

SHANNON NAVIGATION.



SEVENTH ANNUAL REPORT

OF THE

COMMISSIONERS

FOR THE

IMPROVEMENT OF THE

NAVIGATION OF THE RIVER SHANNON, IRELAND;

WITH AN APPENDIX.

Ordered, by The House of Commons, to be Printed, 24 March 1846.

TO THE LORDS COMMISSIONERS OF HER MAJESTY'S TREASURY.

MAY IT PLEASE YOUR LORDSHIPS,

WE, the undersigned Commissioners, appointed under the Act 2 & 3 Vict. cap. 61, beg leave to submit this our Seventh Annual Report.

In the course of last year the undermentioned works were completed:—

At Clare Tideway, Lower Shannon, in addition to the contract which was reported as completed last year, we caused the old quay-wall to be taken down, and replaced by a new one. The bed of the river opposite the quay has been dressed off to a uniform level.

Limerick Navigation.—Frequent interruptions to the trade having been experienced during the last summer by the small depth of water in some parts of the canal between the Shannon and Park Lock, we directed that this level should be laid dry and properly cleared out: this was a work of some labour, which was satisfactorily executed, and the proper depth of water obtained; and the sides of the canal secured from slipping. The trackways have been repaired and gravelled for the whole extent of the navigation; and a new arch built in the place of one carried away by the floods at Cloonfadda.

Plassey Bridge.—This bridge has been carefully examined; and where rust had set in, the parts were scraped and painted, and the timber piles coated over with strong tar and pitch properly prepared.

MIDDLE SHANNON, LOUGH DERG.

Williamstown and Dromineer.—The several rocks and obstructions at these places have been removed by means of the diving dress and helmet, and by blasting.

Woodford River.—The shoal in Lough Derg, at the mouth of the Woodford River, which has been hitherto a great impediment to trade, has been removed by dredging, and a navigable channel formed.

Portumna.—The Connaught Harbour and Canal were cleared from the great deposits of mud, &c. which had been formed, and which lessened the depth of water to the detriment of traders.

Meelick.—The weir has been completed, and the works connected with this contract brought to a close.

Shannon Bridge.—The underpinning of the piers of the bridge has been completed, and the swivel bridge laid down, and thrown open to the public; but the dams still remain to be removed.

Contracts have been made, and the undermentioned works commenced during the past year.

UPPER SHANNON.

Boyle Water-works.—Comprising the taking down and removing the present bridge at Cootehall, and erecting a stone bridge of three segmental arches; also a quay-wall, wharf and approaches, and deepening the bed of the river.

Taking down and removing the old bridge at Knockvicar, and erecting a new stone bridge of three segmental arches for the water-way, and two land arches, with retaining walls and approaches; the constructing a quay-wall and wharf, a weir and overfall with retaining walls, and also a lock and pier, and the deepening the bed of the river.

At Carrick-on-Shannon, the building of a new bridge of five arches, and taking down and removing the old one, constructing a quay, wharf-wall and harbour.

A contract has been made for the supply of the necessary cranes for the quays on the river.

From the 1st January to the 31st December 1845, the daily average number of persons employed was 2,260, giving an equivalent of 707,239 days' work.

During the above period, 737,418 cubic yards of material have been removed by excavation and dredging, including boulder stones, by means of the pentagraph shears; and 12,137 lineal yards of earthen dams were constructed, being equal to nearly seven statute miles.

To assist in the execution of the above, 120 pumps were employed, worked by 23 steam-engines, 4 water-wheels, and by manual labour.

DETAIL relative to the several WORKS which have been completed, or in which Progress has been made during the past Year.

DIVISION No. 1.—LOWER SHANNON.—KILRUSH PIER.

The surface of the pier has been paved for one-half its entire breadth.

The average number of persons employed daily at Kilrush Pier, from the 1st January to the 30th April was eight, being equivalent to 824 days' work.

Three hundred and sixty-six square yards of pitched paving were set.

The quantity dredged was 63 cubic yards.

SALEEN QUAY (BALLYLONGFORD).

A small house has been erected at this station for the toll-collector, to be also used as an office for the transaction of business connected with this duty.

The rocks and boulder stones which remained in the bed of the river have been removed. The trade at this place has increased, and is likely to continue to do so; the great facilities for traffic afforded by the works have proved very satisfactory.

The average number of persons employed daily at Saleen Pier, from 1st January to 13th April, was four, being equivalent to 412 days' work.

CLARE QUAY (COUNTY CLARE).

The quay at this place was completed, and the bed of the river in front of the quay-wall deepened, and dressed off to a uniform surface for the berthing of vessels. There is now a depth of 13 feet of water at spring-tides, and a frontage of 530 feet in length, with returns at each end of 50 feet, provided with landing stairs.

stairs. The wharf extends the entire length of the quay, and is 50 feet in breadth, furnished with the necessary mooring posts.

The average number of persons employed daily at Clare, from 13th January to 23d October, was 40, being equivalent to 5,760 days' work.

The total quantity of material removed amounted to 1,850 cubic yards.

DIVISION No. 2.—LIMERICK TO KILLALOE.

LIMERICK NAVIGATION.

The work performed upon the Limerick Navigation for the past year, consisted of maintaining and gravelling the trackways and banks, repairing the lock-gates and lock-houses, and accommodation-bridges along the line; building a new arch across the trackway at Cloonfadda, to replace one carried away by the floods; the deepening of the Limerick Canal from Park Bridge to the Shannon, piling the slopes, scouring out the back drains at either side, and reforming the trackway; the entire length of which, a distance of 15 miles, has been gravelled, and is now in good condition, and a number of small culverts constructed to facilitate the drainage. The parapets and wing walls of the accommodation-bridges have had a general repair. The deepening of the canal afforded employment for 450 labourers daily; great relief was thus afforded to the poor labourers of Limerick and its vicinity, at a period of the last year (July) when most required.

The average number of persons employed daily upon the Limerick Navigation, from 1st January to 31st December, was 45, being equivalent to 14,052 days' work.

The total quantity of material removed was 6,000 cubic yards.

DIVISION No. 3.—KILLALOE TO TARMONBARRY.

KILLALOE.

The remaining portion of the shoal above the weir still remains to be removed; the completion of the work has been repeatedly urged upon the contractor, who has now made arrangements which lead us to expect that this contract will soon be closed.

The operation of forming a salmon gap at the weir was suspended by the sudden rise of the floods, which caused the stoppage of the works when the contractor was about to set the masonry.

The rise of the water in Lough Derg, although the full discharge of the weir has not yet been obtained, did not exceed three feet ten inches, yet the quantity of rain which fell in the latter part of the year was unusually great.

The average number of persons employed daily at Killaloe, from the 11th September to the 9th October, was 12, being equivalent to 300 days' work.

SCARRIFF RIVER.

The banks of the river round Hogan's Island have been pitched, the slopes dressed off and sown with grass seeds; and the shoal in the river, opposite Reddan's Quay, removed by dredging.

The average number of persons employed daily at Scarriff, between the 10th March and 15th April, and from 7th June to 31st July, was eight, being equivalent to 632 days' work.

The total quantity of material removed by dredging at Scarriff, amounted to 600 cubic yards.

MOUNT SHANNON.

(County Galway. Western Shore of Lough Derg.)

A contract was made for the erection of a pier at the above place, 130 feet in length and 20 feet in breadth; to be composed in the inside of large boulder stones,

stones, found on the adjoining shore, and faced on the outside with heavy quarry stones. The site chosen is a favourable one, being on the north bank of a small bay, from which the pier projects in a south-western direction, sheltering a sufficient space for the accommodation of boats from the violent easterly gales; which is the only danger to be apprehended in this place.

In addition to the facilities which this pier will present for the shipment of corn, and other commodities intended for the market, it will also be of considerable advantage, as affording a ready means of landing a rich marl, found in great abundance in the adjoining bay, and which is much prized as a manure in the surrounding country.

The average number of persons employed daily at Mount Shannon, from the 8th September to the 31st October, was 18, being equivalent to 846 days' work.

WOODFORD RIVER.

An application having been made to us to remove a bar of marl and mud at the mouth of this river, which prevented the entrance of the trade boats at low summer water, we directed a channel to be made with the small dredging vessel ("Prince"), and a barge with spoon and bag; the channel to be 100 feet wide at the entrance, and narrowing to the width of the river, about 20 feet; having a depth of four feet six inches at low summer water. This work has been completed.

The average number of persons employed daily at the Woodford River, from 22d July to 7th September, was 15, being equivalent to 623 days' work.

The quantity of material removed by dredging was 3,593 cubic yards.

WILLIAMSTOWN.

The divers have removed the rocks that were in front of and in the line of approach to the wooden jetty, which has been erected by the City of Dublin Steam Company. Some of these stones were so large that it was necessary to blast them before they could be removed.

The average number of persons employed daily at Williamstown, between the 4th and 30th September, was nine, being equivalent to 200 days' work.

Three hundred and forty-three cubic yards of rock and boulder stones were removed.

DROMINEER.

Similar operations to those at Williamstown have been carried on to improve the approach to the quay at this place. Some of the rocks that were removed, had scarcely three feet of water over them at summer level.

The average number of persons employed daily at Dromineer, between 2d and 25th October, was six, being equivalent to 113 days' work.

The total quantity of material removed was 353 cubic yards, which consisted of rock and boulder stones.

BALLYSHRULE RIVER.

From the bed of the river, which had been deepened in part by the contractors, some few large stones which remained were removed in the month of August, and these works are now completed, forming a good navigable channel from Lough Derg up to the mills.

PORTUMNA.

Connaught Harbour and the Canal were dredged and cleared out by the "Prince" dredger, and by the spoon and bag.

The average number of persons employed daily at Portumna, from 23d June to 2d October, was 12, being equivalent to 545 days' work.

The quantity of material removed by dredging was 2,141 cubic yards.

WHITE'S FORD.

The dredging of this shoal was completed in the month of September by the "Victoria" dredger.

The average number of persons employed daily at White's Ford, from 2d September to 6th September, was 29, being equivalent to 86 days' work.

The quantity of material removed was 176 cubic yards.

VICTORIA LOCK SHOAL.

At the point where the Brusna River joins the Shannon, a shoal has extended half way across the latter river in front of Victoria Lock, composed chiefly of large stones, which have been removed by the divers. The stones were piled together so as to form a beacon at the edge of the Callow, pointing out the entrance to the Brusna River.

The average number of persons employed daily at Victoria Lock Shoal, from 14th July to 23d September, was 11, being equivalent to 391 days' work.

The total quantity of material removed by dredging and excavation was 469 cubic yards.

MEELICK.

The lay-byes which were commenced last year below Victoria Lock were completed in the month of January, and a piece of ground on each side of the river has been enclosed by an earthen mound, and a row of piles driven near the edge of the river, for the purpose of mooring vessels.

Two rough stone beacons have been built on the Long Island below the lock, and one on the Low Callow above the Island, to mark the river course during the floods; these works were completed in the month of January last. Embankments formed of the material dredged at Counsellor's Ford, have been raised across the upper entrances of the branches of the river which run through the Cribby Islands, situated about a mile above Meelick.

A road has been formed across the Callow land, so as to make a communication between Hamilton's Lock and Victoria Lock.

On the 22d April operations were commenced at the weir; there being a gap about 50 feet in length to be finished near its centre. This work has been completed, and stop-posts have been put down at each side of Victoria Lock. The whole of the Meelick contract works are complete, and the workshops have been removed.

The removal of the dams at Keelogue was effected in the early part of the year.

The Lock-gates on the Cloonaheenogue Canal were repaired; the old track-way along that canal has been re-formed and gravelled, and now affords a good carriage-way down to Victoria Lock.

The average number of persons employed daily at Meelick, from the 1st January to the 31st July, was 32, being equivalent to 6,097 days' work.

The total quantity dredged amounted to 3,370 cubic yards.

SHOALS BETWEEN MEELICK AND BANAGHER.

A careful examination was made of all these shoals, to ascertain if they had been removed to the required depth previous to the navigation being opened for large class steamers, and we have the pleasure to state that the following shoals, namely, Keelogue, Ilaundrohora, Innishirekegh, Shannon Grove, Counsellor's Ford, Garrycastle and Banagher, having been examined and sounded, it was found that the dredging had been completed to the required depth. To point out the navigable channel, piles or beacons have been placed on each shoal.

At Garrycastle, immediately below the Banagher shoal, it was ascertained that a number of large rocks lying in deep water had tops projecting from two to three feet above the bottom of the navigable channel; to remove these, a Derrick barge with pentagraph shears or tongs was set to work; but the difficulty of getting a proper grip of the rocks, which were sometimes five or six tons weight, caused the work to proceed very slowly, and often ineffectually, until the diving apparatus was used. The diver was employed fixing chains about such rocks as were too

large for the tongs; and in some cases where the rocks were embedded, holes were bored in them, and they were removed by blasting. By these means a channel 100 feet wide at the upper end was cleared of rocks, and the remainder of the navigable channel was completed by dredging.

The average number of persons employed daily at the shoals, between Meelick and Banagher, was 102, being equivalent to 2,867 days' work.

The quantity of material removed by dredging and excavation amounted to 9,319 cubic yards.

BANAGHER.

The persons employed at Banagher between 1st January and 31st May were chiefly engaged at the quarry, preparing stone for Shannon Bridge, and for the Culvert and Weir at Meelick; also in the workshops, preparing and making buckets and machinery for the dredgers.

The contractors completed the Banagher works, and removed their workshops to Shannon Bridge in the month of May.

The dredging of the shoals above and below the bridge was completed at different periods of the year, which will be found in the Appendix.

To improve the navigable channel in the approach to the swivel bridge, the point of land immediately above the bridge on the Banagher side was cut away, and dredged with spoon and bag.

Piles or beacons were placed on all the shoals to mark the sailing course between Meelick and Shannon Harbour, and on the 1st September the City of Dublin Steam Company's steamer the "Lansdowne," of 300 tons burden, 100 horse power, and drawing five feet six inches of water, passed up to Derryholmes; this being the first large class steamer which had ever ascended so high up the river, being a distance of 41 miles above Killaloe, where steam navigation commences, and distant from Limerick 55 miles.

The average number of persons employed daily at Banagher, from 1st January to 31st December, was 27, being equivalent to 7,063 days' work.

The total quantity of material removed was 5,124 cubic yards.

BIRD ISLAND SHOAL.

The removal of this shoal has been completed to the required depth.

The average number of persons employed daily, from 10th September to 25th September, was 19, being equivalent to 244 days' work.

The quantity removed by dredging was 245 cubic yards.

INNISCAGH.

The remainder of the dredging at this shoal has been completed.

The average number of persons employed daily, from 2d June to 19th June, was 27, being equivalent to 294 days' work.

The total quantity dredged this year was 1,527 cubic yards.

BRUSNA RIVER.

The mouth of this river, forming the entrance to the grand canal, was deepened, and a channel 30 feet wide formed, for the passage of steam-vessels and trade-boats, during the last year.

The average number of persons employed daily at Brusna River, from 18th June to 21st June, was 21, being equivalent to 64 days' work.

The total quantity dredged this year was 195 cubic yards.

LEAHINCH SHOAL.

The average number of persons employed daily at Leahinch, from 26th September to 1st October, was 21, being equivalent to 85 days' work.

The total quantity dredged this year was 487 cubic yards.

DERRYHOLMES.

DERRYHOLMES.

