**Sutlej Inundation Canals, Lower.**—An Imperial system of inundation canals in the Punjab, taking off from the right bank of the Sutlej and irrigating part of Multān District. They

were for the most part constructed in the middle of the eighteenth century by the Daudputras, a powerful tribe who were in possession of this part of the country from the downfall of the Mughals to the rise of Ranjīt Singh; but one of the largest, the Dīwānwāh, was excavated in 1831 by Dīwān Sāwan Mal, who also enlarged and improved several others. Excluding the Hājiwāh canal, whose history is separate from that of the rest, there were in 1850 nineteen of these canals; these, however, have been gradually amalgamated, and in 1903 there were only three, the Mailsi, Muhammadwāh-Sardār wāh, and Bahāwalwāh-Lodhrān canals, of which the last two will probably be amalgamated. The gross cultivable area commanded by these canals is 1,414 square miles, of which 424 are at present irrigable. The canals generally flow from April to October; but since the SIRHIND CANAL came into full operation the supply of water at the commencement and end of the flood season has been considerably reduced, and the actual area irrigated in the five years ending 1903-4 was only 263 square miles. The normal autumn crop is sown and matured with canal water alone; but for the spring harvest only the preliminary waterings required for ploughing and sowing are given from the canal, and further irrigation is supplied from wells. The maximum discharge is 5,000 cubic feet per second, and the total length of main canals is 394 miles and of distributaries 328 miles. Properly designed channels are only of recent construction, and have still to be provided on the Mailsi canal. Until recently canal clearance was effected by the labour of the cultivators: this system was, however, finally abolished in 1903 and rates are now paid. No capital account is kept for these canals. The gross revenue during the three years ending 1903-4 averaged 3·8 lakhs and the net revenue Rs. 83,000.

The Hājiwāh canal is included in the Lower Sutlej system. It was a private canal constructed in the time of Ranjīt Singh, and its administration was taken over by Government in 1888 in consequence of the mismanagement of the owners. This action was authorized by the terms of a deed executed in 1886, under which Government had given the owners a grant of 60,000 acres of land served by the canal, and it was upheld by the Privy Council in 1901. The canal has a bed-width of 30 feet, an average supply during the flood season of 500 cubic feet per second, and a length of 39 miles. The average area irrigated is only 53 square miles, as the alignment is defective.

**Sidhnaī Canal.**—An irrigation work in the Punjab, taking

off from the left bank of the Rāvi and watering part of Multān District. It derives its name, meaning 'straight,' from a remarkable reach of the Rāvi, which extends in a perfectly straight cutting for 10 or 12 miles from Tulamba to Sarai Sidhu. It was opened for irrigation in 1886. The head-works consist of a weir 737 feet long, built across this reach. The main line has a bed-width of 90 feet and a maximum discharge of 1,820 cubic feet per second; after 30 miles it divides into two large distributaries, which between them take nearly one-third of the whole supply. The very short length of the canal compared with the area irrigated is one cause of its financial success. There are in all thirteen main distributary channels taking off from the main line, and three subsidiary canals which take off from the river above the dam. The gross area commanded is 595 square miles, of which the greater part was Government waste, and was settled by colonists brought from various parts of the Punjab, the land being given out for the most parts in 90-acre plots. Although the whole of the water in the Sidhnai reach can be turned into the canal, the Rāvi in the winter is often absolutely dry, owing to the supply taken by the Bāri Doāb Canal, so that the spring crop has to be matured by the aid of wells. The average area irrigated during the three years ending 1903-4 was 190 square miles. The capital outlay up to the end of 1903-4 was about 13 lakhs, and the average annual profit more than 11 per cent.

**Chenāb Inundation Canals.**—A system of inundation canals in the Punjab, taking off from the left bank of the Chenāb below its confluence with the Rāvi, and irrigating part of the Multān and Shujābād *tahsils* of Multān District. They were for the most part constructed by the Pathān rulers of Multān and Shujābād, and were once thirteen in number; but by amalgamation the heads in the river have been reduced to four, the Mattithal, Wali Muhammad, Sikandarābād, and Sikandarwāh. As the canal-irrigated land is much lower than the river-level in July and August, the outer banks of the canals are made specially high and strong to keep the flood-waters from pouring over the cultivated land, and in certain lengths of the river embankments have been constructed. In this way there is a chain of protection about 80 miles long on the east bank of the river. The maximum discharge of the canals is 5,200 cubic feet per second: there are 252 miles of main canals and 46 miles of Government distributaries. Until recently water was taken from the main canal entirely by private watercourses, but the construction of properly aligned distri-

butaries is now in progress. The system by which the cultivators, in lieu of paying for the water, provided labour for silt clearance has recently been abolished, and occupiers' rates imposed. No capital account is kept for these canals. The gross revenue during the three years ending 1903-4 averaged 3.3 lakhs yearly, and the net revenue Rs. 47,000. The average area irrigated during the six years ending 1903-4 was 214 square miles.

