



FINGAL AND MOUNT NICHOLAS MINING DISTRICTS.

REPORT on Fingal and Mount Nicholas Coal Deposits, by G. THUREAU, F.G.S.

Launceston, 9th August, 1883.

It appears that these coal deposits have been known to exist for years back, and that they have been examined at times by scientists and experts. The coal has also been tested, at various periods, chemically by analysis, and for raising steam in boilers, in limited quantities; so that in framing this Report those matters, it is submitted, need not be repeated, as the results are well known. I shall, consequently, confine myself in my statements to the actual appearance of the various outcrops and workings I have very carefully examined, and to draw practical deductions as to whether their extent, permanency, and thickness afford scope for regular and continuous supplies of steam or other coal to centres of population, railways, manufactories, shipping ports, and possibly for export also.

On examination of the Fingal coal measures, I found that such were exposed in vertical cliffs and steep ranges, over one thousand feet in height above datum level, at the South Esk River Bridge at Fingal. They (the coal measures) rest, in the Township of Fingal, on beds of fossiliferous beds of carboniferous limestone of the palæozoic era, differing, however, greatly from the metamorphic beds which form, at the Mersey, the base of the coal formation; and it is, consequently, possible that the Fingal beds overlie yet deeper seams of coal.

Starting from lowest discovered seam of coal, marked A. on the geological sketch plan accompanying this Report, and which occurs 270 feet above datum, it was observed that it was about one foot thick as exposed in the bed of a branch of the Fingal Rivulet. It is of a soft medium bituminous character, and deserves the attention of coal prospectors.

A little higher up (110 feet), the same water-course, on some private land adjacent, coal of good quality, resting on fire-clay, has been ploughed up, and proved excellent for smiths' purposes: the efforts for tracing same under a good solid 'roof' of rock were, however, for some reason or other, not persevered with.

Now following the course of the rivulet, the most recent discovery of really good coal (steam) is met with at 650 feet above datum, and about two miles and a half in a direct line from Fingal. It occurs in the bottom of a very precipitous ravine which the rivulet appears to have scooped out in the past, in greenstone and carboniferous sandstones and shales, to a depth of from 600 to 700 feet vertical in places, and the water is actually falling upon and running over this seam of coal. Its thickness, so far as such had been ascertained in some shallow and inextensive workings, was found to be four feet, but I am of opinion that more of the bed would be found by sinking or tunnelling from a lower point down the creek. This coal, designated as Clerke's seam, is hard, highly bituminous, well laminated, with a bright lustre in its conchoidal fractures, and it resembles the best from Newcastle, N.S.W., and it surpasses in quality all other coal I have yet had an opportunity of examining in the Island. Some pieces were tried in an open fire: they threw out a good heat, burned with a light yellow flame, made a very good coke, and left a whitish ash; the latter was of rather a larger per-centage than was anticipated judging from its general appearance, but being found strongly impregnated with carbonates of lime, derived through infiltration from the higher fossil-

iferous beds overlaying this coal, this should occasion no surprise, because, when that coal is followed in, under its proper and solid sandstone roof it will doubtless become purer and be still more serviceable as a steam coal. As is the case now, even with only 3 feet 6 inches to 4 feet of this description of coal, the certainty of its future improvement, together with the very favourable indications observed for its continuity and permanency, tend to make it a very valuable and serviceable mineral deposit.