In April last the contractor commenced to raise the stanks enclosing the parts to be excavated, but, in consequence of the heavy rain, operations were partly suspended until May, when the raising of the stanks was again commenced, and finished by the latter end of the month, when the steam-engine, with five pumps, was set to work to unwater the parts inclosed; the engine continued to work for eight days and nights incessantly, without much effect, as, in consequence of the numerous bursts and leaks through the fissures in the rock, the water had only been lowered three feet. On the 25th June the contractor determined on stopping all further operations until he had procured increased steam-power.

On the 13th September the large steam-engine was set to work; on the 16th another engine, and on the 19th a third, the whole working 12 large pumps.

On the 22d September the water was sufficiently lowered to enable the contractor to stake out the channel. From this period he commenced, and continued working up to the 2d October, although the interruptions were numerous from springs and leaks bursting up. After this period the rain fell in torrents, and the space between the dams became so full as to flood the framing which supported the pumps. It now became evident that to persevere any further would be useless, and attended with serious loss. Further operations were in consequence suspended until the ensuing spring, when it is hoped that in a short period the contractor will be enabled to remove the remaining part of the shoal.

The average number of persons employed daily at Derryholmes, from 21st April to 1st October, was 84, being equivalent to 4,968 days' work.

BISHOP'S ISLAND.

The stanks were removed during the past year, and there now only remains a small portion of dredging to complete the work.

The average number of persons employed daily at Bishop's Island, from 25th August to 14th September, was 17, being equivalent to 306 days' work.

GARRYMORE.

Dredging and raising some large stones were the only works executed at this shoal during the past year; there now remain about 5,000 cubic yards of dredging to complete the deepening.

The average number of persons employed daily at Garrymore, from 20th June to 19th July, was 33, being equivalent to 265 days' work.

The total quantity dredged this year was 1,030 cubic yards.

SHANNON BRIDGE.

The works carried on in the early part of the year at this station consisted principally of setting the coping of the quay-walls, and finishing off the swivel bridge and its approaches, both of which were opened to the public on the 4th March last.

The other works executed at this station during the remainder of the year consisted of underpinning the piers, Nos. 12 and 13, of the bridge, and pitching slopes, building the parapet and retaining wall on the south side of the swivel bridge, and erecting a boundary wall on the north side of the bridge to inclose the Commissioners' property, setting mooring posts along the quay-wall, and raising stanks to inclose the excavation not yet commenced on the west or Roscommon side of the river; also excavating a portion of the bed of the river above and below the bridge, and removing same into spoil, lowering the stanks previous to letting the water into the parts excavated, and dredging out of the bed of the river a considerable length of stanks; also building a flight of steps on the Roscommon side of the river for the accommodation of the troops at this station.

The average number of persons employed daily at Shannon Bridge, from the 1st January to 31st December, was 32, being equivalent to 10,040 days' work.

The total quantity dredged this year was 2,573 cubic yards.

CLERHAUN.

The removal of this shoal, which consisted of a hard concrete of clay, gravel and large boulder stones, was commenced in April 1845, by the formation of the stanks, which have been made and completed round a portion of the shoal. A large steam-engine working two pumps was erected on the 19th May; from this period until the 4th July the excavation was briskly carried on, although at considerable disadvantage, in consequence of the bursts and leaks in the dams; the stanks, however, showed symptoms of giving way, and in order to correct it, a gap was made in one of them, and the water let in so as to equalize the pressure.

As soon as the water in the river lowered, the contractor repaired the stanks, and set up an additional steam-engine; two engines having been found insufficient to unwater the space within the dams, a third was erected, and set to work, which enabled the contractor to carry on the excavation with success, until the 24th August, when the bottom of the part inclosed was deepened to nearly the required depth. Considerable interruptions were, however, encountered during the performance of the work, from numerous springs bursting up from the sides and bottom.

On the 31st August all the workmen were engaged in completing two stanks across the river to inclose the additional portion of the shoal, and a large and small steam-engine with pumps were set to work on the 6th September, and on the 8th the water was considerably lowered, and several large rocks were laid dry. On the 4th September, the contractor, wishing to make a vigorous effort to complete the examination of the shoal at Derryholmes, removed the small engines and pumps from this station to assist to unwater that shoal; but one engine being then found insufficient to unwater the works, operations were discontinued for the remainder of the season.

The average number of persons employed daily at this shoal, between the 31st March and the 20th September, was 100, being equivalent to 18,028 days' work.

The total quantity of material removed amounted to 10,903 cubic yards, chiefly rock and boulder stones.

BALLYNATAVE.

The contractor commenced early in April to form stanks round a portion of this shoal, which was to be deepened to six inches below summer water level, and the unwatering was performed by means of hand and swing scoops, with the aid of a small steam-engine working four pumps.

Notwithstanding the unfavourable weather and accidents to the steam-engine, the excavation of the shallow channel was completed on the 14th May. On the 18th May the stanks inclosing the deep channel were completed, and on the 23d June an additional steam-engine was employed to work two 14 inch pumps. From this period to the end of June, the bottom was excavated to a depth of three feet under summer water level, and immediately afterwards the heavy rain, accompanied with the breakage of the machinery, compelled the contractor to abandon the deepening of the shoal for the season.

In the beginning of September, the water having lowered, some men were employed to remove the portion of the stanks which remained above the water surface.

The average number of persons employed daily at this shoal, between 1st April and 14 September, was 92, being equivalent to 8,751 days' work.

The total quantity of material removed by excavation amounted to 10,970 cubic yards.

TULLYMORE.

The "Albert" dredger continued to remove this shoal up to the latter end of March 1845, when she was removed to Athlone, where she remained until the water became too shallow to float her; she was then returned to Tullymore shoal, where she continued till the increased depth of water stopped further operations. The entire of the deepening of this shoal is completed, with the exception of about 1,100 cubic yards, principally composed of large rocks. Efforts have been made to blast the rocks by means of boring holes into them, with long jumpers worked by men in barges moored immediately over them; the holes being bored from

from two to three feet in depth, tin canisters of powder, with patent fuze attached, were inserted and fired, which succeeded in many instances in breaking the rock into fragments. Canvas bags of powder tarred, were tried, which produced a better effect in blasting than the tin canisters. The fragments were raised in some instances by the pentagraph shears, and by means of Lewis bolts and chains, worked by crab winches.

The average number of persons employed daily at Tullymore, from 2d June to 18th October, was 18, being equivalent to 3,750 days' work.

The total quantity of material removed was 25,438 cubic yards.

ATHLONE.

The works at this station were resumed by pumping out the water from the dam, and commencing the excavation in the site of the upper sill and forebay of the lock, and removing the temporary wooden bridge. The contractor was occupied during the month of February principally repairing the wooden pumps, and strengthening the framing of the water-wheels, and erecting a steam-engine to assist the water-wheels in unwatering the dam; also preparing boats to convey the stone from the quarries to the works.

From the latter end of February to the beginning of April nothing of importance was effected, the contractor being employed in making efforts to unwater the coffer-dam, which failed in consequence of the insufficient power of the water-wheels and the want of a steam-engine.

On the 2d April, the first stone of the lock was laid, and the remainder of the month was occupied in building the forebay and rubble masonry under the apron, but the water falling in the river rendered the water-wheels useless, and caused considerable delay.

A steam-engine of 10 horse power was then erected; the necessity for which had been constantly pressed upon the attention of the former contractors as well as the present, but without effect, until experience proved to them the inadequacy of the pumps worked by the water-wheels.

During the month of May the works were nearly at a stand, in consequence of a turn-out amongst the workmen, the only work consisting of the delivery of stone from the quarries.

Early in the month of June the contractor made terms with his workmen, and commenced again laying the footings of the lock and building the pier for 30 feet in length, also excavating a portion of the bed of the river on the Leinster side, opposite to the coffer-dam, and removing the spoil into the site for the intended mills. The remainder of the season up to the latter end of October was occupied in setting a portion of the invert and lower forebay, puddling between the pier walls, and excavating for the foundation, and setting some of the footing course for the quay-wall adjoining the embankment on the Leinster side of the river.

The floods now rising, the water-wheels and the steam-engine combined were found quite insufficient to keep down the water within the dam; hence the contractor was compelled to suspend further operations at the lock works for the season.

We may here remark, that much greater progress might have been made had the work been pushed on vigorously in the favourable season; it is, however, only justice to the contractor to state, that the masonry executed by him is of the very best description, and we expect that notwithstanding the difficulties and delays which have been experienced, that the lock, when completed, will compete with the best of our other works, both in regard to materials and workmanship.

DREDGING.

The dredging at Athlone was commenced in March by the "Albert" dredger, and continued until the 23d April, when a deficiency of water suspended operations until the 20th October, when work was resumed again.

Since the new bridge was opened to the public, as mentioned in our last Report, some trifling works have been carried on, such as paring the curbstone work, cutting the frets on the pilasters, lengthening the guide-plates of the swivel bridge, and paving the top of the pier.

The average number of persons employed daily at Athlone, from 1st January to 31st December, was 182, being equivalent to 56,760 days' work.

The total quantity of material removed by dredging and excavation at Athlone was 29,711 cubic yards.

LANESBOROUGH.

The works carried on at this station during the year were the removal of stanks by a steam dredging vessel of 10 horse power, on the high pressure principle; dredging the harbour, and depositing the material on the spoil-banks; sowing same with grass seeds; erecting rubble-stone fence walls and gates to the spoil-banks, and building an office for the collector on the wharf, above the swivel bridge. There yet remains about 350 cubic yards of dredging to complete the works at this place.

The average number of persons employed daily at Lanesborough, from the 3d January to 1st July, was 17, being equivalent to 2,473 days' work.

The total quantity of material removed amounted to 11,556 cubic yards.

KILNACARROW.

The excavation at this shoal having been very nearly finished in June 1844, the principal work which remained was the removal of the dams. The steam dredging vessel commenced to remove the lower cross dam, inclosing the excavated part of the shoal, on the 10th May; but an accident happening to the coupling box of the main shaft, stopped the working until the 24th June, when she again commenced operations.

The average number of persons employed daily at Kilnacarrow, from the 12th May to the 15th July, was 13, being equivalent to 755 days' work.

The total quantity of material removed by dredging was 2,466 cubic yards.

CROMPAWN.

On the 16th July the "Princess" dredger commenced to dredge a navigable channel in the above shoal, 600 yards long and 140 feet wide; she continued working up to the 30th October, when the water rising too high for the length of the bucket ladder to reach the shoal, operations were suspended for the remainder of the season.

The description of material dredged consisted of indurated clay and limestone gravel of a very hard and compact nature.

The average number of persons employed daily at Crompawm, from 16th July to 31st October, was 15, being equivalent to 1,383 days' work.

The total quantity of material removed by dredging was 6,451 cubic yards.

ERRA.

In the month of April the contractor commenced to form stanks, to inclose this shoal for about 80 yards in length, which were completed on the 23d of May; the space contained within was unwatered by means of a chain-pump and hand-scoops worked by men, and the excavation was commenced on the 3d June; but the dams being formed of a light material, and not sufficiently strong, burst on the 6th June, and from this period to the 19th June, the men were engaged

engaged repairing the breach and forming the cross dams, inclosing a further length of the shoal of about 80 yards. From the 19th June to the 9th July, the excavation was proceeded with, but the means of unwatering being insufficient, a horse pump was fitted up; but the contractor not being disposed to give the exorbitant rate of wages claimed by the owners of horses, employed men to work the pumps. This determination had the effect of causing the owners of the horses to offer them at moderate prices, and the pumps were again set to work; the excavation being resumed and carried on until the 13th October, when the rising of the floods put a stop to all further operations for the remainder of the season.

The average number of persons employed daily at Erra, from the 22d April to the 19th October, was 114, being equivalent to 17,106 days' work.

The quantity of material excavated was 9,695 cubic yards.

CLOONBERLAW SHOAL.

Operations were commenced at this shoal on the 15th May 1845, by inclosing a portion of the river, above 60 yards in length, with stanks, which was unwatered by means of a chain-pump and hand-scoops. On the 10th June the excavation was commenced, and the material applied to forming dams, to inclose an additional portion of the bed of the river. From the 9th June to the 3d July, a steam-engine and pumps were fitted up, and on the 4th pumping was commenced; but the floods rising to a considerable height, it was deemed advisable to let the pit fill with water to equalize the pressure on the dams. On the 16th, the water having been lowered, the steam-engine and pumps were set to work again, and on the 19th the excavation was resumed, and continued up to the 13th October, when the works were stopped in consequence of the floods.

The average number of persons employed daily at Cloonberlaw, from the 15th May to the 18th October, was 136, being equivalent to 17,529 days' work.

The total quantity of material removed was 11,750 cubic yards.

LODGE CUT.

The works at this station were resumed on the 18th March last, by raising and strengthening the stanks, inclosing the parts to be excavated, and pumping out the water; and on the 27th of the month the excavators commenced; but the bursting of the lower part of the longitudinal dam stopped further operations until the 2d April, when the excavators again commenced, and continued with trifling intermission until the 19th May.

A portion of the dam was cut away in order to get a sufficient width in the channel, which weakened it so much that although planks and struts were used to support it, all efforts proved unavailing, and an opening was made in the upper cross stank to allow the pit to fill with water, which equalized the pressure. The remainder of the month of May and June were occupied by men removing the portions of the dams over water surface. From the end of June to the 25th August, the floods continued so high as to prevent the further progress of this work. From the 25th August to the 7th September, a few men were set to work to clear away the dams, and on the 4th November the steam-dredger "Princess Alice" was set to dredge the stanks, which work she was engaged on until the end of the year.

The average number of persons employed daily at Lodge Cut, from 17th March to 31st December, was 39, being equivalent to 7,098 days' work.

The quantity of material removed was 11,373 cubic yards.

DIVISION No. 4.—TARMONBARRY to LEITRIM.

The foundations of the lock and pier and the invert were laid, and the breast wall carried up to the level of the sill stones; the east side wall and river wall of the pier commenced, and the portion of the wharf wall at right angles to the lock carried up to the bed of the coping last year; and this year the masonry of the lock walls, inverts, sills, stop-gate grooves, aprons, pier-walls and sluices were all completed, with the exception of about 4,800 cubic feet of coping and 230 cubic feet of ashlar in the upper apron. The upper and lower lock-gates, together with the sluice machinery, have been made and fixed; there now only remain the casings for the machinery to complete the work.

An addition of 130 feet in length has been built to the north-west wing wall, consisting of rock-faced ashlar masonry, backed with rubble masonry.

The metalling of the wharf and gravelling of the lock pier remain yet to be done.

 WEIR.

The part of the weir adjoining the pier wall was commenced in March last, and the building of the retaining wall and weir was carried on vigorously until the month of October, when both were completed, with the exception of about 130 lineal feet of the weir, and 113 feet in length of coping on the portion of the weir already built, and 60 feet of coping on the retaining wall.

The pitching of the slope of the approach from bridge to lock, and building the dry rubble wall of the embanked road, were proceeded with at different periods of the year, whenever opportunity offered for obtaining the necessary stones.

The pitched slope is now completed, with the exception of a length of 20 yards near its junction with the wing wall of the lock. The dry rubble wall has been built for the full extent of the contract (1,200 feet), and has been further extended part of the way along the inclined approach from the embankment to the lock; but there is a length of 200 feet remaining to be coped, and for which no suitable stone has yet been provided. About 700 cubic yards of filling are still required at the rear of the lock, and 450 superficial yards of the roadway to be formed.

In the month of November some quarry rubbish and broken stone were laid along the slope, below the level of the paved berm, where the gravel had been washed away by the action of the water. A flight of steps was built in the month of July at the angle of the swivel bridge approach, and the road to the lock, and one for the accommodation of the houses which are below the level of the lock roadway at that point; a slip for watering cattle has also been constructed at the river side, immediately below the end of the south wing wall of the swivel bridge.

