COUNCIL PAPER.

NEWCASTLE BREAKWATER.

Report from the Select Committee on the Newcastle Breakwater.

The Select Committee of the Legislative Council appointed on the 3rd July, 1849, “to inquire into the state of the Breakwater at Newcastle,” have agreed to the following report:

The construction of this important work was commenced by Governor Macquarie, and was continued under various engineers until 1836, when the whole distance from the mainland to Nobby’s Island, measuring about 930 yards, was completed; but, from considerations of economy, and the contemplated withdrawal of convict labour, the latter part of the work was hurried on beyond the limit of prudence, if not of stability.

In 1836, when one-fourth only of the whole line was completed, Lieutenant-Colonel Barney, at that time held the appointment of Commanding Royal Engineer, was desired by Governor Sir Richard Bourke to inspect the work and report upon it.

The committee have been anxious to see this report, in the hope that it would afford much valuable information for the purposes of their enquiry, but no trace of it can be found in the Colonial Secretary’s Office. There is, however, a short report from that officer in the proceedings of the Legislative Council for the same year (1836), which, in the present state of the work, cannot be considered of much importance.

We find from his evidence, that it was intended that the top or roadway of the Breakwater should be level throughout, and of a uniform breadth of thirty-two feet. But it was deemed expedient to complete the whole line as rapidly as possible, in order to arrest the increase of the evils which threatened to destroy the harbour altogether; and the strengthening line, by extending the base and increasing the section, was left uncompleted, owing to the failure of the resources hitherto at the disposal of the colony.

The committee regret to find, that in its present unfinished state, there is a sudden break of nearly six feet in the level of the roadway (that part which is nearest to Nobby’s Island being the highest), and that, instead of being carried up to the uniform breadth of thirty-two feet, the narrow part, which is two-thirds of the whole line, measuring from Nobby’s Island, is not more than sixteen and half feet, a breach which would last, but the best of experience during the last two years would lead the committee to consider as sufficient for the permanence and stability of the work. The infanry, however, of such structures is the period of greatest weakness and liability to damage, and strongly as the committee are impressed with the importance of securing this Breakwater, the witnesses examined do not lead them to suppose, as this period of great strength has expired, that it will be necessary to incur the expense of carrying out the original design in all its details. The uniform level and breadth of the line may possibly, under existing circumstances, be dispensed with.

It is worthy of remark that an inroad of the sea on the battlement of a breakwater composed of loose stones does not necessarily affect the safety of the main body of the structure, but, on the contrary, the injured ones in most cases, entirely local; the breach above water can be easily repaired, and the stones which have been scooped out, as it were, bed themselves on a lower part of the breakwater, and, thus, by increasing the section, impart to it a greater power of resisting similar attacks: thus is obtained a compensation of the injury of the upper works by a corresponding increase of the strength of the foundation. This remark, it will be readily understood, applies to all constructions of this kind. The great breakwater at Plymouth has been breached on many occasions, but it has gained in stability every year, and every successive storm has had a diminished effect upon it. These is, in fact, the principal conservator of breakwaters built of loose stone, not only in the way pointed out, but also by the gradual formation of a natural amount of sea weed and other substances binding the stones, and making the face almost impervious to water, but in the Newcastle breakwater time is calling into existence another protective influence which will probably, at no distant period, impart to it such an accession of strength, as almost to supersede the necessity of incurring further expense in maintaining the present stone barrier.

The sea is throwing up a great bank of sand in a crescent shape from the mainland to Nobby’s Island, which owing to the effect of the great reef (extending a considerable distance to seaward) admits of almost unlimited extension. Your committee also find that the stone under water, instead of wasting or crumbling, as was apprehended by some persons, becomes harder under the action of the sea, a fact of no small importance in the estimation of the stability of this structure. It is, however, stated by Mr. Scott, the foreman of the works, that the hard flinty stone from Nobby’s Island is crumbling away on the harbour side below low water mark, but he does not consider the stone sufficiently extensive to produce any apprehension of material danger. The committee, however, think it desirable that further information on this point should be obtained.

The committee regret to find that there are no less than nine breaches in the breakwater, some of which are in the weakest part of the line; many of them are represented to be nearly through the breakwater down to low water mark; and though Mr. Scott does not apprehend any material increases of the breaches at this season of the year, it is so obvious that the most serious consequences may arise if the sea and send forces their way into the harbour, that the committee feel bound to urge the immediate commencement of repairs.