Ascending the steep flanks of the Fingal Rivulet in a northerly direction until an elevation of 1150 feet above datum is passed, a descent on the opposite side of the range of 350 feet (or 800 feet above datum) brings one to the outcrop of the Mount Malcolm seam of coal. This deposit crops out at the steep hillside, where it has been followed by means of a tunnel (constructed years ago) for a distance of 45 feet, making a total of fifty feet recently driven. This seam is eleven (11) feet thick, rests on a floor of greyish shale, and is overlaid by a hard, coarse, and greenish sandstone. Generally speaking, it has a dullish black appearance, more like anthracite, near the mouth of the tunnel, owing to the atmospheric influences since the workings were first made. In the part, or end, which is now being excavated, bright bituminous seams and patches occur more frequently, and a gradual improvement is clearly perceptible. The seam is divided, by means of two indistinct clay seams or "partings" into three parts, viz., one about 12 inches above the shale in the bottom; and the other, about two feet below the "roof;" both of these divisions contain a more shaly kind of coal, but the central part, over five feet thick, exhibits the more bituminous portion of the seam. It may be mentioned that the whole seam is now being cut out in large lumps or junks by experienced coal-miners, leaving but very little "slack" or fine coal, and that the only impurities consist of a small proportion of carbonate of lime (calcite) and some sulphurets of iron, but not in such per-centages as would deteriorate the good quality of the mineral itself.

About 30 feet beneath this large seam of valuable coal another seam occurs, two feet in thickness. It has a more shaly appearance, and, cropping out in a water-course, and without any workings to show its nature, its actual value for practical use could not be ascertained.

The above deposits (five in number) include all that were examined in the Fingal District, though it should likewise be stated that indications were not wanting of the existence of yet undiscovered seams above the highest seam, as nearly every water-course above the latter contained float-coal in the gravelly deposits, and the same applies to the lower sections of the series.

The geological sketch plan and the perspective vertical section appertaining to this Report as the result of my field work, have, after laying down the dip of the coal seams on same, convinced me of Clerke's seam being but a continuation (according to its dip) of that of Mount Malcolm. This circumstance may be considered a very encouraging feature in support of the permanency of that seam, and indirectly of the district also; the Mount Malcolm seam constitutes the most north-westerly outcrop of coal on the fringe of the Fingal Basin, and as Clerke's seam, occurring nearly two miles farther away in the opposite direction, or on the line of dip to the south east, it follows that the Mount Malcolm coal, if worked from its outcrop in that direction, will proportionally improve the nearer the Clerke's outcrop is being approached. It should likewise be borne in mind that, if the one seam occurs as stated, then nearly two miles of it have been proved to exist, as evidenced by the two outcrops and another on the line of outcrop along the contour lines of the mountains. And this large deposit of coal contains at least 4 feet of similar coal, as was recently tested on board of the s.s. *Tasman*.

With such prospects coal proprietaries should have no difficulty in making the access to Fingal Township so that screened coal can be delivered in large quantities, though at present the gradients are at the rate of nearly 800 feet vertical in a little over two miles direct distance. I opine that much lower and more accessible outlets may yet be found on this seam of coal. To give any information or estimate, beyond what has been done in the above, is impossible; but I consider the quantities of coal now in sight, and their continuations, as really incalculable. The district is capable of supplying coal in very large quantities whenever the mines have been opened up systematically and on a comprehensive scale.

The *Mount Nicholas Coal Deposits* occur about eight miles north east in a direct line from those at Fingal. The formation is the same as at the latter, but the bed dip is to the north west, or nearly to the opposite.

I examined but one outcrop (see perspective and vertical section) at 670 feet above datum, but was informed on most reliable authority that a still lower seam was exposed in the beds of two tributaries of Coal Creek, but unfortunately we were not able to find them, so that the first seam mentioned will only be dealt with in these pages.

The Main, or Killymoon Seam, as it has been very appropriately termed, is not less than (14) fourteen feet thick, and its outcrop forms quite a bold cliff at the surface, with a streamlet of water running over it. A tunnel had also been driven years ago for a length of about fifty feet, all in solid

coal though the sandstone roof was touched in one place; the seam rests at the bottom on a fossiliferous shale. This is also a hard and very bituminous coal, divided more markedly by bands of clay shale, which permit the better coal in the centre to be taken out much cleaner, and at a very moderate expense—not exceeding, I believe, Two shillings and sixpence per ton. From what the miners broke down of the coal under my own directions, I consider this seam as capable of furnishing equally as good coal as the average mineral from Newcastle. It is a very valuable deposit now waiting development.