The embankment was commenced on the 29th September, and completed by the end of October; the rubble retaining wall is about 9 feet in height and 3 feet thick on an average, being built in mortar for 18 inches in thickness, backed with dry rubble, and finished with a good course of rubble stone the full thickness of the wall.

 SWIVEL BRIDGE.

This work was nearly completed last year, except building the south wing wall, and setting some coping on the abutment wings, which were finished before the end of May, and thus the Swivel Bridge contract has been completed.

 EXCAVATION.

On the 18th March 1845, the contractor commenced repairing the stanks and dams, and unwatering the portions remaining to be excavated by means of scoops; and on the 3d April the excavators were set to work; on the 17th arrangements were entered into to clear away the shoals in the Camlin River, and the lock gates

gates of the canal were thrown open in order to reduce the head of water in Lough Forbes.

As the principal part of the excavation consisted of rock full of fissures, considerable difficulty was experienced in keeping out the water. To effect this object, a chain-pump and steam-engine were erected to unwater the cuttings. The excavation was vigorously carried on until the 6th July, when the floods rose so rapidly as to flow over the dams, and burst the longitudinal stank.

On the 12th July a gap 45 feet wide was made in the cross dam at Curlew Island near Lough Forbes, to facilitate the discharge of the floods.

The floods having subsided by the end of July, the gap in the dam at Lack was closed, and pumping was resumed, and the excavation carried on until the middle of August, when the whole of the excavation within the dams was completed. On the 19th August the gap at Curlew dam was closed, and part of the longitudinal dam at Lack cut away, so as to turn the water into the new channel, and a further portion of the river was inclosed by stanks. The excavation was carried on from the above period, with some intermissions, until the 28th November, when the upper cross dam at Curlew burst, which stopped all further operations in the bed of the river for the season; a considerable portion of the excavation was used for forming dams, and the remainder wheeled into spoil to form embankments along the river edge, and the rock cutting laid on the outer face as rough pitching.

The average number of persons employed daily at Tarmonbarry, from the 1st January to 31st December, was 293, being equivalent to 91,811 days' work.

The quantity of material removed was 47,680 cubic yards.

CLOONEEN COX AND CLOONFAD.

Operations were resumed at these shoals on the 12th March last, when the contractor commenced to make up the dams, and on the 17th March, the steam-engine was at work to unwater the parts to be excavated; but from this period to the end of April little was done, in consequence of combination amongst the labourers.

About the latter end of May, dams were being formed at Cloonfad, and the excavation was commenced and carried on with great energy on the part of the contractor until the 3d of October, when the floods rose to such a height as to overflow the dams, and stop all further progress for the season.

The average number of persons employed daily at Clooneen Cox and Cloonfad, from 1st January to 31st December, was 104, being equivalent to 32,552 days' work.

The quantity of material removed was 45,480 cubic yards.

BIRD ISLAND.

This work consists of removing Bird Island and cutting a navigable channel through the shoal; the dams were commenced in July, and the excavation proceeded with; the work was in full operation when the floods which occurred in the month of October broke the dams and put a stop to the works.

The average number of men employed daily at Bird Island, from 1st July to 31st December, was 74, giving an equivalent of 11,704 days' work.

The quantity of material removed was 15,795 cubic yards.

ROOSKEY.

THE LOCK.

At the close of the year 1844, a considerable portion of the lock had been built; in the present year the side walls, wing walls, and fixing of the gates, sluices and machinery were all completed by the latter end of October. The quay wall was completed, with the exception of fixing the mooring posts, which are prepared and ready for setting, and also metalling for a small portion of the wharf.

THE BRIDGE.

On the 3d January the contractors began to fix the centering of the second arch, and on the 15th July the fifth arch was keyed in; this completed all the stone arches of the bridge. The whole of the fascia course, string course, and parapets of the bridge and wing walls have since been completed.

At the beginning of August the masonry for the platforms of the swivel bridge was begun, and early in October the contractor commenced fixing the iron work, which has been completed; and all that remains to finish the entire of the bridge work is to lay on the roadway planking, to paint the iron work, and to form and metal the roadway over two of the arches of the stone bridge, and form the approach to same on the Leitrim side.

THE WEIR.

The short weir at this place, which is 145 feet in length, was commenced in August, and is now complete, with the exception of a small portion of the capping course. The rubble filling for the foundation of the long weir (585 feet) has been laid for about half the length, and the retaining wall at Rabbit Island built. On the 1st January the contractor resumed the excavation of the river bed above the lock, and set the water-wheel to work to pump the water out of a space in the bed of the river, inclosed by dams extending from the lower end of the quay wall to the upper end of the shoal, and on the 6th January he commenced the excavation, which consisted of limestone rock; but on the 14th January, the river being swollen from heavy rains, the dams burst and stopped the further progress of the works, until the month of April, when the rock excavation was again commenced. After pumping out the water, the works proceeded, until the 3d July, when the heavy rains recommenced; in consequence it became necessary to open the dams, and let the water pass off.

A portion of the shoal below the lock, which was inclosed in July last by a dam made from the Leitrim side of the river to Rabbit Island, was removed. This ended the excavation for the year.

The embankment and towing-path on the eastern side of the river has been nearly completed, excepting about 100 yards, which with the gravelling still remain incomplete.

The average number of persons employed daily at Rooskey, from 1st January to 31st December, was 240, being equivalent to 75,120 days' work.

The total quantity of material removed by dredging and excavation amounted to 115,934 cubic yards.

CARNADOE.

The works at this place consist of deepening the bed of the river above and below the bridge and in Lough Bodarig, of removing a portion of the present old bridge and its approach walls, of constructing a stone bridge of one arch 35 feet span, and 7 feet rise, with its wing walls and approaches, of building a quay-wall 400 feet in length, and wharf 325 feet in length, and of forming a channel 80 feet wide at bottom, across a point of land which separates Carnadoe from Killyglass Lake.

The works were commenced on the 18th April by forming a temporary road below the bridge at Carnadoe. Piles were driven in the bed of the river, and a temporary bridge of timber was erected and completed for the public accommodation in the month of June.

The formation of dams in front of the proposed quay and wharf was commenced on the 20th April, and the excavation in the bed of the river above and below the bridge in the beginning of July; but in consequence of the heavy rains a serious check was given to the progress of the works. On the 7th July one of the dams above the bridge broke, and flooded the greater portion of the works.

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The excavation consisted of clay, gravel and boulder stones, and of peat and marl, and all has been completed, except a small portion of dredging.

The building of the quay wall was commenced on the 22d July, and on the 25th August it was ready for the coping, since which time about one-third of the coping has been set, and the remaining portion of that work is all that is now required to complete the wall. The surface of the quay has been partly formed and metalled, and the mooring posts are prepared and ready to be fixed.

On the 16th August the foundation for the bridge having been excavated, the masonry was begun, and on the 6th October the arch was turned and keyed in; the parapets are complete; but there remain to be built short pieces of three of the wing walls, which cannot be effected until the water is lowered, as dams must be made for the purpose. The embanked approaches to the bridge have been partly formed, and the metalling has been nearly completed.

The improved navigable channel from Lough Bodarig to Carnadoe has been set out, and the dredging of it begun, the contractor having cleared a space sufficient to admit the passage of his barges from Rooskey, &c. &c., with materials.

The average number of persons employed daily at Carnadoe, from the 18th April to the 31st December, was 116, being equivalent to 25,752 days' work.

The total quantity of material removed amounted to 91,709 cubic yards.

CARRIGEEN.

The works at Carrigeen were begun on the 3d May, and are now very nearly completed; the canal (80 feet broad at bottom) has been cut and completed from Carnadoe Lough to Killyglass Lough; but the level has not yet been carried out into the loughs at each end, the greater portion of which must be effected by dredging. The whole of the excavation of the canal consisted of soft strata, the upper part, for about 3½ feet in depth, being moory land and peat, and all the lower portion pure white marl.

JAMESTOWN.

The works at this station consist of enlarging and improving the canal about one mile and three quarters in length; building a lock 112 feet in length and 30 feet in width, also two road bridges of 45 feet span each over the canal, with their approaches; of deepening the river course from Drumsna to Jamestown; of building a regulating weir, and a new bridge of five arches of 30 feet span each, and 7 feet rise, together with its approaches.

A considerable portion of the excavation of the canal, and of the masonry of the bridges at Kilbride and Colara, was executed last year; also active preparations were made for commencing the bridge across the river at Jamestown; and this year the excavation of the canal from Kilbride to Lough Nanogue, consisting of clay, gravel, peat and limestone rock, has been carried on with vigour, although considerable difficulty was experienced by the contractors in the excavation of that portion of the canal between the new and old locks, which consisted of soft wet bog to a great depth, continually slipping in and rising up in the bottom. In order to remedy this, two methods were adopted; one was to clear out the soft bog from the bottom of the canal for its full breadth, 3 feet in depth, and fill in the space with heavy rubble stone to add weight; the other was to remove portions of the bog for 12 feet in breadth and 3 feet in depth across the canal, and fill in the same with rubble stone in bags; the latter method proved ineffectual, for when the banks were weighted, the stone was forced up from the bottom. Some more effectual method will require to be adopted to increase the full section of the canal, and prevent the banks from sliding inwards.

The rock-cutting and the entire excavation in the whole length of the canal is completed to the full depth.

THE BRIDGE.

The piers, abutments and arches of the bridge were all completed in November, and the centres struck, and there now only remain to complete the works the setting of the parapets, and the coping of the quay wall above the bridge.

A considerable quantity of the stone used for the masonry was procured from the rock cutting in the canal and in the bed of the river at Jamestown, and excellent hydraulic lime was obtained from boulder stones found in different parts of the excavation.

The Skew Bridges at Curlara and Kilbride have been completed, with the exception of a small portion of the parapet, which remains to be set.

The average number of men employed daily at Jamestown, from 1st January to 31st December, was 531, being equivalent to 166,203 days' work.

The total quantity of material removed was 148,351 cubic yards of clay, gravel and rock.

KILBRIDE.

In the month of October the contractor commenced building the quay wall at Kilbride, 200 feet in length; it is composed of good flat-bedded rubble masonry, well bonded and put together with hydraulic mortar; this will afford great accommodation to steam vessels and trade boats. The excavation of the shoal is nearly all completed, and there now only remain some dredging and stanks to be removed.

DOYLE'S ISLAND.

The removal of the shoal has been nearly completed, but there yet remains some dredging and stanks to be cleared away to finish this work.

The average number of persons employed daily at Doyle's Island, from 23d June to 7th December, was seven, being equivalent to 923 days' work.

The total quantity of material removed was 1,475 cubic yards.

CORNACORROO.

The unwatering of this shoal was begun on the 26th April, and on the 28th the excavation was proceeded with, and carried on with vigour until the latter end of June; and on the 2d July, owing to the very heavy rains that had previously fallen, the works were suspended; a few hands were employed dredging some old stanks with spoon and bag.

From the 2d September till the 3d October the excavation of the shoal was progressing, but on the latter day it was considered more advisable to cut the dams than let the water burst them, which terminated the work for the season.

The average number of persons employed daily at Cornacorroo, from the 1st January to the 12th October, was 56, being equivalent to 13,724 days' work.

The quantity of material removed by excavation was 12,020 cubic yards.

CARRICK-ON-SHANNON.

The works consist of taking down the present bridge across the river, and constructing a stone bridge of five segmental arches, one 35 feet span, two of 33 feet span, and two of 30 feet span, with approaches, building quays and harbour, forming wharfs, and deepening the bed of the river above and below the new bridge.

The works were commenced by opening a quarry at Attyfinlay, within half a mile of Carrick-on-Shannon, in February last, and preparing a quantity of timber and plank for the temporary bridge; also inclosing service ground, and fitting up a steam-engine with pumps and building a lime-kiln.

In the month of May the temporary bridge was commenced, and on the 9th August it was completed and opened to the public. On the 2d June the steam-engine and pumps were set to work, and in about 36 hours, the first pit having been laid dry, the excavation was commenced.

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On the 18th June the first stone for the quay wall was laid, and considerable progress was made in the execution of it, there being a large quantity of stone prepared and ready for immediate use. Notwithstanding the heavy floods of July, the dams resisted the great pressure against them, and the excavation progressed satisfactorily. The setting frame and gangtree being erected, the first stone was laid on the 24th July.

BLOWING UP OF THE OLD BRIDGE AT CARRICK.

It being necessary to remove part of the old bridge to permit the contractor to proceed with his work, it was determined to throw down by the use of gunpowder the part to be cleared away; one shaft in the centre of each pier was sunk to the level of the springing of the arch, wadded with 125 lbs. of powder; when fired the explosion was most successful, throwing down the part required, and without injuring in the slightest degree the temporary wooden bridge.

The land arch on the Leitrim side was commenced on the 13th August, and in about a fortnight after the footings for one of the large piers, from which the centre or navigation arch is to spring, were set.

At this period a great quantity of the old bridge ruins had been cleared away, and the wharf and retaining walls were in a forward state.

An attempt was made to unwater an inclosure at the bridge by putting in a cross dam, but without effect.

Very great difficulty was experienced in forming the dam to inclose the space for the new harbour; by perseverance and skill on the part of the contractor, Mr. R. A. Gray, the dam was perfected; the excavation was pushed on rapidly, and the quay wall built nearly to the intended length, when the floods, which came down in October from the mountains, suddenly burst the dams, and it was with great difficulty the workmen were able to escape; this was a most unfortunate occurrence, as only a very small portion of additional excavation was required to complete the work.

In the month of October the centres for the first two arches were fixed, and the setting of the sheeting of the first arch on the east side of the river and of the cutwater caps commenced. The first two arches were keyed in by the latter end of November, and the land arch in December, about which period the centres of the two first were slacked, and no subsidence took place.

From this period till the end of December little was effected beyond the dressing of stone for the future execution of the bridge.

The average number of persons employed daily at Carrick, from the 6th February to the 31st December, was 112, being equivalent to 31,584 days' work.

The total quantity of material removed by excavation at Carrick was 15,442 cubic yards.

PORT.

The work consists of forming a navigable channel in the bed of the river 60 feet broad at bottom, and six feet six inches in depth at summer water level. On the 12th May the contractor commenced inclosing this shoal with dams, and on the 2d June the pit was sufficiently unwatered to allow the excavators to set to work; but unfortunately the heavy rains and high winds caused such a sensible rise in the river, that on the 3d July, in order to prevent the dams being burst in and swept away, a breach was made, and the water let in gradually.

For a period of three weeks little was done beyond repairing dams with a view of recommencing the excavation of the shoal, which was resumed in a spirited manner in the month of July, and nearly completed by the end of August, except a small portion of the bed of the river at the lower end of the inclosure, which required to be cut away, in order to widen the entrance to the navigable channel.

There remain also three beacons to be built to mark the line of navigation.

The material excavated from this shoal consisted of rock and stiff indurated clay, similar to that usually found in the shoals on the river.

The average number of persons employed daily at Port, from 12th May to 7th September, was 95, being equivalent to 9,690 days' work.

The total quantity of material removed was 6,365 cubic yards.

BOYLE WATER.

The works at Cootehall consist of taking down the present bridge, and erecting a stone bridge of three segmental arches; one of 33, and two of 30 feet span, with its retaining walls, and approaches, of a quay wall, and forming a wharf and approach to same, and deepening the bed of the river on the up and down stream sides of the bridge, so as to form a navigable channel.