The witnesses examined (and your committee acquaints the public with the employment of convict labour on the work;) and Mr. Scott, the foreman of the works, who has had great experience in the superintendence of prisoners, says, that the necessary repairs might be made in about twelve months; by razing the whole of the wall of the old gaol, which he would only require the assistance of three ordinary constables, as a guard, unless the men are in irons. It has been found that no contractor of responsibility would undertake such a job for less than the protection of a very exorbitant estimate, and as the old gaol is in a good state of repair, and all the implements formerly in use are still in the possession of the government, every consideration of economy gives a strong recommendation of the witnesses. Mr. Scott thinks that though the present breaches will probably be repaired in twelve months, it will be necessary to retain the services of this gang for a considerable time, in order to repair at once any future damage, which there is every reason to anticipate, until the breakwater has assumed a permanent shape, and may be considered permanently secure both above and below water. In the Plymouth breakwater it has been found necessary or advisable to face it above low water mark towards the sea with cut stones, but Mr. Scott does not apprehend that such an outlay will be necessary in this case, owing to the protection afforded by the great reef which breaks the force of the waves, and therefore diminishes their power of diluting the structure.

Owing to the break in the level of the roadway, the breaches numbered 7, 8, and 9, in the sketch, must be repaired with material from Nobby’s Island, which is represented as very inferior to the stone from the quarry on the mainland. But Mr. Scott speaks with confidence...
represented as very inferior to the stone from the quarry on the mainland. But Mr. Scott speaks with confidence of its quality as sufficiently good for the purpose, and it would greatly increase the cost of repair to bring the material from the mainland.

With these observations your committee might close their report, the object of the inquiry being confined to the state of the Breakwater; they have ascertained that extensive and immediate repairs are necessary; that the Breakwater is, in all other respects, in a satisfactory condition—that every impairs it to an excessive stability—and that, consequently, the repairs, however costly, will not be thrown away or transient only in effect. But the committee wish to point out the object contemplated by the originators of this great work, that their expectations have been fully realised, and that the interests involved in its maintenance are well worthy consideration and support.

From the evidence of the harbour master, Captain Liversidge, it will be seen, that before the completion of the Breakwater, the depth of water in the harbour was very small—that a sandpit was in process of formation at the navigable entrance, and that owing to the position of Nobby's Island and the current across the present line of the Breakwater, the danger of entering was so great, that there was no possibility of effecting an insurance on vessels. He mentions no less than nine vessels wrecked. Now, bar harbours are usually found at the mouths of those rivers where the body of water discharged is small in proportion to the surface over which it extends, or where the current is small, and at right angles with the line of coast; and it has been found that by a diversion of the current these bars have been removed. This effect was anticipated at Newcastle, if the entrance of the tide across the line of the breakwater was stopped, and the expectation has been most strikingly realised; but this is not the only effect which has been produced: before the completion of the breakwater the depth of water in the harbour was diminishing every year, whereas by recent soundings, taken by the harbour master, it is found that the deepening of the channel is still in actual progress, and that there is now sufficient water to give a fair way for ships drawing upwards of twenty feet of water. The danger of vessels drifting on to the sandbank opposite to the Breakwater has been entirely removed, no wrecks have occurred, insurance is easily effected on moderate terms, the harbour offers safe anchorage to vessels of large tonnage, and the sandpit in process of formation from the point known as Scott's Point, which threatened to fill up the navigable entrance, is gradually disappearing.

The committee have endeavoured to obtain a return showing the trade of the River Hunter and the Port of Newcastle, but the information they have received is very incomplete, and its accuracy perhaps not beyond question. But they offer it to the attention of the Council as a guide which they believe will not lead to conclusions materially erroneous, as an indication rather than a proof of the importance of the great northern district of which the Port of Newcastle is the only outlet.

In the twelve months ending 31st December, 1848, the export of wool, (exclusive of sheepkins) was 2,945,425lbs., and of tallow, 1,382 tons. The total export of the same articles from the whole colony (excluding Port Phillip) during this period, was wool, 12,445,431lbs., tallow, 3,565 tons. So that in 1848 the exports from the Newcastle or Hunter River district, were—in wool, nearly one-fourth, and in tallow, more than nine-tenths, of the whole quantity produced in New South Wales proper. In fact, though the committee have found it impossible to arrive at a precise estimate, they are satisfied that they do not exceed the truth in stating that the port of Newcastle is derived rather more than one-fifth of all the exportable articles produced in this part of the colony.

Again, the export of articles for home consumption is very considerable. In the year ending 30th Sept., 1848, the total value of this branch of trade is estimated by