The same difficulties that surround the cheap and rapid delivery of the coal at the base of Mount Nicholas are those already referred to occurring at Fingal, but, as stated before, they are not insurmountable.

Having now described the coal seams both at Fingal and at Mount Nicholas, that, besides the mineral resources of the district, include also a seam of carbonaceous shale nearly three miles south of "Killymoon House," and good building sandstone at the same place and at Fingal also. I was informed that Killymoon House was built of the first-named sandstone over 40 years ago, and now it exhibits the masons' and stonecutters' work as fresh as when the stones were first squared. The limestones are also of an excellent quality.

The Coal.

Taking the principal coal deposits or seams as described in this Report, I would state that the whole of them belong to one system of coal measures, and that in prehistoric times they were severed and removed by huge erosions and denudations, as evidenced by the numerous erratic blocks of greenstone rock, and the high and extensive banks of gravelly deposits, with the occasional aggregation of boulders which are found as far down as Avoca embedded in the very extensive and rich arable lands flanking both sides of the river South Esk, and of the rivulet Break o' Day.

That these coal deposits represent the most valuable accumulation of a highly valuable mineral in Tasmania, I most respectfully submit, admits of no doubt on my part; and bearing in mind the issues involved, and that a coal-producing country always favours the introduction of manufactories, trades of all kinds, rapid development of internal as well as shipping commerce, the development of these coalfields should not any longer be delayed, and every means taken to inaugurate cheap and rapid means of transit for this coal to where it is so much required.

As the annual import of foreign coal into Tasmania has been estimated at over Fifty thousand tons, at an average cost of One pound sterling per ton to the consumer, this Colony (possessing equally as good coal) loses that large amount yearly. Were the coal deposits available that money would go towards building up manufactories and trades; and eventually those Colonies which have no coal of their own, and are located so much nearer to us than Newcastle, would become purchasers of this Tasmanian coal, which is at the present time without any value whatsoever.

Those beds of limestone so frequently referred to in this Report as likely overlaying other coal-bearing country should be tested by means of the No. 2 Diamond Drill now engaged at the Alpine Gold Mining Company's tunnel. If any deeper-seated seams occur above the Silurian of as good a quality as those now in sight, a great and additional impetus would be given to permanent coal mining in that District, whenever the means for transit have been improved upon the present methods.

