

these axles, or, at least, that further testing should be made before they are condemned. All we have broken at these works have been so good that we cannot but think that the two which just failed to meet the test are exceptional, and even these so nearly stood it that they are quite trustworthy for use.

We do not deny that our Inspector at Birmingham committed a gross error in trusting so much as he did to the quality of the scrap, and not testing under the drop as many axles as he ought to have done. He did, however, test several, and the writer saw some of his tests, in which the ends of the axles were brought nearly to meeting. Our confidence in Mr. Austin was so great, that we did not (as far as we remember) test personally any of the last ordered, except those above alluded to, when the writer found several bad axles.

In regard to the Lancaster axles, we are convinced that the tests were made, and that the Inspector did not light upon one inferior axle; and this has also been our own experience at these works, whose position in the trade stands very high.

In conclusion we can only regret the occurrence, the gravity of which we certainly do not underestimate.

In regard to recovering the cost of the axles sent out, we think there will be no difficulty in recovering from the Lancaster Company the value at, say, 30s. each, of all axles made by the Midland Company, the number of which can be learnt from their books, and checked in the Colony.

Should further trial lead to the condemnation of those made in their own works, the company might then be called upon to pay the price.

In regard to the Staffordshire Company, we certainly think they should be called upon to pay the whole price of the axles at 30s. each.

The iron used in these axles is inherently so good that it may be used in the Colony as scrap for almost any purpose; and the makers ought, of course, to get an allowance at local rates, if the iron can be put to use.

We recommend that the faggotted bar axles now being sent out should be put under the passenger stock, which should generally be supplied with this class of axle.

We have, &c.,

JOHN CARRUTHERS

(For Consulting Engineers).

The Agent-General for New Zealand, London.

### Enclosure 1 in 1 of No. 19.

#### MARKS ON HALF-AXLES and on IRON BARS rolled from same.

Letter used in report of C. B. Knorpp of 9th June, 1884.	Mark attached to corresponding half axle tested as received.	Mark attached to 1 1/2 in. square bars rolled from half-axle.	Mark attached to 1/2 in. square bars rolled from same half-axle.	
A.	J.C. J.C. X J.C. S.A. J.C.	S.X.	K.A. A.	From Staffordshire W. & A. Co.,
B.	" S.B.	S.Z.	" B.	do
C.	" S.C.	S.C.	" C.	do
D.	" S.D.	S.D.G.	" D.	do
E.	" S.E.	S.E.	" E.	do
F.	" M.F.	M.L.	" F.	From Midland Iron Co.
G.	" M.G.	M.G.	" G.	do
H.	" M.H.	M.H.	" H.	do
I.	" L.I.	L.I.	" I.	From Lancaster Wagon Co.
J.	" L.J.	L.J.	" J.	do
K.	" L.K.	L.K.	" K.	do