Kelvedon 27th 5mo 1850

Respected Friend

We have at length collected some minerals from the Rocky Hills and Kelvedon. The Western Coast of Oyster Bay is of Basaltic formation, intersected at intervals by Sand-stone, with some few appearances of Coal, as, on the Southern side of the Rocky Hills, and at Spring Bay, no intersections of the Country – having yet been made little more can be said of its Geological character, further than may be gathered from the appearances of its surface

As far as the Great Swan Port Tier, jutting into the Sea, marks the spot known by the name of "Rocky Hills, on its southern side a Shaft was commenced by the Probation Party, in search of Coal, but abandoned from some unknown cause, although the indications were as promising as could be expected. The operations were begun in the bed of a small creek near to its entrance into the Sea, as the superincumbent Sandstone can be traced on the Beach. it is likely the Coal may run in that direction, a dyke of basalt exists at no great distance to the south of the Shaft. beyond this dyke sandstone is found as far as the Buxton Rivulet. The minerals obtained from the Shaft crumble to pieces on exposure to the air, N.o 1 is a specimen of the Sandstone.

That part of the Rocky Hills betwixt the coal – [page break] Coal Measures and the Station is altogether Basaltic and those rocks that overhang the Sea have been at one time columnar, the broken columns being, in a few instances, traceable. (Basalt or Green Stone Spe' 2) On that portion of Land occupied by the Station and for Cultivation, about 40 Acres, the Basalt is much decomposed, the blocks are rounded, softened and altered in colour, a white chalky substance cements them together, this mineral partakes somewhat of the nature of Pumice ~~stone~~, when wedged in between the rocks in narrow veins, it has a somewhat crystaline [sic] texture, where it is more free it is ~~vesicular~~ cellular ['cellular' inserted above line], It is difficult to account for its formation, sometimes it is ~~found~~ accumulated in basins formed of the Basaltic Rocks, and often under these circumstances forms reservoirs for Springs, such an one was discovered on cutting the Road at the northern side of the Rocky Hills. This substance may vary in its constituent parts but in some specimens it is composed of nearly equal parts of Lime & Silex. It forms a good dressing for some soils, but cannot be used for mortar, as it contains too great a proportion of Silex to admit of its perfect calcination. (Spec. 3)

Under the South Wall of the Station an excavation has discovered an acumulation [sic] of Granite Sand, it is the only trace of Granite that has been found on the Western side of Oyster Bay

From the Rocky Hill Creek to the Spring already alluded to, the Basaltic Rocks, where exposed in cutting the Road, are cemented together by the white Chalky substance

On the North side of the Spring ~~& crossing~~ lies ['lies' inserted above line] a small ravine; a slight cutting in the opposite ~~side~~ Bank ['Bank' inserted above line] of this ravine having ['ving' written over 's' of 'has'] been made, ~~which~~ has ['has' inserted above line] exposed a vein of Claystone, on both sides of this vein the Basalt is decomposed, and disintegrated as in (Spec..2 $\mathbb{B}$) or when not decomposed ['ed' written over 'ing' of 'decomposing' or possibly vice versa] the crystals, are larger & the texture different than that of the Spec No 2

The ~~Vein~~ Stratum ['Stratum' inserted above line] of Claystone ^ seems as if contorted, on the one side it ['seems as if contorted, on the one side it' inserted above line] dips at an angle of about 45°- and is unconformable to the Basalt; Iron Ore (see Spec 4) was discovered ^ in this stratum ['in this stratum' inserted above line] when cutting the Road, and there is now to be seen within a few inches of the surface of the Claystone a vein of the same ore about an inch in thickness (see Spec 5)

Amongst the Claystone are likewise found nodular masses, (see Spe 6) which are likely a species of Iron Ore.
As the thin stratum of Iron Ore so much resembles the lumps found by the Workmen, there may be lower down in the Claystone a thicker vein of the Iron Ore, or the thin stratum encreases [sic] in thickness as it descends
The Claystone ~~breaks~~ is broken into angular fragments (see Spec 7) separated f^{r} each other by very thin layers of the soft clay –
About a quarter of a mile inland from ~~this Spot~~ [th]e claystone ['[th]e claystone' inserted above line], on the South bank of the "30 Acre" Creek, the floods have exposed a bed of Gravel formed chiefly of Basalt, with some scattered nodules of Lime ~~stone~~ (see Spec 8) and underneath the gravel lies a bed of ~~Free stone~~ Sandstone (Spec. 9) On the North bank of the Creek and for a distance of three or four hundred yards towards Kelvedon the surface of the ground is strewed with broken fragments of a vitrified Sandstone, (Spec 10) as no section of the ground has been made, it is uncertain whether or not it forms a solid rock, further on the Red sandstone formation appears, it is much disintegrated, and many of the pieces contain so much iron in their composition as to warrant the appellation of Iron Ore, associated with it are beds of a ~~yellow~~ reddish Clay, which does not contain any Septaria, as does the yellow Clay of the District (Spec 11)

Below low water mark at the South end of the Kelvedon Beach is found a Stratum of Slaty Clay of various hues- red, yellow & slate colour, as soon as exposed to the air, even if taken up in large masses it crumbles to pieces, it has been supposed that lower down slate would be obtained*;- farther inland another vein of Claystone appears with, minerals (Spec 13) similar in character to those of the Claystone of the 30 Acres**- The remainder of the flat land opposite the Beach is occupied by Sandstone, what is the depth of the stratum is unknown, a well has been sunk into it for 26 feet, overlaying the Sandstone is a yellow clay containing Septaria (Spec 14) The Basalt prevails from this Sandstone to the North side of Waterloo Point ^ where ['where' inserted above line] at low tides a conglomerate is left bare, which may belong to the Red sandstone formation, (Spec 15)

No Fossils have as yet been discovered in any of the Strata, which is much to be regretted as without them their age and origin cannot be properly understood, and much of their interest is lost, should however either my friend Francis Cotton or myself discover anything that is interesting we will bear thee in mind

I remain
thy Friend
George F Story

*. The breadth of the Slaty Clay is about 300 yards. on the South it is bounded by the Basalt and in the North a Compact black rock is to be seen at low water. (Spec. 13B), The Strata of Slaty Clay & Black Rock are both horizontal –
**. This Claystone appears to lay in the perpendicular Strata it is bounded on the North by Sandstone, and as will be seen in the Specimens N.^{o} 13 partakes, when in conjunction with the Sandstone somewhat of its character, the one mineral running into the other as it may be termed

[Written on a separate slip of paper]
Specimens of the Rocks from Cleveland to S^{t} Pauls Plains as they have been laid bare on the New Line of Road from the Launceston Main Road to Avoca – The ground about Cleveland is barren,

consisting of a sandy gravelly soil formed by the decomposition of the yellow Mineral with the black stones embedded in it. This mineral seems to be the upper layer then the dark pummice [sic] stone comes next in some spots it is found of a lighter colour and more free from holes. below this the pummice stone becomes more solid approaching to Basalt & at Storey Creek it merges ~~into~~ altogether into Basalt- then for some distance towards S^{t} Pauls the porous character of the Rock is lost and again reappears on approaching S^{t} Pauls Plains – where the reticulated lava again appears ^ where ['where' written above line] it is hard and very tardy of decomposition 24/4mo1856

Collected on return from Cleveland by the new road – the road is lined out & levelled, but the Culverts are not made nor the road metalled it is said one has contracted to finish it for £4000