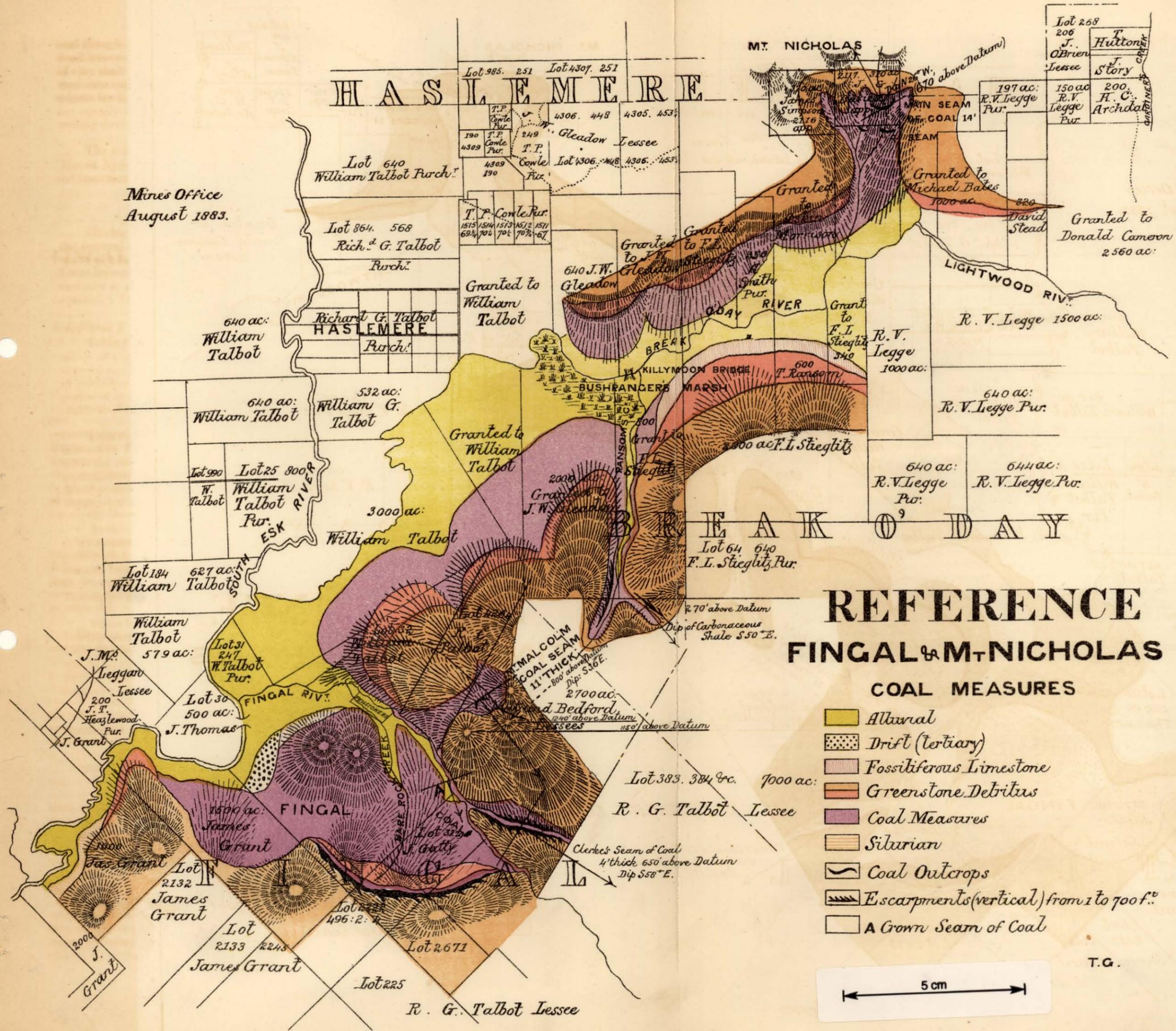
G. THUREAU, *F.G.S.*, *Geological Surveyor and Inspector of Mines.*

Launceston, 9th August.

Mines Office
August 1883.

H A S L E M E R E

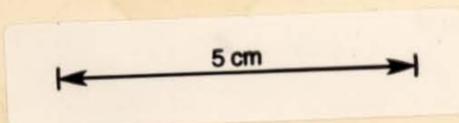
MT. NICHOLAS



REFERENCE
FINGAL & M_T NICHOLAS

COAL MEASURES

- Alluvial
- Drift (tertiary)
- Fossiliferous Limestone
- Greenstone Debitus
- Coal Measures
- Silurian
- Coal Outcrops
- Escarpments (vertical) from 1 to 700 f.
- A Crown Seam of Coal