The works at Knockvicar consist of taking down the present bridge, and erecting a stone bridge of three segmental arches; one of 33 feet, and two of 30 feet span for the water-way, and two land arches with retaining walls and approaches; of a quay wall and wharf; of a weir and overfall, with their retaining walls; of a lock and pier, and of a quantity of excavation in the bed of the river, so as to form a navigable channel, from the extremity of Lough Key, down stream to the deep water; also of the formation of a mill-race, embankments and towing-path.

COOTEHALL.

A commencement was made to construct dams from the side-cutting, for the purpose of inclosing a length of the channel above the bridge, and at the end of the month 180 lineal yards of dams had been formed, and a pit 100 yards long inclosed for the full breadth of the intended channel, which from this place varies from 80 to 100 feet at bottom.

On the 2d September two wooden pumps, 10 inches square, with levers complete, worked by eight men, were set to work to unwater the pit, which had been previously inclosed; and on the 8th of the month the excavators commenced in clay, gravel and stone, which lay over the rock to the depth, in some places, of from five to six feet. This material was applied in part to spoil, to replace the stuff taken from side-cutting, and in part to the prolongation of the dams up and down stream, so as to inclose an additional space.

The water having been removed by pumping, very little labour was required to keep the work dry, two men being sufficient for the purpose, and it is remarkable that the leakage was trifling, although the outer dam stood upon rock, having a pressure of seven feet of water against it, running with a rapid current.

At the close of the month (September), the clay had been almost all removed from this pit, and the rock excavation at the south end was then commenced.

The limestone in the inclosed pit above the bridge was found to possess excellent hydraulic properties.

From the end of September to the 13th of October considerable exertions were required to keep the dams sufficiently strong and high, so as to resist the pressure of the floods; but on the 13th instant, from the great rise of water, and the previous bursting of the Knockvicar dams, it became impossible to contend longer against the floods.

The average number of persons employed daily at Cootehall, from the 20th of August to the 14th of October, was 73, being equivalent to 3,369 days' work.

The total quantity of material removed was 4,116 cubic yards.

KNOCKVICAR.

In the month of May the excavation of two of the islands below the bridge was commenced by forming a longitudinal dam from the bridge down stream; the temporary water-way having been previously widened, and the old mill and weir obstructions, which existed in the arches of the bridge, having been cleared away, so as to give free passage to the water through three arches; and on the

30th

30th May the up-stream end dam was commenced from side cutting, and finished on the 31st May.

During the month of June the excavation of the islands was carried on, and the stuff almost entirely applied to the construction of dams, until the longitudinal dam from the bridge to one of the islands was closed.

Two pair of pumps were worked by 18 men day and night, until the 17th June, when the water was lowered in the inclosure, and the excavation commenced.

The contractors have applied a considerable portion of the stuff to making and strengthening the dams for inclosing the whole length of shoal from the bridge down to deep water; and at the close of the month the down stream or extreme portion had not been completed.

The work in progress in July consisted of excavation in rock and clay below Knockvicar bridge, men being employed day and night until the 4th of the month, when the water had risen from heavy rains, and burst in the end dam, inclosing the greater part of the excavation, which was suspended till the flood subsided, so as to admit of the dams being repaired, and the pit again unwatered.

These operations were effected by the 14th July, when a portion of the inclosure being again laid dry, the excavators recommenced operations.

There were 10 pumps worked by 126 men, day and night, from the 11th to the 15th instant, viz., four 14 inch wooden pumps, four 10 inch ditto, and two 7 inch ditto.

Night work was resumed on the 21st July, and persevered in till the end of the month, except when occasionally interrupted by unfavourable weather.

Two jib-cranes were erected, and also a gangtree, 45 feet span, traversing over the site of the intended bridge.

On the 3d August dams were commenced from the bridge to the up-stream point of the island above it, for a length of 600 yards from the upper and lower ends of the island to the main land, east side, the water of the river being turned down the old mill race.

The contractors, however, conceiving this too great an area to unwater by a single operation, had a dam constructed across it midway, so as to divide it into two compartments, and three sling scoops, with 11 common scoops, were immediately set to work, which lowered the water sufficiently to admit of the excavation being commenced in the river bed above the bridge. On the 18th August a six-horse power steam engine, with two pumps 14 inches diameter, was completed and set to work above the bridge.

From August to the 6th October the excavation was carried on for the new bridge, and that of the channel from same up to lock and weir, until the 13th October, when the heavy rains burst the dams and flooded the works. The contractor commenced to form dams around the lock pit on the 11th October, and unwater the space with 20 scoops; and on the 27th the excavation was commenced, and a further portion of the weir above the lock inclosed with dams, in which the excavation was begun on the 14th November; both this excavation and that for the lock have been continued up to the end of the year.

In the beginning of August stone-cutters were set to work to prepare ashlar for the bridge, piers, &c., who wrought with slight intermission during the entire month. The excavation for a length of 700 feet below the bridge was completed by the 22d of the month, and a portion of the slopes paved. A large gangtree was erected above the bridge for the purpose of removing the rock from the channel excavation, and the suitable portion of it deposited on service ground for building purposes.

The first stone of the new bridge was laid on the 22d September, and the building continued thence till the 6th October, by which time all the rough ashlar of the piers and west abutments to summer water line had been set; but the leakage into the bridge pit through the rock became so great that the masons were unable to proceed, and the water covered the piers, which are now nine feet high from the bottom.

The only building executed from the 6th October to the end of the year was a portion of the north rubble retaining wall of the eastern approach to the bridge.

Three arches of the old bridge were removed, and a temporary wooden roadway put in their stead. A large quantity of cut stone material has been prepared for the building of the lock, and a four-horse high pressure engine has been erected

on the east side of the lock pit, to be in readiness to pump out the water, should the leakage increase as the excavation progresses.

Since the commencement of the works at this station, the conduct of the men employed has been most exemplary; no dissatisfaction has been evinced amongst them, and they have been throughout industrious and peaceable. There is much praise due to the Messrs. Jeffs, the contractors, for the spirit and energy with which they have carried on these works.

The average number of persons employed daily at Knockvicar, from the 19th May to the 31st December, was 278, being equivalent to 54,153 days' work.

The total quantity of material removed was 62,780 cubic yards.

The execution of the works during the past year has on the whole been satisfactory; but much greater progress would have been made, and the removal of some of the principal shoals would have been completed, had not the floods forced in the dams, and caused a suspension of the works at an unusually early period of the autumn.

But sufficient has been effected to cause an important change in the character of the navigation, and this year we had the satisfaction to witness, for the first time, the passage up the river of a steamer of the largest class, (the "Lansdowne") of 300 tons burthen and 100 horse power, and see that she traversed without impediment a distance of 55 miles, namely, from the head of the Limerick Navigation at Killaloe to Derryholmes near Shannon Bridge; and there will be nothing to prevent this steamer and her companion, the "Lady Burgoyne," of the same tonnage and power, from plying regularly from Killaloe to Shannon Harbour, during the present year, for the conveyance of passengers and towing of barges laden with merchandize.

The valley of the Shannon was subjected to the injurious effects of the very heavy rains which fell during the winter, and in consequence the Callow lands, which for some years had been relieved by our operations, were again inundated occasionally for short periods, and such floodings must be expected in future under similar circumstances. We feel gratified in being able to state from the reports received by us, that the crops produced from the Callow lands, which were formerly flooded, but which have been benefited by our operations, were much greater in quantity and better in quality than had ever been known.

RENTS AND TOLLS.

The rates of tolls, wharfage, quayage and crange remain the same as referred to in our former Reports.

The amount of dues collected at the several stations within our jurisdiction on the Lower Shannon is greater than in the previous year, by a sum of 112*l.* 9*s.* 10*d.*; but it is to be observed that the collection at two of the quays, viz., Saleen and Clare, commenced so late as October 1844, whilst the collection has been made at all the stations throughout the entire of 1845.

There is also a considerable increase in the amount of tolls and wharfage collected at the several stations from Limerick to Lough Allen, as compared with 1844 (see Schedule A.), viz., 214*l.* 5*s.* 5*d.*, which appears to have resulted principally from the judicious reduction in the freights charged by the chief carriers on the navigation.

The collection at Scariff station commenced at the close of the year 1845.

We have more than once advertised for letting the several fine mill sites upon the river, which have been created by our works, and parties have been in communication with us respecting them; but the great outlay required for the erection of buildings and machinery appears to have prevented them from making any engagements with us. It may, therefore, be a question for consideration whether assistance might not be afforded, either by the Government erecting the buildings, or by advancing the money on good security for that purpose. Without some such assistance we see little chance of the fine water-power of the Shannon being made available for milling or other purposes.

ACCOUNTS.

The arrear referred to in our last Annual Report, page 15, as due by the county of the city of Limerick, still remains unpaid. The principal sum to be contributed by the proprietor towards the works executed at Cahircon (Kildysart) also remains outstanding; his agent, who has paid up the interest which accrued thereon to 31st December last, has given an assurance that the full amount of our claim will be discharged by the end of the present month.

In September last Colonel Jones, the paid Commissioner, having been appointed chairman of the Board of Works, and that gentleman continuing to perform the duties of this commission, there has been a saving under the head of salary, and at present there is no paid Commissioner belonging to the establishment of the Shannon Commission.

We have, &c.

(signed) HARRY D. JONES, } Commissioners.
RICHARD GRIFFITH, }

Shannon Commission Office, }
Custom-house, Dublin, }
17 March 1846. }

E. Hornsby, Secretary.

 CONTENTS.

RETURNS.

- No. 1.—Account of the several Sums Received and Expended by the Shannon Commissioners between 1st January and 31st December 1845:—Establishment - - - p. 23
- No. 2.—Account of the several Sums Received and Expended by the Shannon Commissioners between 1st January and 31st December 1845:—Works - - - p. 23
- No. 3.—Copy of a Return furnished by the Paymaster of Civil Services of the several Sums Remitted to him during the Year 1845, by the Treasurers of Counties, in Repayment of Advances made by the Shannon Commissioners:—Repayments p. 25
- No. 4.—Account of Sums advanced as Loans in the Years 1840, 1841, 1842, 1843, 1844, and 1845, and Repayable by Assessment on the Counties benefited, showing the Amounts received by the Paymaster of Civil Services in Repayment of said Loans, and the Sums still outstanding and due on foot of same:—Advances - p. 26
- No. 5.—Account of the several Sums Received and Expended by the Shannon Commissioners between 1st January and 31st December 1845:—Rents and Tolls - p. 27
- No. 6.—General Abstract - - - - - p. 28
-

SCHEDULES.

- (A.)—Comparative Table of the Tolls and Wharfage received from Years 1840 to 1845, inclusive - - - - - p. 29
- (B.)—Return showing the Tonnage of the Imports and Exports at the principal Stations on the Shannon, from 1st January to 31st December 1845 - - - - - p. 30 & 31
- (C.)—Return showing the Amount of Traffic passing to and from the Shannon, through the Grand and Royal Canals, from 1st January to 31st December 1845 - - - - - p. 32
- (D.)—Return showing the Tonnage of the Imports and Exports at the Piers on the Lower Shannon, from 1st January to 31st December 1845 - - - - - p. 33 & 34
- (E.)—Return showing the Number of Passengers by the City of Dublin Steam-Packet Company's Boats during the Year 1845 - - - - - p. 35
- (F.)—Table showing the average Number of Persons employed on the several Works, with the Periods of Employment, during the Year 1845 - - - - - p. 35
- (G.)—Return of Work performed by the "Victoria," "Albert," "Prince," and "Princess," Dredgers, from 1st January to 31st December 1845 - - - - - p. 36
- (H.)—Table showing the Quantities of Materials delivered on the Works during the Year 1845 - - - - - p. 37
- (I.)—Return of Dredging and Excavation, Length of Dams, and Description of Engines used on the Works, between 1st January and 31st December 1845 - - - - - p. 38
-

A P P E N D I X.

— No. 1. —

ACCOUNT of the several SUMS Received and Expended by the SHANNON COMMISSIONERS between 1st January and 31st December 1845.

ESTABLISHMENT.

RECEIPT:	£. s. d.	£. s. d.
To balance of account ending 31st December 1844 - - -	441 6 11	
To amount lodged to the credit of the Commissioners in the Bank of Ireland by the Paymaster of Civil Services - - -	2,114 - -	
To amount of fines levied by order of the Commissioners - - -	- 17 3	
TOTAL RECEIPT - - -		2,556 4 2
EXPENDITURE:		
By establishment - - - - -	1,887 4 6	
By occasional clerks - - - - -	35 7 -	
By travelling expenses - - - - -	182 6 8	
By postage - - - - -	44 - 6	
By contingencies, including books, maps, coals, carriage of parcels, &c. - - - - -	70 12 2	
By law contingencies - - - - -	235 8 6	
By "Descriptive Memoir," expenses on account of - - -	91 19 -	
TOTAL EXPENDITURE - - -		2,546 18 4
BALANCE - - - - £.		9 5 10

Shannon Commission Office,
Custom-house, Dublin,
17 March 1846. }

E Hornsby, Secretary.

— No. 2. —

ACCOUNT of the several SUMS Received and Expended by the SHANNON COMMISSIONERS between the 1st January and 31st December 1845.

WORKS.

RECEIPT:	£. s. d.	£. s. d.
To Balance of Account ending 31st December 1844 - - -	-21,111 3 1 $\frac{1}{2}$	
To Amount of Monies issued by the Treasury during the year 1845 - - - - -	-60,000 - -	
TOTAL RECEIPT - - - - - £.		81,111 3 1 $\frac{1}{2}$

WORKS—*continued.*

EXPENDITURE:

No. of Work in the order in which they stand in the 4th Report of the Commissioners of Inquiry, pages 11 and 12.	NAMES OF WORKS.	Amounts Expended.					
		£.	s.	d.	£.	s.	d.
	Total Receipt brought forward - - -	-	-	-	81,111	3	1 $\frac{3}{4}$
5	Ballylongford - - - - -	256	13	11			
10	Clare - - - - -	931	7	8			
18	Killaloe - - - - -	221	9	8 $\frac{1}{2}$			
19	Lough Derg - - - - -	10	12	2			
20	Derry Island - - - - -	232	6	- $\frac{1}{2}$			
21	White's Ford - - - - -	537	6	11			
22	Works at Meelick - - - - -	6,491	7	11			
23	Shannon Grove (Counsellor's Ford) - - - - -	50	4	4			
32	Clerhaun - - - - -	75	-	3			
33	Ballynatave - - - - -	324	2	3			
34	Tullymore Ford - - - - -	1,131	14	7			
39	Works at Athlone - - - - -	6,584	9	7			
44	Crompaw - - - - -	293	6	3			
45	Erra - - - - -	439	18	6			
46	Cloonbearlaw - - - - -	480	5	8			
47	Lodge Cut - - - - -	405	13	9			
49	Cloondrah Canal - - - - -						
50	Tarmonbarry (the River Course) - - - - -	9,835	10	10			
52	Clooneen Cox and Cloonfad - - - - -	900	5	11			
53	Bird Island - - - - -	5	16	2			
54	Roskey - - - - -	5,721	13	-			
55	Derrycarne - - - - -	5	18	6			
56	Lough Tap and Skeagh Point - - - - -	10	2	-			
58	Jamestown Canal - - - - -	16,007	7	10			
61	Jamestown - - - - -	3,180	18	7			
63	Doyle's Islands - - - - -	112	16	-			
64	Cornacorroo - - - - -	812	7	4			
66	Grose's Islands - - - - -	-	8	-			
67	Carrick on Shannon - - - - -	2,465	8	11			
71	Port - - - - -	463	17	2			
73	Battlebridge - - - - -	21	6	11			
74	Lough Allen Canal - - - - -	127	5	2			
76	Bealantra and River Course - - - - -	36	17	10			
77	Arigna River, Cut at Mount Allen - - - - -	55	14	-			
80	{ Dredging Vessels, Barges, &c., Workshops, Machinery, Con- } tingencies, &c. - - - - -	2,045	17	3			
81	Scariff River - - - - -	364	17	4			
82	Improving the Tributaries between Killaloe and Tarmonbarry - - - - -	2,502	19	8			
83	Carnadoe (Shoal at Bridge) - - - - -	2,344	15	2			
84	Carrigeen - - - - -	2,043	13	5			
86	Tumna - - - - -	7	4	5			
87	Annaleckey - - - - -	8	6	-			
88	Doctor's Weir - - - - -	6	2	9			
89	Cloonacarrow - - - - -	-	3	5			
90	Cootehall - - - - -	256	10	7			
91	Oak Port Lough - - - - -	-	-	10			
92	Oxhill Island - - - - -	5	7	1			
93	Knockvicar - - - - -	4,147	11	5			
95	Boyle River - - - - -	8	13	11			
	TOTAL EXPENDITURE - - - £.				72,056	16	11
	BALANCE - - - - £.				9,054	6	2 $\frac{3}{4}$

Shannon Commission Office,
Custom-house, Dublin,
17 March 1846.