**Muzaffargarh Canals.**—An Imperial system of inundation canals in the Punjab, taking off from the left bank of the Indus and the right bank of the Chenāb, and irrigating portions of Muzaffargarh District. They were for the most part constructed by the native rulers of the District, and improved by Sāwan Mal, governor under Ranjīt Singh. After annexation the canals remained for many years under the management of the Deputy-Commissioner, and were transferred to the Canal department as a 'minor' work in 1880. The system of canal clearance by the labour of the cultivators was finally abolished in 1903, when occupiers' rates were introduced. The Indus series, which is by far the more important of the two, consists of eight canals, with an aggregate length of 1,138 miles of main, branch, and distributary channels, and a total average discharge of 2,570 cubic feet per second. There are five canals in the Chenāb series, with a total length of 232 miles, and a discharge of 740 cubic feet per second. The gross area commanded by the canals is 1,205 square miles, of which 1,055 are cultivable and 547 irrigable, the area irrigated during the five years ending 1903-4 averaging 457 square miles, of which 366 square miles were watered from the Indus. To protect the irrigated country, embankments have been constructed, stretching for 119 miles along the Indus and for 40 miles along the Chenāb. No capital account is kept for the system. The gross revenue in 1903-4 was 6 lakhs and the net revenue 3.3 lakhs.

**Indus Inundation Canals.**—An Imperial system of inundation canals in the Punjab, taking off from the west bank of the Indus, and irrigating part of Dera Ghāzi Khān District. They are fourteen in number and cover a river frontage of 175 miles, protecting a low-lying narrow strip of country from 6 to 16 miles wide, known as the Sind. These were mostly constructed by the Mirāni chiefs and other native rulers, and were greatly improved by Sāwan Mal, governor under Ranjīt Singh. Five, however, were constructed by Baloch chiefs in 1862-3 for the use of their tribal lands, but proving a financial failure were bought up by Government. The gross area commanded is 1,374 square miles, of which 661 are cultivable.

The greatest area of crops matured is 348 square miles, and the average about 300 square miles. The normal period of flow is from the beginning of May to the end of September; consequently, while the autumn crop is matured entirely by canal water, the supply in the spring harvest is sufficient only for ploughing and sowing, after which wells are used. The average discharge of the whole series is 2,400 cubic feet per second. There are 680 miles of main canals and branches, of which 108 have been constructed under British rule, 75 miles of distributaries, and 7 of drainage cuts and escapes. As the irrigated tract is below the flood-level of the Indus, a system of embankments 75 miles long has been built, and also works for training the river and protecting the irrigation works. The capital sum expended from 1854 to the end of March, 1904, is 8.6 lakhs. Until 1897 there was practically no net revenue; in that year, by the revised settlement of Dera Ghāzi Khān District, the indirect revenue was substantially increased and a low occupier's rate imposed. The gross revenue for 1903-4 was 4.1 lakhs and the net revenue 1 lakh, or 11.88 per cent. on the capital expenditure. A considerable income is derived from Government lands on the Dhundi canal.

**Bāri Doāb.**—A *doāb* or 'tract between two rivers' (the Beās and Rāvi) in the Punjab, lying between  $29^{\circ} 22'$  and  $32^{\circ} 30'$  N. and  $71^{\circ} 6'$  and  $75^{\circ} 58'$  E., and comprising Amritsar District and portions of Gurdāspur, Lahore, Montgomery, and Multān. The name was formed by the Mughal emperor Akbar, by combining the first syllables of the names of the two rivers.