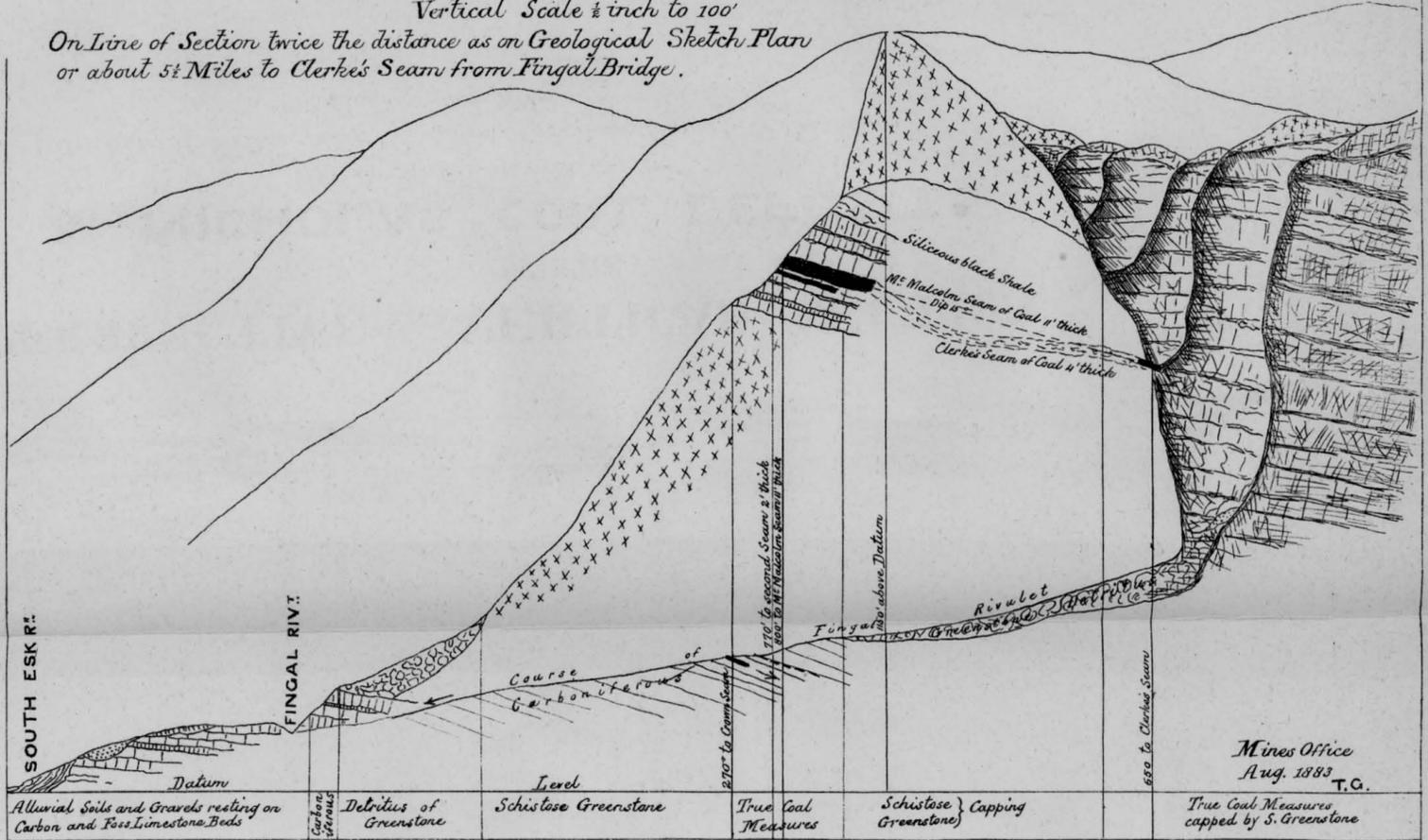
T.G.

PER SPECTIVE AND VERTICAL SECTION

OF THE FINGAL COAL DEPOSITS

Vertical Scale $\frac{1}{2}$ inch to 100'

On Line of Section twice the distance as on Geological Sketch Plan or about 5 $\frac{1}{2}$ Miles to Clarke's Seam from Fingal Bridge.