E. Hornsby, Secretary.

— No. 3. —

COPY of a RETURN, furnished by the Paymaster of Civil Services, of the several Sums remitted to him during the Year ending 31st December 1845, by the TREASURERS of the undermentioned Counties in *Ireland*, in Repayment of Advances by the COMMISSIONERS for the Improvement of the River *Shannon*, pursuant to the Act 2 & 3 Vict. c. 61, and an Account of Interest, at the Rate of Four per Cent. per Annum, accruing on said Advances.

COUNTIES.	Dates of Payment.	Particulars of each Payment.				TOTALS.											
		Principal.			Interest at 4 per Cent. per Annum.	Principal.			Interest.			Principal and Interest.					
	1845:	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.				
CLARE - - - -	{ 4 March - 22 July -	1,349	14	5	208	10	9	2,812	5	7	436	17	9	3,249	3	4	
GALWAY - - - -	{ 29 March - 6 August -	2,776	2	-	419	19	10	5,640	19	1	855	1	5	6,496	-	6	
KING'S - - - -	{ 29 March - 30 July -	1,022	12	9	138	19	1	1,946	2	2	283	15	6	2,229	17	8	
LIMERICK - - - -	{ 25 March - 6 August -	436	7	3	61	-	3	886	2	7	133	-	8	1,019	3	3	
DITTO CITY - - - -	{ 16 April - 21 August -	105	4	-	49	2	2	210	8	-	98	3	6	308	11	6	
LEITRIM - - - -	{ 11 March - 26 July -	727	11	11	119	7	3	1,888	7	7	300	-	-	2,188	7	7	
LONGFORD - - - -	{ 6 March - 15 July -	541	19	7	87	-	11	1,318	3	7	209	6	9	1,527	10	4	
MAYO - - - -	{ 22 March - 29 July -	238	12	6	34	18	3	487	17	6	75	17	-	563	14	6	
ROSCOMMON - - - -	{ 4 March - 17 July -	2,243	-	-	377	18	1	5,010	7	1	865	9	1	5,875	16	2	
SLIGO - - - -	{ 15 March - - Sept. -	64	1	-	1	13	4	92	6	9	11	19	7	104	6	4	
TIPPERARY (South Riding)	{ 15 March - 26 July -	405	18	3	63	15	8	817	4	3	128	10	9	945	15	-	
DITTO (North Riding)	{ 31 March - 7 August -	963	14	3	148	4	6	1,941	5	1	298	14	10	2,239	19	11	
WESTMEATH - - - -	{ 29 March - 6 August -	1,475	16	2	233	13	1	3,138	1	11	495	17	2	3,633	19	1	
TOTAL repaid by Counties - - - -								£.	26,189	11	2	4,192	14	-	30,382	5	2

Paymaster of Civil Services Office,
Dublin Castle, 1 January 1846.

(signed) T. F. Kennedy.

— No. 4. —

RETURN, showing the TOTAL AMOUNT of Advances as LOANS made by the SHANNON COMMISSIONERS to the undermentioned Counties, up to the 31st December 1845, including Interest thereon at the Rate of £.4 per Cent. per Annum, from the Dates of the respective Advances, until the entire shall be paid off by Twelve equal successive Half-yearly Instalments; also, the Amounts Received by the Paymaster of Civil Services, *Ireland*, from the Treasurers of Counties, in Repayment of said Loans and Interest; and the Amount still outstanding on foot of same.

NAMES OF COUNTIES.	Total Advances in the Years 1840 to 1845 inclusive, with Interest, at the Rate of £.4 per Cent. per Annum, until the entire shall be Paid off by Twelve equal successive Half-yearly Instalments.			Repayments by Counties on Account of Loans.			Amounts still Outstanding and Repayable by Instalments.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
Limerick- - - - -	6,756	15	2½	3,934	10	1	2,822	5	1½
Limerick (County of the City) -	4,530	16	6½	1,505	17	4	3,024	19	2½
Clare - - - - -	21,812	17	6¾	9,764	19	9½	12,047	17	9½
Tipperary (North Riding) -	15,522	10	5½	8,514	19	7	7,007	10	10½
Tipperary (South Riding) -	7,126	14	7¾	3,980	7	-	3,146	7	7¾
Galway - - - - -	43,836	11	8	21,977	-	8	21,859	11	-
Roscommon - - - - -	53,569	12	6¾	15,449	11	3	38,120	1	3¾
King's County - - - - -	15,327	6	4	8,974	15	7	6,352	10	9
Westmeath - - - - -	25,672	16	3½	11,123	9	1	14,549	7	2½
Longford - - - - -	16,831	-	9¾	4,680	1	4¾	12,150	19	5
Leitrim - - - - -	25,926	2	10½	4,687	1	5	21,239	1	5½
Mayo - - - - -	4,052	19	6½	1,971	5	3	2,081	14	3½
Sligo - - - - -	2,181	5	5½	426	11	1	1,754	14	4½
TOTALS - - - - £.	243,147	9	10¾	96,990	9	6	146,157	-	4¾

Note.—Under the provisions of the 13th section of the Act 2 & 3 Vict., c. 61, the Advances to Counties are to be repaid by twelve half-yearly instalments, and the Amounts in the last Column are in the course of collection under this regulation.

Shannon Commission Office,
Custom-house, Dublin,
17 March 1846. }

E. Hornsby, Secretary.

— No. 5. —

ACCOUNT of the several SUMS Received and Expended by the SHANNON COMMISSIONERS, between 1st January and 31st December 1845.

RENTS AND TOLLS.		£. s. d.
RECEIPT:		
To Balance of Account ending 31st December 1844	-	689 18 1
To Rents:	£. s. d.	
Mills, Lands and other Holdings	652 6 6	
Fishing of Weirs	537 17 6	
Produce of Sales	620 2 3	
Water Power	96 18 6	
	1,907 4 9	
To Fines	-	- 14 -
To Gauging and Weighing Boats (Fees for)	-	1 15 9
To Renewal of Certificates of ditto (Fees for)	-	- 1 -
To Tolls	1,660 3 3	
Wharfage	225 7 8	
Quayage	169 9 3	
Crannage	8 3 -	
	2,063 3 2	
TOTAL RECEIPT	-	4,662 16 9
EXPENDITURE:		
By Salaries and Allowances:	£. s. d.	
Engineers, Surveyors and Inspectors	298 4 3	
Clerks	115 1 -	
Collectors	683 14 4	
Lock-keepers	240 13 6	
Gauging and Weighing Boats	2 - -	
Water Bailiffs	10 5 -	
Care-takers	6 10 -	
	1,356 8 1	
By Payments on account of Loans made by the Board of Works to the late Limerick Navigation Company; viz.		
Interest due up to 31st December 1845	484 13 4	
One Instalment of Principal	135 8 4	
	620 1 8	
By Rents	19 - -	
Taxes	21 6 9	
Rents refunded	18 2 8	
Maintenance and Repairs of Canals, Trackways, Lock-gates, Lock-houses, &c.	2,490 19 7	
Miscellaneous Expenses	6 1 6	
TOTAL EXPENDITURE	-	4,532 - 3
BALANCE	-	130 16 6

Shannon Commission Office,
 Custom-house, Dublin,
 17 March 1846.

E. Hornsby, Secretary.

— No. 6. —

GENERAL ABSTRACT, showing the TOTAL RECEIPT and EXPENDITURE on each of the foregoing Accounts, and the Balances at foot of same, on the 31st December 1845.

No. 1.—ESTABLISHMENT.

			£.	s.	d.				£.	s.	d.
To Receipt	-	-	2,556	4	2	By Expenditure	-	-	2,546	18	4
						By Balance	-	-	9	5	10
			<u>£. 2,556</u>	<u>4</u>	<u>2</u>				<u>£. 2,556</u>	<u>4</u>	<u>2</u>

No. 2.—WORKS.

			£.	s.	d.				£.	s.	d.
To Receipt	-	-	81,111	3	1 $\frac{3}{4}$	By Expenditure	-	-	72,056	16	11
						By Balance	-	-	9,054	6	2 $\frac{3}{4}$
			<u>£. 81,111</u>	<u>3</u>	<u>1$\frac{3}{4}$</u>				<u>£. 81,111</u>	<u>3</u>	<u>1$\frac{3}{4}$</u>

No. 3.—REPAYMENTS BY COUNTIES.

			£.	s.	d.
To Receipt	-	-	30,382	5	2
			<u>£. 30,382</u>	<u>5</u>	<u>2</u>

No. 4.—ADVANCES AS LOANS TO COUNTIES.

			£.	s.	d.						
						By Advances	-	-	146,157	-	4 $\frac{3}{4}$
									<u>£. 146,157</u>	<u>-</u>	<u>4$\frac{3}{4}$</u>

No. 5.—RENTS AND TOLLS.

			£.	s.	d.				£.	s.	d.
To Receipt	-	-	4,662	16	9	By Expenditure	-	-	4,532	-	3
						By Balance	-	-	130	16	6
			<u>£. 4,662</u>	<u>16</u>	<u>9</u>				<u>£. 4,662</u>	<u>16</u>	<u>9</u>

Shannon Commission Office,
 Custom-house, Dublin,
 17 March 1846.

E. Hornsby, Secretary.

SCHEDULE (A.)

COMPARATIVE TABLE, showing the TOLLS and WHARFAGE received during the Years 1840 to 1846, inclusive.

STATIONS.	TOLLS						WHARFAGE						TOTALS					
	1840.	1841.	1842.	1843.	1844.	1845.	1840.	1841.	1842.	1843.	1844.	1845.	1840.	1841.	1842.	1843.	1844.	1845.
Limerick	£ 823 8 10½	£ 674 15 5½	£ 810 14 6½	£ 699 9 4½	£ 486 14 6½	£ 509 15 3	£ 20 2 8	£ 23 - 11½	£ 24 11 7½	£ 23 1 - 2	£ 21 14 8	£ 28 5 2½	£ 842 11 6½	£ 697 16 9	£ 535 5 8½	£ 522 10 5½	£ 508 9 2½	£ 508 - 6½
Annsghbeg	5 11 4½	11 - 1½	46 5 10½	23 4 - ½	11 15 11	14 9 -	4 16 3	8 15 11	21 17 1½	3 5 -	- 6 -	1 2 - ½	10 9 7½	19 16 - ½	66 2 11½	25 9 - ½	12 1 11	15 11 - ½
Errina	1 9 9½	3 11 4½	3 5 6	1 2 1½	2 - 10½	1 3 7	1 4 6½	1 2 9½	- 19 8	- 8 -	- 16 8	- 12 9	2 14 4	4 14 1½	4 5 2	1 10 1½	2 17 6½	1 16 4
O'Brien's Bridge	16 9 7	20 6 5½	17 17 5½	10 7 5½	8 1 3	3 7 2	7 4 2	11 15 6½	14 10 5½	2 14 8½	2 4 9	1 17 3	28 13 9	32 2 4½	32 17 3	13 2 1½	10 6 -	5 4 5
Cassano	1 6 9	1 12 8½	27 12 - ½	9 15 10½	2 4 4	2 11 7½	- 1 8	- 2 8	- 4 6	- 16 5½	- 4 3½	- 5 -	1 8 5	1 15 4½	27 16 6½	10 12 4	2 8 7½	2 10 7½
Killaloe	134 6 - ½	308 10 5½	315 8 3½	302 1 3	302 5 4	440 18 4½	29 7 2½	46 8 11½	20 10 - ½	27 17 8½	29 17 9½	24 7 2	163 13 3	354 19 7½	352 4 4	389 18 11½	392 3 1½	465 5 6½
Scariff*	- - -	- - -	- - -	- - -	- - -	- - 2½	- - -	- - -	- - -	- - -	- - -	- - 6½	- - -	- - -	- - -	- - -	- - -	- - 9½
Portumna	169 12 6	198 3 5½	155 1 11½	161 10 6½	168 19 10½	216 14 9½	11 7 9	14 17 2½	15 17 11½	13 16 10½	10 6 2½	9 16 2½	181 - 3	212 - 11½	170 19 11	875 13 5	179 6 - ½	228 11 - ½
Victoria Lock †	3 3 9½	3 19 8½	2 16 11½	2 3 6	2 9 2½	5 6 4	- - -	- 7 4½	- 18 6½	- 16 11½	- 8 7½	- 6 5½	3 3 9½	4 7 1½	3 14 11	3 - 4½	2 17 9½	5 12 9½
Banagher	280 - - ½	103 6 10½	93 5 8	91 10 11½	91 12 6½	70 19 10½	3 13 8½	9 2 1	7 8 2½	5 16 6½	6 2 8½	9 18 1	292 13 8½	112 8 11½	100 13 10½	97 13 6	97 15 2½	85 17 11½
Shannon Harbour	3 1 3	192 11 11½	197 6 - ½	117 9 8	134 14 1½	169 11 6	- - -	- - 4½	- 1 9½	- - 10½	- - 2	- - 6½	5 1 5	102 12 4	167 7 10½	117 6 6½	134 14 3½	160 12 - 4
Shannon Bridge	72 8 9½	6 11 3½	3 1 - ½	31 16 10½	32 10 - ½	12 - 11½	3 7 3½	2 9 7½	1 15 7	1 17 1½	- 9 8½	- 18 3	75 16 1	9 - 11	4 16 7½	33 13 11½	32 19 9½	12 19 2½
Athlone	108 10 2½	115 4 5½	74 3 11½	70 6 3½	99 3 3½	105 12 4½	34 9 11½	7 11 7½	4 9 2½	7 12 7½	11 7 10½	16 3 4½	143 - 2	122 16 1	78 8 1½	77 18 10½	110 11 2½	122 10 9
Lecarrow	- - -	- - -	- - -	- - -	2 19 4	4 10 10	- - -	- - -	- - -	- - -	3 18 8½	11 8 6½	- - -	- - -	- - -	- - -	6 18 - ½	15 10 4½
Lanesborough	12 7 9½	13 10 3½	21 14 7½	16 9 9½	5 16 7½	8 17 - ½	4 18 11	8 3 3	10 18 11½	7 13 7½	3 9 9½	4 4 - ½	17 6 8½	21 13 6½	30 13 7	24 3 5½	9 6 5	13 1 1½
Clondra	19 5 9	17 4 8	12 12 3½	16 3 8½	15 17 9½	8 2 4½	- 2 2½	- 8 2	- 3 5	- 7 7½	- 7 5½	- 1 6	19 7 11½	12 15 8½	16 11 4	16 5 3	8 3 10½	8 3 10½
Roskey	6 3 8½	4 7 5½	4 1 11½	6 7 7½	7 2 7½	6 5 9½	3 - 5½	1 4 9	1 6 3½	1 19 9	2 8 - ½	1 5 1½	11 4 2½	5 12 9½	8 8 3	8 7 4½	9 10 8½	7 11 11½
Drumma	7 16 1½	6 16 2½	8 14 5½	9 4 3½	10 8 13½	7 15 9	1 16 - ½	1 16 2½	2 18 9½	2 - 9½	8 1 7½	2 12 6	9 12 1½	8 12 4½	11 13 7	11 4 6	13 10 7	10 8 3
Jamestown	3 11 3½	1 2 2	1 19 4	1 7 5	- 12 1½	- - -	- 10 - ½	- 8 6½	- 9 -	- 4 4	- 1 10	- - -	4 1 4	1 11 9½	3 8 4	1 11 9	- 12 11½	-
Carick-on-Shannon	14 8 2½	13 14 1	12 15 8	9 7 5½	8 15 8	9 12 5	17 4 11½	16 6 7½	16 3 9½	11 9 6	10 4 7	5 12 8	31 13 2½	30 - 8½	28 19 9½	20 16 11½	19 - 3	15 6 1
Battle Bridge	1 2 4	- 13 10½	1 7 3½	- 7 11½	- 17 2½	- 13 6½	1 30 7½	- 13 2	1 3 8	- 5 -	- 12 1	1 - 4	2 12 11½	1 7 - ½	2 10 10½	- 12 11½	1 9 3½	1 13 10½
Drumleague	7 15 9½	4 8 9	2 11 3	4 1 10½	1 11 9½	1 14 8½	- 8 8	- 1 8	- 8 8	- 1 5½	- - 10	- - -	8 4 9½	4 10 3	2 19 10	4 3 5	1 12 4½	1 14 9½
TOTALS	1,704 - 1½	1,201 13 10½	1,482 18 1½	1,433 15 11½	1,456 13 2½	1,660 3 3½	145 9 1½	154 17 5	163 4 6½	122 8 9½	168 4 4½	118 19 8½	1,869 9 3½	1,556 11 3½	1,646 2 11	1,586 1 9	1,964 17 7	1,779 3 -