**Bhattiāna.**—A tract of country in the Punjab, lying between  $29^{\circ} 15'$  and  $30^{\circ} 15'$  N. and  $74^{\circ} 0'$  and  $75^{\circ} 45'$  E., and comprising the valley of the Ghaggar from Fatehābād in Hissār District to Bhatnair in the State of Bikaner, together with an undefined portion of the dry country stretching north-west of the Ghaggar towards the old bank of the Sutlej. For its physical aspects see HISSĀR DISTRICT. Roughly speaking, the tract is bounded on the east by HARIĀNA, on the south and west by the Bikaner desert, while on the north its boundary includes Bhatinda in Patiāla, and may be taken as roughly corresponding to the line of the Southern Punjab Railway. Bhattiāna derives its name from the Bhattis, a collection of Muhammadan tribes claiming Rājput origin, who also gave their name to Bhatnair.

Early in the fourteenth century the wild country held by the Bhattis and Mains (Mīnās) was attached to ABOHAR, a dependency of Dipālpur; and the daughter of Rāna Mal,

the Bhatti chief, was married to Sipāh Sālār Rajab, and in 1309 became the mother of Fīroz Shāh III. The Bhatti chiefs seem to have maintained a position of semi-independence for a considerable time. Rai Hansu, Bhatti, son of Khul Chain, was employed under Mubārak Shāh II against Pulād in 1430 and 1431. Later, the Bhatti chief Ahmad Khān, who had risen to great power and had 20,000 horse under him, defied prince Bāyazīd in the reign of Bahlol Lodi, and, though at first victorious, was eventually defeated and killed. Mirza Kāmran was employed against the Bhattis in 1527, and they seem to have been reduced to complete subjection by the Mughals, for nothing is heard of them until the decay of the Delhi empire. For twenty-four years after 1750 Bhattiāna was harassed by the Sikhs and Bhattis in turn, until in 1774 Amar Singh, the Rājā of Patiāla, conquered it. But Patiāla was unable to hold the tract, and lost the whole of it (Rānia in 1780-3, Fatehābād in 1784), the Bhatti reconquest being facilitated by the great famine of 1783 which desolated the country. Sirsa fell to George Thomas in 1795-9; and on his fall in 1801 the Marāthās acquired Bhattiāna, only to lose it in 1803 to the British, who took no steps to establish a strong government. At that time Bhattiāna was divided between the chiefs Bahādur Khān and Zābita Khān, of whom the former held the country in the neighbourhood of Fatehābād, while the latter owned Rānia and Sirsa. In 1810 the raids of Bahādur Khān had become intolerable, and an expedition sent against him annexed Fatehābād, while in 1818 the territories of Zābita Khān were acquired. The country thus obtained formed the subject of a long dispute with the Patiāla chief, who had encroached on it between 1818 and 1837. It was finally awarded to the British Government, and made into a separate District of Bhattiāna, which was transferred to the Punjab under the name of Sirsa District after 1857. (See HISSAR.)

**Bist Jullundur Doāb.**—A *doāb* or 'tract between two rivers' (the Beās and Sutlej) in the Punjab, lying between  $30^{\circ} 57'$  and  $32^{\circ} 7'$  N. and  $75^{\circ} 4'$  and  $76^{\circ} 38'$  E., and comprising Jullundur and Hoshiārpur Districts, and the State of Kapūrthala. The name was formed by the Mughal emperor Akbar, by combining the first syllables of the names of the two rivers. It is also known as the Sāharwāl Doab.

**Chaj (Jech) Doāb.**—A *doāb* or 'tract between two rivers' (the Chenāb and Jhelum) in the Punjab, lying between  $31^{\circ} 10'$  and  $33^{\circ} 0'$  N. and  $72^{\circ} 7'$  and  $74^{\circ} 3'$  E., and comprising

Gujrāt and parts of Shāhpur and Jhang Districts. The name was formed by the Mughal emperor Akbar, by combining the first syllables of the names of the two rivers.

