

owners and managers is very explicit, and, at the same time, the difficulties are not overlooked which may arise in attempting to deal with this matter.

It was not without some hesitation and misgiving that we proceeded to the consideration of Legislative improvement on this subject. Knowing the difficulty attending the adoption of any change in the present system in England, the number of times the subject has been under Commissioners and Committees, and the fact that even yet the problem is still unsolved, we believed some difficulty would present itself in the way of carrying out any such scheme here.

Three methods of dealing with the subject present themselves, much the same as in England :—

First, Non-interference, but enacting that penalties shall attach to neglect or explosions.

Secondly, A voluntary system of insurance and inspection, as exists by means of four or five large associations for that purpose in England.

Thirdly, A system of Governmental inspection.

As to the first method. In England there seems to be an unwillingness to take the responsibility of the steam users for damage arising from explosion. What that responsibility really amounts to, may be learned from the verdicts of coroners' juries, by which the most flagrant and gross cases of negligence are put down as accidental. When we find an owner buying an old and cast-off boiler, working it, although parts were not thicker than a shilling, and when it exploded, carrying along death and destruction, the responsibility is found to amount to "Accidental Death,"—in a case like this,\* which is an actual fact, surely prevention is better than cure. Now although in this Colony we have not reached a point of manufacturing competition which induces steam users to use the cheapest boilers and employ the cheapest attendants, yet on the gold field many boilers are now getting old, and in the inducement for cheap motive power the risk is apt to be overlooked. The second or voluntary system of inspection may be dismissed as thoroughly impracticable here. The field is too small, the interests too varied in nature and value for such, and no one we examined was ready to believe such a system possible. Lastly, the plan of Governmental inspection falls to be considered.

In favour of this, it will be seen in the evidence, there is a remarkable unanimity of opinion expressed by those whose interests are bound up in the prosperity of this gold field, which can only continue to be developed by the aid of steam machinery. And we are decidedly of opinion that the subject can be dealt with by a carefully-devised and well-balanced enactment.

The opinions of those we have examined point, it will be seen in the evidence appended, to governmental supervision, both of boilers and their attendants. This we believe ought to be provided for as soon as possible, but wish to point out what in our opinion, founded on what we think is the result of careful and intelligent thought on the part of most of the Engineers and Mine Managers examined by us, are the points to be guarded against in the compulsory inspection, and the best method of procedure in carrying it out.

We think it will be easily seen that a system of inspection of boilers and tests for Engineers, such as are exacted by the Board of Trade for marine engines, would not be suitable for those on land. The rules for examination ought to possess an elasticity which would be as properly applicable to the gold fields as inapplicable to the marine. And for Engineers the tests should be based on the nature of the work they would have to perform. The difference in the circumstances under which an inspection of land boilers can be carried out as compared with those of the marine is such as would warrant a very wide departure from that precedent. A Sub-Inspector would have his district always before him. No need would exist for a rigid adherence to stated times for examination, but boilers would be examined at intervals commensurate with their requirements. In a very short time a Sub-Inspector could tell the boilers which, from their conditions, the water used, and the character of the attendance, it would be sheer waste of time to thoroughly examine oftener than once a year. Also he could very soon discover others that would not do to let steam nearly so long without some particular part being examined, and its state noted and compared with that of previous examinations. Standards should be kept by which all pressure gauges and salinometers could at any time be compared, and a table of corrections or index errors furnished to the users. The Sub-Inspector ought to be provided with ample powers and authority, and just as ample discretion should be allowed to him in the exercise thereof, consistent with satisfying the chief of the Department that the duty is properly performed. The Sub-Inspector should be a practical boilermaker, with sufficient understanding of the principle on which the strength of boilers is calculated, and perception to see and carry out the instructions of the Chief of the Office in an intelligent manner. The office, we believe, would best be under that of the Marine Department, and the Colonial Engineer Surveyor should be the executive head.

The duties of the Sub-Inspector would be, first, to make a thorough examination of all the boilers on the field, as far as it is possible from their size and construction to do so, and to make a careful entry of all particulars in note-books, devoted one to each boiler on the field, and as often as necessary afterwards make examinations partial or complete, but not more seldom than

\* The case is that of the boiler explosion at Elland, where a boiler which had been sold as scrap iron for £5, then for £8, then for £18, and finally for £40, exploded in December last year and killed three persons. The verdict of the jury on the inquest was "Accidental Death." Numerous instances could be gathered of the same nature. One notable one is known as the Bermondsey explosion, caused by a collapse of a flue worked at 60 lbs. pressure, but of which the safe working load, as stated by a Board of Trade Surveyor, should have been 15 lbs. This was also a case of "Accidental Death."