* Collection of Rates commenced at Scariff in October 1845.
 † Collection of Rates made at Hamilton Lock up to November 1844.

LOWER SHANNON, 1845.

STATIONS.	QUAYAGE.	WHARFAGE.	CRANAGE.	TOTALS.
Querrin Quay	£ 8 8 6	£ 8 8 2	- - -	£ 16 16 8
Kilrush Pier	120 7 9	41 7 4½	8 3 -	169 18 1½
Salvem Quay	7 14 -	12 12 7½	- - -	20 6 7½
Kilteary	1 - -	- 19 1½	- - -	1 19 1½
Kilbysart	1 5 3	- 11 9½	- - -	1 17 - ½
Clare	20 13 9	42 8 10	- - -	73 2 7
TOTALS	169 9 3	106 7 11	8 3 -	284 - 2

ABSTRACT, 1845.

Limerick to Drumleague	£ 1,779 3 -
Lower Shannon	284 - 2
TOTAL	£ 2,063 3 2

E. Hornby, Secretary.

SCHEDULE (A.)

COMPARATIVE TABLE, showing the TOLLS and WHARFAGE received during the Years 1840 to 1846, inclusive.

STATIONS.	TOLLS						WHARFAGE						TOTALS						
	1840.	1841.	1842.	1843.	1844.	1845.	1840.	1841.	1842.	1843.	1844.	1845.	1840.	1841.	1842.	1843.	1844.	1845.	
Limerick	£ 823 8 10½	£ 674 15 5½	£ 810 14 6½	£ 699 9 4½	£ 486 14 6½	£ 509 15 3	£ 20 2 8	£ 23 - 11½	£ 24 11 7½	£ 23 1 - 2	£ 21 14 8	£ 28 5 2½	£ 842 11 6½	£ 697 16 9	£ 505 5 8½	£ 322 10 5½	£ 508 9 2½	£ 508 - 6½	
Anneghbeg	5 11 4½	11 - 1½	46 5 10½	23 4 - 1	11 15 11	14 9 -	4 16 3	8 15 11	21 17 1½	3 5 -	- 6 -	1 2 - 1	10 9 7½	19 16 - 1	66 2 11½	25 9 - 1	12 1 11	15 11 - 1	
Erris	1 9 2½	3 11 4½	3 5 6	1 2 1½	2 - 10½	1 3 7	1 4 6½	1 2 9½	- 19 8	- 8 -	- 16 8	- 12 9	2 14 4	4 14 1½	4 5 2	1 10 1½	2 17 6½	1 16 4	
O'Brien's Bridge	16 9 7	20 6 5½	17 17 9½	10 7 5½	8 1 3	3 7 2	7 4 2	11 15 6½	14 10 5½	2 14 8½	2 4 9	1 17 3	28 13 9	32 2 4½	32 17 3	13 2 1½	10 6 -	5 4 5	
Cusano	1 6 9	1 12 8½	27 12 - 1	9 15 10½	2 4 4	2 11 7½	- 1 8	- 2 8	- 4 6	- 16 5½	- 4 3½	- 5 -	1 8 5	1 15 4½	27 16 6½	10 12 4	2 8 7½	2 10 7½	
Killaloe	134 6 - 1	308 10 5½	315 8 3½	302 1 3	302 5 4	440 18 4½	29 7 2½	46 8 11½	30 10 - 1	37 17 8½	29 17 9½	24 7 2	163 13 3	354 19 7½	352 4 4	389 18 11½	392 3 1½	465 5 6½	
Scariff*	- - -	- - -	- - -	- - -	- - -	- - 2½	- - -	- - -	- - -	- - -	- - -	- - 6½	- - -	- - -	- - -	- - -	- - -	- - 9½	- - 9½
Portumna	169 12 6	198 3 5½	155 1 11½	161 10 6½	168 19 10½	216 14 9½	11 7 9	14 17 2½	15 17 11½	13 16 10½	10 6 2½	9 16 2½	181 - 3	212 - 11½	170 19 11	875 13 5	179 6 - 1	228 11 - 1	
Victoria Lock †	3 3 9½	3 19 8½	2 16 11½	2 3 6	2 9 2½	5 6 4	- - -	- 7 4½	- 18 6½	- 16 11½	- 8 7½	- 6 5½	3 3 9½	4 7 1½	3 14 11	3 - 4½	2 17 9½	5 12 9½	
Banagher	280 - - 1	103 6 10½	93 5 8	91 10 11½	91 12 6½	70 19 10½	3 13 8½	9 2 1	7 8 2½	5 16 6½	6 2 8½	9 18 1	292 13 8½	112 8 11½	100 13 10½	97 13 6	97 15 2½	85 17 11½	
Shannon Harbour	3 1 3	192 11 11½	197 6 - 2	117 9 8	134 14 1½	169 11 6	- - -	- - 4½	- 1 9½	- - 10½	- - 2	- - 6½	5 1 5	192 12 4	167 7 10½	117 6 6½	134 14 3½	160 12 - 4	
Shannon Bridge	72 8 9½	6 11 3½	3 1 - 1	31 16 10½	32 10 - 2	12 - 11½	3 7 3½	2 9 7½	1 15 7	1 17 1½	- 9 8½	- 18 3	75 16 1	9 - 11	4 16 7½	33 13 11½	32 19 9½	12 19 2½	
Athlone	108 10 2½	115 4 5½	74 5 11½	70 6 3½	99 3 3½	105 12 4½	34 9 11½	7 11 7½	4 2 2½	7 12 7½	11 7 10½	16 3 4½	143 - 2	122 16 1	78 8 1½	77 18 10½	110 11 2½	122 10 9	
Lecarrow	- - -	- - -	- - -	- - -	2 19 4	4 10 10	- - -	- - -	- - -	- - -	3 18 8½	11 8 6½	- - -	- - -	- - -	- - -	6 18 - 1	15 10 4½	
Lanesborough	13 7 9½	13 10 3½	21 14 7½	16 9 9½	5 16 7½	8 17 - 1	4 18 11	8 3 3	10 18 11½	7 13 7½	3 9 9½	4 4 - 1	17 6 8½	21 13 6½	30 13 7	24 3 5½	9 6 5	13 1 1½	
Clondra	19 5 9	17 4 8	12 12 3½	16 3 8½	15 17 9½	8 2 4½	- 2 2½	- 8 2	- 3 5	- 7 7½	- 7 5½	- 1 6	19 7 11½	17 12 10	12 15 8½	16 11 4	16 5 3	8 3 10½	
Roskey	6 3 8½	4 7 5½	4 1 11½	6 7 7½	7 2 7½	6 5 9½	2 - 5½	1 4 9	1 6 3½	1 19 9	2 8 - 2	1 5 1½	11 4 2½	5 12 9½	8 8 3	8 7 4½	9 10 8½	7 11 11½	
Drumna	7 16 1½	6 16 2½	8 14 5½	9 4 3½	10 8 13½	7 15 9	1 16 - 1	1 16 2½	2 18 9½	2 - 9½	3 1 7½	2 12 6	9 12 1½	8 12 4½	11 13 7	11 4 6	13 10 7	10 6 3	
Jamestown	3 11 3½	1 2 2	1 19 4	1 7 5	- 12 1½	- - -	- 10 - 1	- 8 6½	- 9 -	- 4 4	- 1 10	- - -	4 1 4	1 11 9½	3 8 4	1 11 9	- 12 11½	- - -	
Carick-on-Shannon	14 8 2½	13 14 1	12 15 8	9 7 5½	8 15 8	9 12 5	17 4 11½	16 6 7½	16 3 9½	11 9 6	10 4 7	5 12 8	31 13 2½	30 - 8½	28 19 8½	20 16 11½	19 - 3	15 6 1	
Battle Bridge	1 2 4	- 13 10½	1 7 3½	- 7 11½	- 17 2½	- 13 6½	1 30 7½	- 13 2	1 3 8	- 5 -	- 12 1	1 - 4	2 12 11½	1 7 - 1	2 10 10½	- 12 11½	1 9 3½	1 13 10½	
Drumleague	7 15 9½	4 8 9	2 11 3	4 1 10½	1 11 6½	1 14 8½	- 8 8	- 1 8	- 8 8	- 1 5½	- - 10	- - -	8 4 9½	4 10 3	2 19 10	4 3 5	1 12 4½	1 14 9½	
TOTALS	1,704 - 1½	1,201 13 10½	1,482 18 1½	1,433 15 11½	1,456 13 2½	1,690 2 3½	145 9 1½	154 17 5	163 4 9½	122 5 9½	108 4 4½	118 19 8½	1,569 9 3½	1,556 11 3½	1,646 2 11	1,356 1 9	1,764 17 7	1,779 3 -	

* Collection of Rates commenced at Scariff in October 1845.
 † Collection of Rates made at Hamilton Lock up to November 1844.

LOWER SHANNON, 1845.

STATIONS.	QUAYAGE.	WHARFAGE.	CRANAGE.	TOTALS.
Querrin Quay	£ 8 8 6	£ 8 8 2	- - -	£ 16 16 8
Kilrush Pier	120 7 9	41 7 4½	8 3 -	169 15 1½
Salvem Quay	7 14 -	12 12 7½	- - -	20 6 7½
Kiltary	1 - -	- 19 1½	- - -	1 19 1½
Kildyart	1 5 3	- 11 9½	- - -	1 17 - 1
Clare	30 13 5	42 8 10	- - -	73 2 7
TOTALS	169 9 3	106 7 11	8 3 -	284 - 2

ABSTRACT, 1845.

Limerick to Drumleague	£ 1,779 3 -
Lower Shannon	284 - 2
TOTAL	£ 2,063 3 2

E. Hornby, Secretary.

SCHEDULE (C.)

RETURN, showing the AMOUNT of TRAFFIC passing to and from the River *Shannon*, through the Grand and Royal Canals.

ARTICLES.	From Canals to River Shannon.			From River Shannon to Canals.			
	Grand Canal.	Royal Canal.	TOTALS.	Grand Canal.	Royal Canal.	TOTALS.	
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	
Slates - - - - -	47 $\frac{3}{4}$	-	47 $\frac{3}{4}$	1,302 $\frac{1}{2}$	118 $\frac{1}{2}$	1,421	
Tiles and Bricks - - - - -	573	9 $\frac{1}{2}$	582 $\frac{1}{2}$	37 $\frac{1}{2}$	-	37 $\frac{1}{2}$	
Coal - - - - -	770 $\frac{1}{2}$	132 $\frac{1}{4}$	902 $\frac{3}{4}$	-	-	-	
Iron not made into articles of merchandise -	292 $\frac{3}{4}$	109 $\frac{1}{2}$	402 $\frac{1}{2}$	84 $\frac{1}{2}$	-	84 $\frac{1}{2}$	
Timber of all kinds - - - - -	542	154	696	517 $\frac{3}{4}$	-	517 $\frac{3}{4}$	
Hay and Straw - - - - -	2	-	2	373 $\frac{3}{4}$	-	373 $\frac{3}{4}$	
Ores and Minerals - - - - -	3	-	3	140	-	140	
Salt - - - - -	206 $\frac{1}{2}$	-	206 $\frac{1}{2}$	31 $\frac{1}{2}$	-	31 $\frac{1}{2}$	
Marble, foreign or manufactured - - - - -	24	-	24	27 $\frac{1}{2}$	-	27 $\frac{1}{2}$	
Manure - - - - -	495 $\frac{3}{4}$	114	609 $\frac{3}{4}$	15 $\frac{1}{2}$	-	15 $\frac{1}{2}$	
Lime for building - - - - -	-	-	-	-	-	-	
Building Stone and Flags - - - - -	11	-	11	40	-	40	
Sand and Gravel - - - - -	-	293 $\frac{1}{2}$	293 $\frac{1}{2}$	-	-	-	
Turf - - - - -	368 $\frac{3}{4}$	198	566 $\frac{3}{4}$	75 $\frac{1}{2}$	33 $\frac{3}{4}$	109	
Grain - - - - -	97 $\frac{1}{2}$	-	97 $\frac{1}{2}$	4,860 $\frac{1}{2}$	909 $\frac{1}{4}$	5,769 $\frac{3}{4}$	
Flour, Meal, Malt and Starch - - - - -	198	-	198	4,912 $\frac{1}{2}$	-	4,912 $\frac{1}{2}$	
Butter - - - - -	-	-	-	109	-	109	
Black Cattle and Horses - - - - -	20	-	20	266 $\frac{1}{2}$	-	266 $\frac{1}{2}$	
Sheep - - - - -	- $\frac{3}{4}$	-	- $\frac{3}{4}$	101 $\frac{1}{2}$	-	101 $\frac{1}{2}$	
Pigs - - - - -	35 $\frac{3}{4}$	-	35 $\frac{3}{4}$	298 $\frac{3}{4}$	-	298 $\frac{3}{4}$	
Salted Provisions - - - - -	171	19 $\frac{1}{2}$	190 $\frac{1}{2}$	396	-	396	
Potatoes and other Vegetables - - - - -	24	-	24	12 $\frac{1}{2}$	22	34 $\frac{1}{2}$	
Groceries - - - - -	38 $\frac{3}{4}$	-	38 $\frac{3}{4}$	136	-	136	
Wines and Spirits - - - - -	-	-	-	-	-	-	
Porter, Beer and Ale - - - - -	5	-	5	1 $\frac{1}{2}$	-	1 $\frac{1}{2}$	
Bale-goods, Hardware and general merchandise	7,415 $\frac{1}{2}$	156 $\frac{1}{2}$	7,571 $\frac{1}{2}$	3,071 $\frac{1}{2}$	2	3,073 $\frac{1}{2}$	
Tobacco - - - - -	-	-	-	-	-	-	
Military Baggage - - - - -	57 $\frac{3}{4}$	-	57 $\frac{3}{4}$	16 $\frac{3}{4}$	-	16 $\frac{3}{4}$	
Machinery - - - - -	287	104	391	458 $\frac{1}{2}$	189 $\frac{3}{4}$	648	
TOTALS - - -	11,687$\frac{1}{2}$	1,290	12,977$\frac{1}{2}$	17,285$\frac{3}{4}$	1,275$\frac{1}{2}$	18,561	
	Yrs.						
Comparative Return of Traffic passing to and from the River Shannon through the Grand and Royal Canals - - -	1840	12,877 $\frac{3}{4}$	1,389 $\frac{1}{2}$	14,267	14,548	1,919	16,721
	1841	13,350 $\frac{1}{2}$	1,741	14,991 $\frac{1}{2}$	15,329 $\frac{1}{2}$	1,924 $\frac{3}{4}$	17,354
	1842	13,823 $\frac{1}{2}$	1,362	14,185 $\frac{1}{2}$	13,354 $\frac{1}{2}$	3,118 $\frac{1}{2}$	16,472 $\frac{1}{2}$
	1843	11,173 $\frac{1}{2}$	1,305 $\frac{3}{4}$	12,479	13,532 $\frac{1}{2}$	2,683 $\frac{1}{2}$	16,215 $\frac{3}{4}$
	1844	9,446 $\frac{1}{2}$	1,478	10,924 $\frac{1}{2}$	13,863 $\frac{1}{2}$	975	14,838 $\frac{1}{2}$
1845	11,687 $\frac{1}{2}$	1,290	12,977 $\frac{1}{2}$	17,285 $\frac{3}{4}$	1,275 $\frac{1}{2}$	18,561	