**Cis-Sutlej States.**—A group of States in the Punjab, lying in the tract of country bounded by the Sutlej on the west and north, the Siwāliks on the north-east, the Jumna on the east, and the old Delhi territory on the south. In 1809 the treaty between the British Government and Mahārājā Ranjit Singh of Lahore set a limit to the encroachments of the Mahārājā to the east and south of the Sutlej, and the Cis-Sutlej States were formally taken under British protection. These States were mostly held by Sikh chiefs, of whom the most prominent was the Rājā of Patīāla with a revenue of a quarter of a million sterling; and by bands of Sikh horsemen, whose individual shares in some cases did not exceed the twentieth part of a single village. Many of them were of recent origin, and had been founded by Sikh warriors from beyond the Sutlej after the overthrow of the Afghān governor at Sirhind by the united forces of the Sikhs on both sides of the river in 1763. For some time previous to the treaty of 1809 Ranjit Singh had aimed at establishing his supremacy over the cis-Sutlej territory. Several of the most prominent of the chiefs had been tributaries of the Marāthā power, and it was as the successor of the Marāthās that the British Government claimed the protectorate. The protected States were allowed full sovereignty within their respective territories, but were required to assist the British with all their forces in repelling any invasion of the country. The British Government confined its interference with the States to the settlement of quarrels, and the determination of disputes as to succession, but reserved to itself, as the price of its protection, the right of escheat in case of failure of heirs. Political control over the States was until 1840 exercised through the British representative at Delhi and his assistants, who were also responsible for the administration of the territories which lapsed from time to time in default of heirs. In 1840 a Governor-General's Agent for the NORTH-WEST FRONTIER was appointed with his headquarters at Ambāla, and two years later the administration of the lapsed territories was transferred to him.

In the first Sikh War (1845-6) the great majority of the States failed to act up to their obligations. The Lahore army was largely recruited in their territories, and their sympathies, as a rule, were with the enemies of their protectors. As a consequence, at the end of 1846, important modifications were

made in the relations between the defaulting States and the paramount power. The most flagrant offenders were punished by confiscation, and the remainder were deprived of their police jurisdiction, and of the right to levy customs and transit duties, while the obligation to furnish troops was commuted for a money payment. Nine chiefs only, those of Patiāla, Nābha, Jind, Māler Kotla, Faridkot, Kalsia, Raikot, Diālgarh, and Mamdot, were exempted from this arrangement, and allowed to retain full powers.

These reforms added largely to the territory under the direct control of the British Government. The head-quarters of the Agent had been transferred to Lahore, and a Commissioner of the Cis-Sutlej States was appointed, subordinate to him. It was speedily found that, without police jurisdiction, the position of the States was an impossible one; and in 1849, after the conquest of the Punjab, the British Government assumed complete control throughout their territories, which were shortly afterwards brought under settlement, and the revenues assessed in cash. The position of the chiefs, and of the representatives of the old communities of horsemen (known as *patidārs*), who were thus deprived of their former powers, became that of ordinary *jāgirdārs*; and the right of succession to the *jāgirs* is confined to the descendants in the male line of the persons actually in possession in 1809, the date of the declaration of the British protectorate. Of the States which were allowed to retain powers in 1846, Diālgarh lapsed in 1852 and Raikot in 1854, while Mamdot was annexed in 1855 in consequence of the misconduct of the Nawāb. The defunct States are now incorporated in the Districts of Ambāla, Karnāl, Ludhiāna, Ferozepore, and Hissār.

**Hariāna.**—A tract of country in the Punjab, lying between  $28^{\circ} 30'$  and  $30^{\circ}$  N. and  $75^{\circ} 45'$  and  $76^{\circ} 30'$  E., chiefly in the eastern half of Hissār District, but also comprising part of Rohtak District and of the States of Jind and Patiāla. It is in shape an irregular oval, with its long axis lying north-west and south-east. On the north-west it is bounded by the Ghaggar valley; on the west, south-west, and south by the Bagār and Dhundauti, or sandy tracts which are the continuation of the Bikaner desert; on the east by the Jumna riverain; and on the north-east by the Nardak country, from which it is divided by a line roughly coinciding with the alignment of the Southern Punjab Railway. The name of Hariāna is most probably derived from *hari* ('green'), and is reminiscent of a time when this was a rich and fertile tract. Archaeological



remains show that the country watered by the Saraswatī was once the scene of a flourishing Hindu civilization; and the records of Tīmūr's invasion mention the sugar-cane jungles of Tohāna, a proof that at any rate the valley of the Ghaggar was at that time of high fertility, though the country near Hissār seems already to have been dry and arid. The chief events in the history of the tract will be found in the article on HISSĀR DISTRICT. At the end of the eighteenth century Hariāna was a veritable no-man's-land, acknowledging no master and tempting none. Lying at the point where the three powers, Sikh, Bhatti, and Marāthā, met, it covered an area of nearly 3,000 square miles of depopulated country. Its thousand towns and villages had once produced a revenue of 14 lakhs, but now yielded less than 3 lakhs. The tract thus lay open to attack; and in 1797-8 the adventurer George Thomas, who held the fief of Jhajjar from the Marāthās, took part of Kanhari and overran Hariāna as far as the Ghaggar. At Hānsi, which he found a desert, he established his capital, with a mint and arsenal. He next planned the conquest of the Punjab to the Indus, and actually advanced as far as the Sutlej. His successes appeared to have firmly established his power, and he built Georgegarh or Jahāzgarh; but in 1801 he succumbed after a heroic struggle to the overwhelming power of Perron, De Boigne's successor in Sindhia's service. After the capture of Hānsi by Bourquin, Hariāna passed for a short time into the hands of the Marāthās, and in 1803 came under British rule; a native governor was placed in charge of the Districts of Hariāna and Rohtak, but British authority was not actually established till 1810.