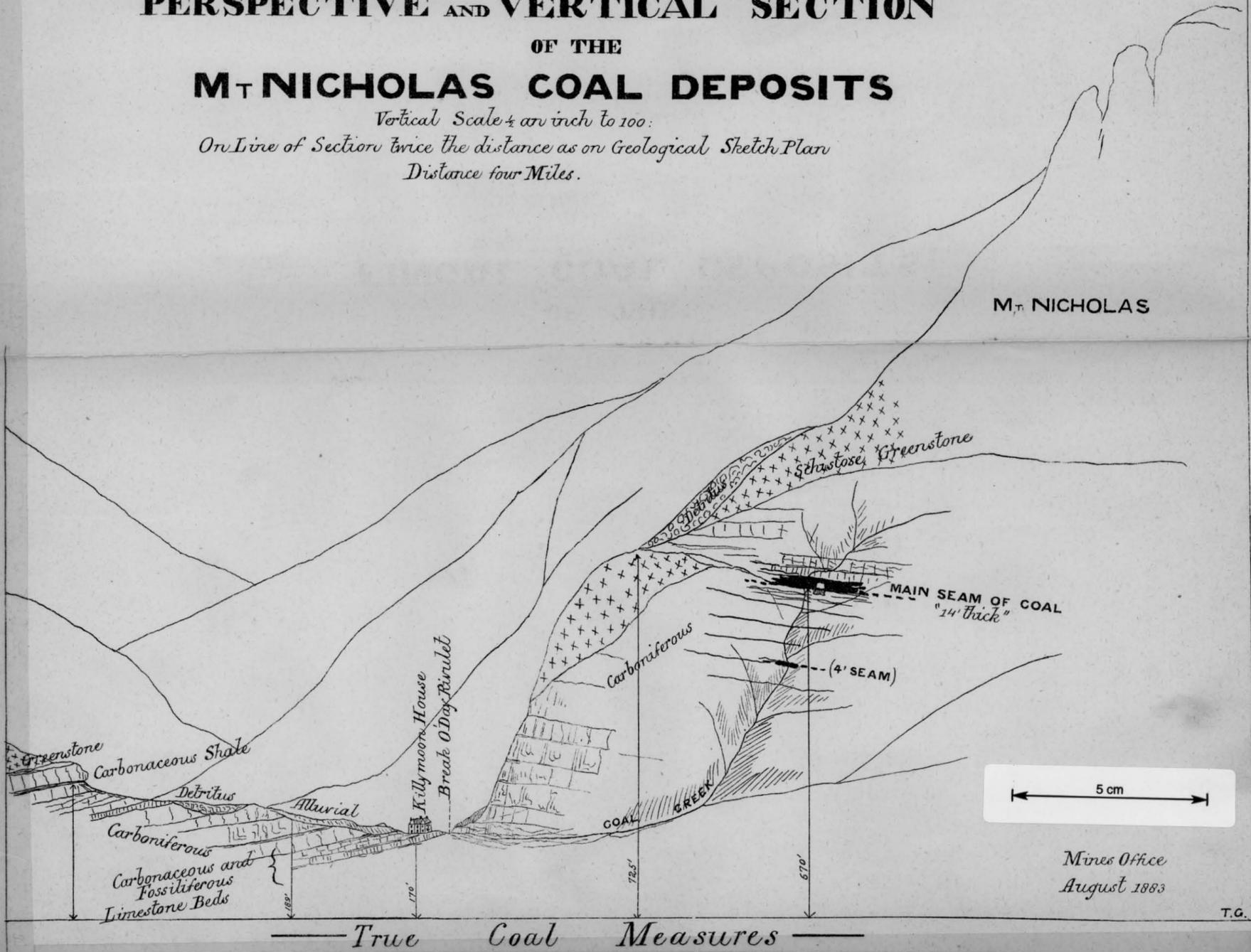
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T.G.

PER SPECTIVE AND VERTICAL SECTION

OF THE M_T NICHOLAS COAL DEPOSITS

Vertical Scale $\frac{1}{4}$ inch to 100'

On Line of Section twice the distance as on Geological Sketch Plan
Distance four Miles.



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5/5