

ENGINEERING—continued.

SURVEYS—continued.

LOCATION—continued.

RETTAN, H. N.—continued.

supplies : Nixon responsible, 24.
prices not under engineer's control, 24.
party engaged May, 1875, to December, 1876 ; making plans at
Ottawa till May, 1877, 24.

CARRE, H.

in charge of location on contracts Nos. 14 and 15, June, 1874, 129.
party : over forty men, 129
so engaged till January, 1875, 129.
witness afterwards took soundings on Red River while party ran line
from Shoal Lake to Selkirk, 129.
plan and profile of contract No. 15 asked for by Rowan, December,
1874, 129.
made it roughly on unprinted wall paper, 130.
quantities calculated from it in Ottawa by Frank Moberly and
party, 130.
thinks profile made from it was correct, 130.
not cross-sectioned or test-pitted, 130.
contract No. 14 located by Brunel to Brokenhead, thence by Forrest,
176.
witness's survey only preliminary, 176.
Brunel's survey expedited work about a fortnight, 176.
Selkirk crossing : witness recommended half a mile south of Sugar
Point, 177.
Brunel's crossing about a mile and a-half north of this, 177.
good rock foundations at Sugar Point, Brunel's clay and loose
sand, 177.
from Rat Portage to Red River, 1447.
in charge of locating party in spring of 1874, 1447.
how a trial line is run, 1448.
difference between trial and location, 1449.
a line the exact centre of road-bed, 1449.
witness's line only practicable one on that route, 1451.
with the approved grades, 1451.

JARVIS, E. W.

southern route Rat Portage to Winnipeg discussed with Carre, 291.
thinks \$500,000 would have been saved by it, 292.
reasons for statement, 292
route from Eagle Lake to Sturgeon Lake favourable for railway, 293.
from Red River to Edmonton, 294.
thinks better line could have been obtained north of the North
Saskatchewan via Moose Hills, 294.
Selkirk crossing : cost of bridge near rapids about half cost at
Selkirk, 297.
recommended crossing at St. Andrew's Rapids, 298.

FORREST, H. F.

from Rat Portage to Brokenhead River, 349.
under Carre on trial location June, 1874, 349.
took part in several other trial lines during winter under Carre's
direction, 349.
commenced Shoal Lake survey, January, 1875, 349.
completed it following month, 349.
very little good agricultural land over line traversed, 350.
thinks about half was swamp, 350.
timber quite small on remainder, 350.
after this made track survey from White Fish Bay to Sturgeon Falls,
350.
party : thirty-six, 351.
engaged from middle of February to 26th March and returned to
Winnipeg 26th April, 351.
ran about seventy miles, 351.
made plans of track survey till June, 351.
location of contract No. 14, 351.
placed under Thompson, 351.
witness's line adopted as final location, 351.
engaged till middle of June, 1875, 352.
made no estimate of quantities, 353.
thinks those furnished to tenderers were made up the year
before on another projected line, 353.