**Kurukshetra.**—A sacred tract of the Hindus, lying between  $29^{\circ} 15'$  and  $30^{\circ}$  N. and  $76^{\circ} 20'$  and  $77^{\circ}$  E., in the Karnāl District and the Jīnd State of the Punjab. According to the Mahābhārata, which contains the oldest account of the tract, it lies between the Saraswatī and Drishadwatī (now the Rakshi), and was watered by seven or nine streams, including these two. It was also divided into seven or nine *bans* or forests. The circuit of Kurukshetra probably did not exceed 160 miles; and it formed an irregular quadrilateral, its northern side extending from Ber at the junction of the Saraswatī and Ghaggar to Thānesar, and its southern from Sinkh, south of Safidon, to Rām Rai, south-west of Jīnd. The name, 'the field of Kuru,' is derived from Kuru, the ancestor of the Kauravas and Pāndavas, between whom was fought the great conflict described in the Mahābhārata; but the tract was also

called the Dharmakshetra or 'holy land,' and would appear to have been famous long before the time of the Kauravas, for at Thānesar Parasu Rāma is said to have slain the Kshatriyas, and the lake of Sarvanavat on the skirts of Kurukshetra is alluded to in the Rig-Veda in connexion with the legend of the horse-headed Dadhyanch. Nardak is another name for Kurukshetra, probably derived from *nirdukh*, 'without sorrow.' The Chinese pilgrim, Hiuen Tsiang, who visited it in the seventh century, calls it 'the field of happiness.' Kurukshetra contains, it is said, 360 places connected with these legends, or with the cults of Siva and the Sun-god, which have long been places of pilgrimage. Of these the principal are THĀNESAR, PEHOWA, JĪND, SAFĪDON, and KAITHAL, but numerous other sites preserve their ancient names and sanctity.

**Mālwā.**—Tract in the Punjab, lying between  $29^{\circ}$  and  $31^{\circ}$  N. and  $74^{\circ} 30'$  and  $77^{\circ}$  E., and comprising the area south of the Sutlej occupied by the Sikhs. It includes the Districts of Ferozepore and Ludhiāna, and the Native States of Patiāla, Jīnd, Nābha, and Māler Kotla. The tract is a great recruiting ground for Sikh regiments, being in this respect second only to the Mānjha. It is said that the name is a modern one, the title of Mālavā Singh having been conferred on the Sikhs of the tract for their valour by Banda, Bairāgi, who promised that it should become as fruitful as Mālwā.

**Mānjha.**—A tract of country in the Lahore and Amritsar Districts of the Punjab, lying between  $30^{\circ} 52'$  and  $21^{\circ} 35'$  N. and  $73^{\circ} 45'$  and  $75^{\circ} 21'$  E., and forming a portion of the uplands of the Bāri Doāb. In shape it is, roughly speaking, a triangle whose base may be taken as the grand trunk road crossing Lahore and Amritsar Districts from the Rāvi to the Beās, and whose sides are the high banks marking the ancient courses of those rivers. From the point where the Beās now joins the Sutlej, the old Beās bank diverges from the present course of the Sutlej and approaches the old bed of the Rāvi near the borders of Montgomery District. This is the apex of the Mānjha, for, though the upland ridge is continued as far as Multān, from this point it bears the name of the Ganji Bār. Before the construction of the Bāri Doāb Canal the Mānjha was an ill-watered and infertile expanse, described by the Settlement officer of Lahore in 1854 as a jungle in which only the poorer cereals and pulses could be grown. Now, however, the Bāri Doāb Canal runs through the whole length of the tract, which is second in fertility to none in the Province. The Sikhs of the Mānjha are some of the finest specimens of the

Jat race, and the tract is one of the most important recruiting grounds for the Sikh regiments. The expression 'Sikhs of the Mānjha' is, however, sometimes loosely used to denote all Sikhs recruited north of the Sutlej. Punjābi of the Mānjha is the phrase used to express the dialect of Punjābi spoken in and about the Mānjha, as contrasted with Western Punjābi, the Punjābi of the submontane tract, the Punjābi of the Jullundur Doāb, and Mālwā Punjābi, or that spoken south of the Sutlej.