E. Hornsby, Secretary.

SCHEDULE (D.)

RETURN, showing the TONNAGE of the IMPORTS and EXPORTS at the Stations on the *Lower Shannon*, from 1st January to 31st December 1845.

ARTICLES.	STATIONS.						TOTALS.
	Querrin Quay.	Kilrush Pier.	Saleen Quay.	Kilteery Quay.	Kildysart Quay.	Clare Quay.	
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
LANDED:							
Slates - - - - -	-	10½	4	-	-	48	62½
Tiles and Bricks - - - - -	-	2½	2	-	-	20	24½
Coal - - - - -	-	665	3	21	-	2,668	3,357
Iron, not made into articles of merchandise.	1	198	-	6	-½	93	298½
Timber of all kinds - - - - -	45	327¾	88½	3	-	1,024	1,488¼
Hay and Straw - - - - -	3¾	-	1½	-	-	1	6
Ores and Minerals - - - - -	-	-	-	-	-	-	-
Salt - - - - -	-	170	15½	-	-	384	569½
Marble, foreign or manufactured - - - - -	-	-	-	-	-	-	-
Manure - - - - -	20¾	-	3	341	191	119	674¾
Lime for building - - - - -	-	-	-	-	-	-	-
Building Stone and Flags - - - - -	-	666	41	-	-	63	770
Sand and Gravel - - - - -	-	350	143	-	-	268	761
Turf - - - - -	-	-	4½	-	-	148	152½
Grain - - - - -	2¼	-	-	-	-	4	6¼
Flour, Meal, Malt and Starch - - - - -	-	678½	124½	-	-	1,032	1,834¾
Butter - - - - -	-	5	-	-	-	-	5
Black Cattle and Horses - - - - -	-	98½	-½	1	-	-	100
Sheep - - - - -	-	-¾	-	2	-	-	2¾
Pigs - - - - -	1¼	29¼	-½	1	-	-	32
Salted Provisions - - - - -	1½	136½	67½	-	-	72	277½
Potatoes and other Vegetables - - - - -	2½	-	36	-	-	-	38½
Groceries - - - - -	-¼	106	-	-	-	-	106½
Wines and Spirits - - - - -	-	304	-	-	-	-	304
Porter, Beer and Ale - - - - -	-	75½	-	-	-	-	75½
Bale-goods, Hardware, and general merchandise.	-¼	447½	82¾	-	-	142	672½
Tobacco - - - - -	-	-	-	-	-	-	-
Military Baggage - - - - -	-	-	-	-	-	-	-
Machinery - - - - -	-	-	-	-	-	-	-
TOTALS - - - - -	78½	4,270¾	617½	375	191¾	6,086	11,619½
	Yrs.						
Comparative Return of Tonnage of Articles landed at the Piers and Quays above named, from commencement of collection by the Commissioners - - - - -	1841	-	6,419	-	-	-	6,419
	1842	-	3,960	-	-	-	3,960
	1843	416	3,941½	-	255	64	4,676½
	1844	70	2,832	20½	676	9¼	4,477¾
	1845	78½	4,270¾	617½	375	191¾	11,619½

E. Hornsby, Secretary.

SCHEDULE (D.)—continued.

ARTICLES.	STATIONS.						TOTALS.
	Querrin Quay.	Kilrush Pier.	Saleen Quay.	Kilteery Quay.	Kildysart Quay.	Clare Quay.	
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
LOADED:							
Slates - - - - -	—	—	—	—	—	—	—
Tiles and Bricks - - - - -	—	4	—	—	—	100	104
Coal - - - - -	—	—	—	—	—	—	—
Iron, not made into articles of merchandise.	—	—	—	—	—	—	—
Timber of all kinds - - - - -	—	7½	12	—	—	9	28½
Hay and Straw - - - - -	—	—	—	—	—	—	—
Ores and Minerals - - - - -	—	—	—	—	—	270	270
Salt - - - - -	—	9	—	—	—	7	16
Marble, foreign or manufactured	—	—	—	—	—	—	—
Manure - - - - -	—	—	—	—	—	—	—
Lime for building - - - - -	—	—	—	—	—	—	—
Building Stone and Flags - - - - -	—	—	—	—	—	517	517
Sand and Gravel - - - - -	—	40	—	—	—	—	40
Turf - - - - -	4,583½	250	10	8	—	—	4,851½
Grain - - - - -	35½	6,271	2,722	35½	1	8,210	17,275½
Flour, Meal, Malt and Starch - - - - -	—	—	3	—	—	1,697	1,700
Butter - - - - -	—	39½	6½	—	—	125	171
Black Cattle and Horses - - - - -	—	24	71½	1½	6½	—	104
Sheep - - - - -	—	3½	—	—	5½	4	12½
Pigs - - - - -	4½	638½	89½	4	17	3	757
Salted Provisions - - - - -	—	62	—	—	—	3	65
Potatoes and other Vegetables - - - - -	24½	35½	—	—	—	51	110½
Groceries - - - - -	—	—	—	—	—	—	—
Wines and Spirits - - - - -	—	—	—	—	—	—	—
Porter, Beer and Ale - - - - -	—	—	—	—	—	—	—
Bale-goods, Hardware and general merchandise.	—	96	—	—	—	8	104
Tobacco - - - - -	—	—	—	—	—	—	—
Military Baggage - - - - -	—	—	—	—	—	—	—
Machinery - - - - -	—	—	—	—	—	—	—
TOTALS - - - - -	4,648	7,480½	2,914½	49	30	11,004½	26,127
	Yrs.						
Comparative Return of Tonnage	1841	—	6,405	—	—	—	6,405
of Articles loaded at the Piers	1842	—	6,201½	—	—	—	6,201½
and Quays above named, from	1843	2,870	7,520	—	54½	30½	10,475
commencement of collection	1844	2,660½	5,222½	340½	9½	17½	10,892½
by the Commissioners - - - - -	1845	4,648	7,480½	2,914½	49	30	11,004½

E. Hornsby, Secretary.

SCHEDULE (E.)

RETURN, showing the Number of PASSENGERS that Embarked at the under-mentioned Places on the River Shannon by the City of Dublin Steam Packet Company's Boats, during the Year 1845, from 1st January to 31st December 1845.

MONTHS.	Limerick up.	Killaloe.	Williamstown.	Portumna.	Banagher.	Shannon Harbour.	Athlone.	TOTALS.
	Number.	Number.	Number.	Number.	Number.	Number.	Number.	Number.
January - - -	518	221 $\frac{1}{2}$	116	103 $\frac{1}{2}$	73	322 $\frac{1}{2}$	12	1,366 $\frac{1}{2}$
February - - -	378	241 $\frac{1}{2}$	71 $\frac{1}{2}$	178 $\frac{1}{2}$	38 $\frac{1}{2}$	341 $\frac{1}{2}$	15	1,264 $\frac{1}{2}$
March - - -	385	287 $\frac{1}{2}$	97 $\frac{1}{2}$	116 $\frac{1}{2}$	63	249 $\frac{1}{2}$	14	1,213
April - - -	599	304	106 $\frac{1}{2}$	208	35	314 $\frac{1}{2}$	9	1,576
May - - -	497	294 $\frac{1}{2}$	75 $\frac{1}{2}$	186 $\frac{1}{2}$	42 $\frac{1}{2}$	383 $\frac{1}{2}$	11	1,490 $\frac{1}{2}$
June - - -	424	318 $\frac{1}{2}$	80 $\frac{1}{2}$	199 $\frac{1}{2}$	49	411 $\frac{1}{2}$	8	1,491
July - - -	514	299	92 $\frac{1}{2}$	185	29	650 $\frac{1}{2}$	6	1,776
August - - -	665	382 $\frac{1}{2}$	91 $\frac{1}{2}$	257 $\frac{1}{2}$	73	485 $\frac{1}{2}$	14	1,969
September - - -	713 $\frac{1}{2}$	434 $\frac{1}{2}$	82 $\frac{1}{2}$	258	137 $\frac{1}{2}$	441 $\frac{1}{2}$	12	2,079 $\frac{1}{2}$
October - - -	684 $\frac{1}{2}$	435 $\frac{1}{2}$	114	293 $\frac{1}{2}$	80 $\frac{1}{2}$	310	15	1,933
November - - -	501 $\frac{1}{2}$	256	72 $\frac{1}{2}$	148	39	344 $\frac{1}{2}$	14	1,375 $\frac{1}{2}$
December - - -	383	210 $\frac{1}{2}$	66	112	54 $\frac{1}{2}$	355	9	1,190
TOTAL - - -	6,262 $\frac{1}{2}$	3,685 $\frac{1}{2}$	1,066 $\frac{1}{2}$	2,246 $\frac{1}{2}$	714 $\frac{1}{2}$	4,610	139	18,724 $\frac{1}{2}$

Note.—The fractions introduced in the above Return represent children.

E. Hornsby, Secretary.

SCHEDULE (F.)

TABLE, showing the AVERAGE NUMBER of PERSONS employed on the several WORKS, with the Periods of Employment, during the Year 1845.

NAME OF WORK.	PERIOD.	Number of Working Days.	Average Number of Persons employed Daily.	Equivalent Number of Days' Work.
Kilrush Pier - - -	From 1 Jan. to 30 April -	103	8	824
Saleen Pier - - -	— 1 Jan. to 30 April -	103	4	412
Clare Pier - - -	— 13 Jan. to 23 October -	144	40	5,760
Limerick Navigation - - -	— 1 Jan. to 31 December -	312	45	14,052
Killaloe - - -	— 11 Sept. to 9 October -	25	12	300
Scarriff - - -	— 10 Mar. to 31 July -	76	8	632
Mountshannon - - -	— 8 Sept. to 31 October -	47	18	846
Williamstown - - -	— 4 Sept. to 30 September -	22	9	200
Dromineer - - -	— 2 Oct. to 25 October -	20	6	113
Woodford - - -	— 22 July to 11 September -	41	15	623
Portumna - - -	— 23 June to 2 October -	45	12	545
White's Ford - - -	— 2 Sept. to 6 September -	3	29	86
Victoria Lock Shoal - - -	— 14 July to 23 September -	36	11	391
Meelick - - -	— 1 Jan. to 31 July -	189	32	6,097
Keelogue - - -	— 17 Mar. to 24 May -	61	17	1,029
Ilaundrohorla - - -	— 22 Feb. to 17 June -	28	18	498
Innishierkeigh - - -	— 29 May to 31 May -	2 $\frac{1}{2}$	17	43
Shannon Grove - - -	— 28 Aug. to 26 September -	5 $\frac{1}{2}$	17	96
Counsellor's Ford - - -	— 12 Feb. to 19 March -	24	18	428
Garrycastle - - -	— 4 June to 27 August -	52	15	778
Banagher - - -	— 1 Jan. to 31 December -	264	27	7,063
Bird Island - - -	— 10 Sept. to 25 September -	13	19	244
Inniscagh - - -	— 2 June to 19 June -	11	27	294
Brusna River - - -	— 18 June to 21 June -	3	21	64
Leahinch - - -	— 26 Sept. to 1 October -	4	21	85
Derryholmes - - -	— 21 April to 1 October -	59	84	4,968
Bishop's Island - - -	— 25 Aug. to 14 September -	18	17	306
Garrymore - - -	— 20 June to 19 July -	8	33	265
Shannon Bridge - - -	— 1 Jan. to 31 December -	313	32	10,040
Clerhaun - - -	— 31 Mar. to 21 September -	180	100	18,028
Ballynatave - - -	— 1 April to 14 September -	95	92	8,751
Tullymore - - -	— 2 June to 18 October -	200	18	3,750
Athlone - - -	— 1 Jan. to 31 December -	313	182	56,760
Lanesborough - - -	— 3 Jan. to 1 July -	144	17	2,473
Kilnacarrow - - -	— 12 May to 15 July -	57	13	755
Crompaw - - -	— 16 July to 31 October -	93	15	1,383
Erra - - -	— 22 April to 19 October -	150	114	17,106
Cloonbearlaw - - -	— 15 May to 18 October -	129	136	17,529
Lodge - - -	— 17 Mar. to 31 December -	181	39	7,098
Tarmonbarry - - -	— 1 Jan. to 31 December -	313	293	91,811
Cloonene Cox - - -	— 1 Jan. to 31 December -	313	104	32,552
Bird Island - - -	— 31 July to 31 December -	132	89	11,648
Rooskey - - -	— 1 Jan. to 31 December -	313	240	75,120
Carnadoe - - -	— 18 April to 31 December -	222	116	25,752
Jamestown - - -	— 1 Jan. to 31 December -	313	531	166,203
Doyle's Island - - -	— 23 June to 7 December -	142	7	923
Cornacarrow - - -	— 1 Jan. to 12 October -	244	56	13,724
Carrick on Shannon - - -	— 6 Feb. to 31 December -	282	112	31,584
Port - - -	— 12 May to 7 September -	102	95	9,690
Coothall - - -	— 20 Aug. to 14 October -	46	73	3,369
Knockvicar - - -	— 19 May to 31 December -	195	278	54,153
TOTAL - - -		313	2,260	707,239

E. Hornsby, Secretary.

SCHEDULE (G.)

RETURN of WORK performed by the *Victoria, Albert, Prince and Princess Alice* Dredgers, from the 1st January to 31st December 1845.

