

**A Travel Report across Sone Canals by an American expert Mr.  
Herbert M. Wilson from his famous book Irrigation in India,  
(A Harvard University Publication)  
- Compiled by Saryu Roy**

**Preface- Washington, 1903**

At the close of 1901 the area of India, including native states, was 1,559,603 sq. miles. The total populations were 294,266,701 and total expenditure upon all classes of irrigation works by the government of India had been 337,850,000 usd.

In the year 1900-1901 the expenditure on account of irrigation amounted to 11,500,000 usd, and the revenue to 12,075,000 usd, showing profit of 7.5 percent on the capital outlay for contribution.

The total area cultivated in India the same year was 180,151,093 acres, and the total area irrigated was 18,611,106 acres, or there irrigated more than area in a season, the area irrigated was 33,096,031 acres. The estimated value of irrigated crops in 1900-1901 was 150,000,000 usd, and of there it is interesting to note that the area under cultivator in wheat amounted to 16 million acres, and in cotton area  $8\frac{1}{4}$ (3) million acres, and that the total value of the letter crop alone was 52,773,000 usd.

**Introduction**

Left from Washington on December 1, 1889 with letter of introduction. Reached Bombay on January 13, 1890 via London and Italy.

On January, 31st I called on colonel J.M. Mcneill, R.E. the secretary for government of the public works development of Bengal. With him I discussed the arrangement of my tour through his presidency, and from him I received letters of introduction to his various executive engineers. Col . Mcneill kindly telegraphed to Mr. R.B. Bueckley, superintending engineer of Soan canals to arrange a hasty trip over his territory, and on the following day I reached ARRACH, where I called upon Mr. Buckley.

That day was spent in examining the maps and office records of Soan canals, and on the following morning I set out on a tour of inspection. Mr. Buckley kindly placed at my disposal his canal steamer KUDRA, on which I lived for 3 days. Mr. Buckley also telephoned over the canal lines, arranging for various engineers to meet me and show me various points of interest.

I started early in the morning of February 2, and steamed up the canal against the current at the rate of about 8 miles an hour. The rate do travel was rather slow, owing to the velocity of the stream and to the great number of locks which had to be passed.

At Arrach the canal is 86 ft. wide at the bottom, about 9 ft. deep, and discharge about 2000 (cusecs) second feet of water. From there to the headwaters at Dehree, a distance of 65 miles,

the Arrah Branch follows the general direction of the Soan River on the western side, gradually increasing in width towards the head, where it is 180 ft. wide at bottom, 9 ft. deep, and discharges about 4300 Second ft.

As Nasrequnge, a large village midway between Arrah and Dehree, I was met by Mr. Inghish, the executive engineer of the Arrah Canal, who showed me the heads of some of the distributaries, the escapes and also the mode of applying water to the fields.

I reached Dehree at 8 o'clock on the following morning. During the absence of the executive engineer in charge of the head works at Dehree, I was met by Mr. Williamson, the overseer of the shops at that point, who spent the day explaining the various works. These are of the most interesting and important nature, and consist of the great weir across the Soan River, 2,  $\frac{3}{4}$  miles long and 14 feet in height, of the scouring sluices and regulators at the head of the canals at each end, and of the general machine shops for the constructions and other metal works used on the canal systems.

The Soane River was then very low; scarcely discharging more water than was required to fill the main eastern and western canals. Thanks to this fact, I was enabled to watch the operations of the automatic sluice gates, which were lowered and raised for my inspection.

From Dehree I proceeded again by steamer down the Buxar Branch of the main western canal, passing through immense fields of grains and vegetables, where but a few years before had been just a desert waste. One work of particular note passed was the 'Kao Mulla Siphon Aqueduct', where by the canal is carried over the bed of the 'Kao torrent' and the latter in semi siphon is passed under the aqueduct. A little farther on was a similar work by which the canal is carried in an aqueduct over the 'THORA NULLA'. In the evening I arrived at the town of Buxar, where I met Mr. Horn, the executive engineer of Buxar branch, and left the same night for Allahabad.

During the trip along the Soan canals many interesting scenes were noticed. Numerous canal boats loaded with grain or stone were passed. These were being taken to the railways or floated out on the Ganges River, whence they made the trip to Calcutta. The boats are peculiarly shaped, being higher at the stern than at the bow, varying from 15 to 25 ft. in length, and having a width of about 10 feet. In the centre is erected a pole, perhaps 12 feet in height, to which are attached numerous light strings, and each of these is drawn by a native on the tow path. On these canals it is not unusual to see ten or more men towing one boat.

The important roads cross the canal by means of well constructed masonry or iron bridges. A peculiar accident has occurred too many of the masonry bridges, as the pressure of the earth embankments behind the abutments causes them to act as retaining walls. The pressure as in several cases has caused the arches to spring upward at the centre or key, leaving a slight crack on top. These bridges have been constructed strong enough to perform their duties as bridges, but are not sufficiently strong to act as retaining walls.

The smaller roads and footpaths terminate at canal banks, where catamaran shaped ferry boats are used to cross the canals. These boats are unique in construction. Each pontoon is composed of riveted sheet iron and is 2 ft. wide by 2 ft deep and 15 ft in length. Between the two is supported a wooden deck 6 ft wide, sufficiently large to carry the ordinary two wheeled bullock cart with its team. A chain is laid from one bank of the canal to the other long enough to rest on the bottom of the canal, so as not to impede traffic and passing through a ring on the deck of the ferry boat. By pulling on this chain the occupants' are enabled to draw the boat across the canal.

The canal banks are lined throughout with plantation of trees, prosperity of the canal bank. These are cut and sold as seem desirable to the canal officers. All trees thus removed being replaced by young growths. Among the more usual trees are the SISOO, somewhat like teak in general character, and used in the construction of furniture carts etc. The Sal also used for furniture and fuel, some mangoes and some mesquite.

Owing to the low velocity, about 3 ft per second, which it is necessary to give the navigable branches, considerable deposits of silt accumulated near their heads, and lower down, where the water is cleaner, reeds and rushes line the banks well out towards the middle of the stream. **Large steam dredges are kept at work on the upper lines of the Soane Canals giving them much the appearance of the SUEZ CANAL.** These dredges has mostly been constructed at the shops at Dehree, and are of iron throughout, as are also scows. Large steam passenger boats ply on the main canals, stopping at the various villages lining their banks and terminating their runs at the railways. These boats are crowded with people, which indicates a profitable passenger traffic.

Among the most interesting scenes observed were the enormous crowd of pilgrims, a foot, on camels or on bullocks. These pilgrims make journeys between distant Shrines, often occupying 6 months in the longer trips. Each devotee carries a pole across his back, from the end of which are swung the few necessaries of food and clothing.

The locks along the canals are substantially constructed of brick masonry, sometime singly and sometimes in pairs and average in their lift from 7 to 12 feet. These locks are sufficiently long and wide to accommodate the big passenger steamers. Besides and around the locks is always constructed a waste weir and channel through which the greater part of the discharge of the canal used in irrigation and not required in operating the locks is passed. In this channel in necessarily a high fall with a drop equal to the lock. This fall is built of the most substantial masonry in order to withstand the jar caused by the great body of water passing over it.