**Rechna Doāb.**—A *doāb* or 'tract between two rivers' (the Rāvi and Chenāb) in the Punjab, lying between  $30^{\circ} 35'$  and  $32^{\circ} 50'$  N. and  $71^{\circ} 50'$  and  $75^{\circ} 3'$  E., comprising the Siālkot, Gujrānwāla, and Lyallpur Districts, and parts of Gurdāspur, Lahore, Montgomery, Jhang, and Multān. The name was formed by the Mughal emperor Akbar, by combining the first syllables of the names of the two rivers.

**Sind-Sāgar Doāb.**—A *doāb* or 'tract between two rivers' (the Indus and Chenāb, and higher up the Indus and Jhelum) in the Punjab, lying between  $29^{\circ} 58'$  and  $33^{\circ} 15'$  N. and  $70^{\circ} 33'$  and  $73^{\circ} 50'$  E. It comprises the Districts of Jhelum, Rāwalpindi, Attock, Miānwāli, and Muzaffargarh, and parts of Shāhpur and Jhang.

**Thal.**—The great steppe lying between  $30^{\circ} 30'$  and  $32^{\circ} 0'$  E. and  $70^{\circ} 30'$  and  $72^{\circ}$  N., in the Sind-Sāgar Doāb, Punjab. It stretches southward from the foot of the Salt Range for 150 miles towards the apex of the *doāb* as far as the border of Muzaffargarh District, and comprises most of the cis-Indus territory of Miānwāli and part of the Khushāb *tahsil* of Shāhpur District, being bounded on the west by the high bank of the Indus and on the east by that of the Jhelum. In places its width exceeds 50 miles. A scanty rainfall, a treeless sandy soil, and a precarious and scattered pasturage mark this out as one of the most desolate tracts now remaining in the Punjab. Much of it is real desert, barren and lifeless, and devoid not only of bird and animal life, but almost of vegetation. At first sight the Thal appears a uniformly monotonous desert, but in reality its character varies. The northern Thal has a substratum of hard level soil, the surface of which is covered by a succession of low sandhills with a general north and south direction; and its appearance is that of a sandy rolling prairie, covered in the rare years of good rainfall with grass and stunted bushes. Cultivation is carried on only in small patches, water is from 40 to 60 feet below the surface, and the sparse population depend chiefly on their flocks and herds. It is traversed

from west to east by the Sind-Sāgar branch of the North-Western Railway, which turns abruptly south at Kundiān and runs parallel with the Indus down the western border of the Thal. The eastern part of the steppe is called the Thal Kalān or 'Great Thal'; and here a line of high sandhills, running north-east and south-west, alternates with narrow bottoms of soil, stiff and hard in places, but more often covered with sand. Towards the west the hills become lower and less sandy. Agriculture here replaces pasturage as the occupation of the people, and in the Leiah *tahsi* a broad strip of nearly level ground runs down from Fatehpur towards Mirhan. This tract is called Daggar in the north and Jandi Thal in the south. The main feature of the Daggar is its central core—a narrow strip of firm, flat, cultivable soil, which runs, like a river, from north to south down its centre. From the line of wells in this portion the Daggar takes its name. The good land ends near Khānpur in a region of smooth sand, to be succeeded near Karor by another fertile strip, which forms a core similar to the Jandi Thal. There is little doubt that the Indus once flowed down the middle of the Thal. Last we come to the Powah, a strip of upland some 3 miles broad forming the high bank of the Indus. In the north this bank rises abruptly 40 feet from the river-level, but towards the south it gradually gets lower, until it disappears at Kot Sultān. Large villages, whose lands lie in the riverain tract below, are built on the Powah, where the floods are less likely to reach them. The Thal is peopled by Jat tribes with scattered septs of Siāl, Khokhar, and other Rājputs, and it was for a time under the Hot Baloch chiefs of MANKERĀ. That its natural characteristics have a depressing effect on the people is hardly a matter of surprise, and they are, to use their own expression, 'camel-hearted.' The tract will probably be irrigated by the projected Indus Canal.