NAME of DREDGER.	Name of Works on which Employed.	Number of Days on which Dredging was done.	Number of Men employed on Dredging Operations.	Number of Cubic Yards Dredged.	Average Quantity Dredged each Day.	Description of Material Dredged.
Victoria	Leahinch - - - -	4	85	487	122	coarse gravel.
	Innisheagh - - - -	11	230	1,338	121	ditto.
	Garrymore - - - -	8	265	1,030	129	coarse gravel and stones.
	Bird Island - - - -	13	244	245	19	ditto.
	Banagher - - - -	52	922	2,584	50	ditto.
	Garrycastle - - - -	31	576	1,382	45	ditto.
	Counsellor's Ford - - - -	11	204	1,302	118	gravel.
	Shannon Grove - - - -	2½	51	73	28	ditto.
	Illaundroholla - - - -	9½	143	790	83	gravel and stones.
	Innishirekigh - - - -	2½	43	153	60	ditto.
	Meelick - - - -	49	863	3,370	69	ditto.
	Victoria Lock Shoal - - - -	2	58	45	22	ditto.
	White's Ford - - - -	3	86	176	58	ditto.
	Killaloe - - - -	- - -	121	-	-	-
Total for Victoria Dredger - - - -		198½	3,891	12,975	66	-
Albert	Tullymore - - - -	200	3,750	25,038	127	sand, clay, gravel and stones.
	Athlone - - - -	75	1,415	21,801	290	ditto.
	Total for Albert Dredger - - - -		275	5,165	46,839	170
Prince	Shannon Bridge - - - -	10	140	448	44	clay and gravel.
	Innisheagh - - - -	4	64	189	47	gravel.
	Brusna River - - - -	3	64	195	65	mud.
	Banagher - - - -	32	455	1,940	60	clay, gravel and stones.
	Counsellor's Ford - - - -	15	224	1,211	80	clay and gravel.
	Shannon Grove - - - -	3	45	153	51	sand and marl.
	Keelogue - - - -	61	1,029	2,913	47	hard gravel.
	Illaundroholla - - - -	22	350	1,278	58	clay and gravel.
	Victoria Lock Shoal - - - -	7	105	174	24	gravel and stones.
	Portumna Canal - - - -	22	341	2,141	97	marl and gravel.
Woodford River - - - -	41	623	3,593	88	clay, marl and gravel.	
Total for Prince Dredger - - - -		220	3,440	14,235	65	-
Princess	Lodge - - - -	36	804	5,194	144	earth dams.
	Crompawm - - - -	72	1,383	6,451	90	clay and gravel.
	Kilnacarrow - - - -	21	556	2,466	117	earth dams.
	Lanesborough - - - -	85	2,139	11,556	136	earth dams, clay and gravel.
Total for Princess Dredger - - - -		214	4,882	25,667	120	-

E. Hornsby, Secretary.

SCHEDULE (H.)

RETURN, showing the QUANTITIES of MATERIALS delivered on Works from the 1st January to 31st December 1845.

153.

23

NAMES OF WORKS.	STONE.							TIMBER.			IRON.		Roman Cement.	Concrete.	Puddle.	Lime.	Coals.	Turf.	Patent Felt.	Pig Lead.	Gun-powder.	Patent Fuse.	Mooring Rings.	
	Fair Dressed Ashlar.	Rough Ashlar.	Rubble Masonry.	Rubble Stone.	Lime Stone.	Pitching or Paving.	Mooring Posts.	Foreign.	Native.	Planks.	Wrought.	Cast.												
	Cube feet.	Cube feet.	Cube yds.	Tons.	Tons.	Superf. yards.	No.	Cube feet.	Cube feet.	Lineal feet.	Cwt.	Tons.	Barrels.	Cube yds.	Cube yds.	Barrels.	Tons.	Boxes.	Superf. feet.	Cwt.	Lbs.	Ceils.	No.	
Kilrush Pier						366								63										
Salen Pier			90					54								70								
Clara Pier	6,045		338	575		760	2							383	330	150						75	9	
Limerick Navigation			215	545		120	3	156	2,184		5			40	70	209								
Killaloe					300																			
Searriff				608		1,200																95	19	
Mount Shannon		320				49			40	200												6	1	
Williamstown																		400						
Woodford																		200						
Portumna																		24						
White's Ford																		86						
Victoria Lock Shoal																		392						
Meelick		4,300		1,060			2	100										600						
Keelogue																		276						
Ilundroborla																		20						
Innishirekegh																		50						
Shannon Grove																		240						
Counsellor's Ford																		248						
Garrycastle																		716						
Banagher		40	36															104						
Bird Island																		120						
Inniscah																		30						
Brussa River																		32						
Leahinch					95			300	800		16					60	5	2,500				300	100	
Derryholmes																		64						
Garrymore								150	200	300	320	2	5		250	300	60	800						
Shannon Bridge	818	470	69	516		23	8	700	900	400	240	3				200	6	5,400		3	500	150		
Cierhan				95				250	300	200	40	1						1,400						
Ballynatave											14											175	40	
Tullymore											71	57			599	1,600	74	7,660				680	100	
Athlone	8,461	10,796	1,509	404	400			13,700	1,675		4					100		80						
Lanesborough			60						30		3							36						
Kilnacarrow								48	100		6						124	800						
Crompawa									400															
Erra						250			300		4							2,325						
Cloonbearlaw											16							25				55	12	
Lodge															2,126	5,000	171	11,384	4	63	17,200	1,900		
Tarmonbarry	13,358	7,965	2,882	120	602	1,373	4	342	1,256	797	409	10				30	12	312						
Cloonen Cox										800														
Bird Island															1,561	3,000	335	5,910	250	50	3,360	200		
Rooskey	26,842	30,901	2,144	2,826	1,000	678	18	960	396		325	44			548	760								
Carndoe	3,674	4,202	708	1,068			4	850	3,262															
Janestown	22,772	11,986	3,773	15,000		20,515		3,943	7,330	27,252	1,000	12		9	4,753	11,680	856	1,500			23,164	1,380		
Cornacarrow																		10						
Carrick-on-Shannon	11,556	10,272	1,610	3,160	360		4	2,080	1,640	6,721	89				760	1,600	107	76			150	80		
Port																	5	100			350	170		
Cootehall									80	1,330											75	6		
Knockvicar	7,324	6,577	230	190		525		1,981	2,653	12,167	648	1			230	154	111	200			1,000	210		
TOTALS	100,830	89,829	13,664	26,564	2,362	23,859	45	25,614	23,546	80,167	3,190	130	5	405	12,056	24,968	2,019	47,235	254	118	47,188	4,377	2	

IMPROVING THE NAVIGATION OF THE SHANNON.

E. Hornsby, Secretary.

SCHEDULE (I.)

RETURN of the Quantity of DREDGING and EXCAVATION, also of the Length of DAMS inclosing the Parts excavated, and of the Number and Description of ENGINES used on the WORKS, from the 1st January to the 31st December 1845.

NAMES of WORKS.	Dredging.		Excavation.		Total Quantity of Dredging and Excavation.	Length of Dams inclosing the Parts to be Excavated.	Number of Engines.	Description of Engines.	Horse Power.	Number of Pumps.	Description and Dimensions of Pumps.	Maximum Quantity of Water discharged per Minute.
	Clay, Gravel and Stones.		Clay and Gravel.	Rock.								
	<i>Cubic yds.</i>		<i>Cub. yds.</i>	<i>Cub. yds.</i>	<i>Cubic yds.</i>	<i>Lineal yds.</i>						<i>Imp. galls.</i>
Kilrush - - -	-	-	63	-	63	-	-	-	-	-	-	-
Clare Pier - -	-	-	970	880	1,850	-	-	-	-	-	-	-
Limerick Navigation.	504	-	5,496	-	6,000	15	-	Spoon and bag -	-	-	-	-
Killaloe - - -	-	-	-	-	-	60	-	-	-	-	-	-
Scariff - - -	600	-	-	-	600	-	-	Spoon and bag -	-	-	-	-
Williamstown -	-	-	-	343	343	-	-	Diving apparatus	-	-	-	-
Dromineer - -	-	-	-	353	353	-	-	- ditto -	-	-	-	-
Woodford - - -	3,593	-	-	-	3,593	-	-	Steam-dredger -	-	-	-	-
Portumna - - -	2,141	-	-	-	2,141	-	-	- ditto -	-	-	-	-
White's Ford -	176	-	-	-	176	-	-	- ditto -	-	-	-	-
Victoria Lock Shoal	219	-	-	250	469	-	-	- ditto, and diving apparatus.	-	-	-	-
Meelick - - -	3,370	-	-	-	3,370	-	-	- ditto -	-	-	-	-
Keelogue - - -	2,913	-	-	-	2,913	-	-	- ditto -	-	-	-	-
Illaundrahoria -	2,068	-	-	-	2,068	-	-	- ditto -	-	-	-	-
Innishirekegh -	153	-	-	-	153	-	-	- ditto -	-	-	-	-
Shannon Grove -	226	-	-	-	226	-	-	- ditto -	-	-	-	-
Counsellor's Ford -	2,513	-	-	-	2,513	-	-	- ditto -	-	-	-	-
Garrycastle - -	1,302	-	-	144	1,446	-	-	- ditto, and diving apparatus.	-	-	-	-
Banagher - - -	5,064	-	-	60	5,124	-	-	- ditto -	-	-	-	-
Bird Island - -	245	-	-	-	245	-	-	- ditto -	-	-	-	-
Imiscagh - - -	1,527	-	-	-	1,527	-	-	- ditto -	-	-	-	-
Brusna River - -	195	-	-	-	195	-	-	- ditto -	-	-	-	-
Leahinch - - -	487	-	-	-	487	-	-	- ditto -	-	-	-	-
Derryholmes - -	-	-	-	-	-	403	3	Steam-engines, 1 of	{ 14, } { 8, 6 }	11	-- Six of 14 inches diameter, one of 12 inches diameter, two of 9 inches diameter, two of 9½ inches diameter.	3,189
Bishop's Islands -	500	-	-	-	500	-	-	-	-	-	-	-
Garrymore - - -	1,030	-	-	-	1,030	-	-	Steam-dredger -	-	-	-	-
Shannon Bridge -	1,534	1,039	-	-	2,573	220	2	Steam-engines -	{ 6 } { 12 }	10	-- Two of 13 inches diameter, two of 12 inches diameter, two of 11½ inches diameter, four of 9½ inches diameter.	2,573
Clerhaun - - -	-	-	10,903	-	10,903	433	3	- ditto - 1 of	{ 6, 8, } { 12 }	11	-- Four of 12½ inches diameter, three of 9½ inches diameter, two of 14 inches diameter, two of 9 inches diameter.	2,797
Ballynatave - -	-	-	10,970	-	10,970	376	2	- ditto - -	{ 6 } { 8 }	7	-- Two of 14 inches diameter, three of 9 inches diameter, two of 9½ inches diameter.	1,553
Tullymore - - -	25,438	-	-	-	25,438	-	1	-- Steam-dredging vessel.	-	-	-	-
Athlone - - -	21,801	7,910	-	-	29,711	-	{ 1 } { 3 }	Steam-engine -	10	2	14 inches diameter - -	780
								Water-wheels -	-	8	-- Four 17 × 20 inches, two 15 × 14, and two of 12 inches diameter.	6,000
Lanesborough -	11,556	-	-	-	11,556	-	-	-- Steam-dredging vessel.	-	-	-	-
Kilnacarrow - -	2,466	-	-	-	2,466	-	-	- ditto -	-	-	-	-
Crompawm - - -	6,451	-	-	-	6,451	-	-	- ditto -	-	-	-	-
Erra - - -	-	-	9,695	-	9,695	290	1	Horse-pump -	3	3	5 inches in diameter - -	150
Cloonbearlaw -	-	-	7,333	4,417	11,750	300	1	Steam-engine -	6	2	14 - ditto - - -	800
Carried forward	98,072	54,379	6,447		158,898	2,097	17	- - - -	105	54	- - - -	17,841

SCHEDULE (I.)—continued.

RETURN of the Quantity of Dredging and Excavation, &c., from 1st January to 31st December 1845—continued.

NAMES of WORKS.	Dredging.		Excavation.		Total Quantity of Dredging and Excavation.	Length of Dams inclosing the Parts to be Excavated.	Number of Engines.	Description of Engines.	Horse Power.	Number of Pumps.	Description and Dimensions of Pumps.	Maximum Quantity of Water discharged per Minute.
	Clay, Gravel and Stones.	Clay and Gravel.	Rock.	Cubic yds.								
Brought forward	<i>Cubic yds.</i> 98,072	<i>Cub. yds.</i> 54,379	<i>Cub. yds.</i> 6,447	<i>Cubic yds.</i> 158,898	<i>Lineal yds.</i> 2,097	17	- - - -	105	54	- - - -	<i>Imp. galls.</i> 17,841	
Lodge - -	5,194	2,981	3,198	11,373	270	3 {	2 Steam-engines - 1 Horse-pump -	16	9	- - Four of 14 inches dia- meter, three of 6 inches diameter, 1 of 9 inches square.	1,980	
Tarmoubarry - -	- - -	29,727	17,953	47,680	1,640	2	Steam-engines -	20	4	14 inches in diameter -	2,200	
Clooneen Cox - -	- - -	45,480	- -	45,480	1,550	1	ditto, Lift-trough	8	7	- - Two of 14 inches × 4 inches, two of 11 inches × 8 inches, 2 of 22 feet × 2 feet 6 inches × 1 foot 6 inches, 1 of 11 inches × 12 inches, 1 of 9 inches dia- meter.	2,229	
Bird Island - -	- - -	10,888	4,907	15,795	750	- -	Double Lift-trough -	- -	1	- - 22 feet × 2 feet 6 inches × 1 foot 6 inches.	-	
Rooskey - -	- - -	94,673	21,261	115,934	775	{ 1 1	Steam-engine - Water-wheel -	12	13	- - Three of 9 inches dia- meter, two of 12 inches diameter, two of 8 inches × 6 inches, one of 8 inches × 8 inches, one of 11 inches × 8 inches, one of 12 inches × 9 inches, two of 15 inches × 12 inches, and one of 22 feet × 2 feet 6 inches × 1 foot 6 inches.	2,934	
Carnadoe - -	- - -	91,709	- -	91,709	610	3	- - Chain-pumps worked by men.	2	3	14 inches by 4 inches -	892	
Jamestown - -	- - -	115,641	32,710	148,351	1,060	2	Steam-engines -	{ 8 } 14	10	8, 11 and 14 inches square	420	
Doyle's Island - -	- - -	1,260	215	1,475	1,383	- -	Chain-pumps -	2	2	15 inches by 5 inches -	300	
Cornacarrow - -	- - -	12,020	- -	12,020	486	- -	Chain-pumps -	- -	1	15 inches by 5 inches -	380	
Carrick-on-Shannon	- - -	15,442	- -	15,442	434	1	Steam-engine -	6	3	12 inches square - -	440	
Port - -	- - -	3,595	2,770	6,365	90	- -	Horse-pump -	2	3	7 inches in diameter - -	180	
Cootshall - -	- - -	3,700	416	4,116	200	- -	Hand-pumps -	- -	2	10 inches square - -	150	
Knockvicar - -	- - -	44,000	18,780	62,780	792	2	- - High-pressure steam-engine.	12	8	- - Six of 14 inches square, 2 of 7 inches square.	2,000	
TOTALS - -	103,266	525,495	108,657	737,418	12,137	33	- - - -	207	120	- - - -	31,946	

E. Hornsby, Secretary.