

XXIII.—*Remarks on a Collection of Geological Specimens made in Tasmania.* By THOMAS MOORE, Esq.  
[Read May 11th, 1853.]

UPON the occasion of a former visit to Van Diemen's Land some few years ago, and during various excursions then taken through the country, I made a large collection of Geological Specimens; and returning afterwards to England, I presented a selection, of what I considered the most valuable portions of them, to Mr. Thomas Winsmore Wilson, of Barnsley, Yorkshire, a practical geologist of great repute, and this gentleman kindly furnished me with a minute description of each specimen.

Most of Mr. Wilson's remarks are so well worthy of notice here, and particularly so as showing forth the mineral wealth of this Island, that I have much pleasure in the opportunity now afforded me of laying them before the Members of this Society, for the benefit of the community at large.

I wish particularly to draw attention to the fact that very rich tin ore was found among the specimens which I presented to Mr. Wilson.

The *Argus*, Melbourne newspaper, of April 5th, has an interesting letter addressed to Mr. Cropper of Melbourne, by Mr. Stephen, Vice-President of the Geological Society in that city, announcing the discovery of the same valuable mineral in the vicinity of the Ovens diggings, Victoria.

The following is an extract from Mr. Wilson's letter addressed to me :—

*Barnsley, 7th September, 1850.*

Herewith you will receive a list of the fossils, minerals, and metals you were so kind to send me, and for which you will please accept my most sincere thanks.

They are a valuable addition to my Museum, and I feel proud of them.

I now beg leave to call your attention to the classification I have sent you, and if you have a duplicate set, I think you may follow it; indeed I am sure you may, as regards the mineral strata and metallic rocks.

I wish you to notice description No. 5, Magnetic Iron Ore—it is an exceedingly valuable metal, if it can be obtained in quantities; and also No. 6, Gypsum, from which is obtained the plaster of Paris, so largely used in the arts and sciences, and also in agriculture.

Gypsum belongs to the new red sandstone, and is often associated with rock salt.

No. 8, Asbestos Mountains.—This is a valuable formation, what mineralogists call steatite. It is employed in the manufacture of the finest porcelain. Sometimes this mineral is accompanied with native silver; this is the case with the specimen you have sent me.

No. 9, Roofing Slate from Port Phillip.—This is also very valuable, if you could find a good quarry.

Nos. 13, 14, 15.—These zinc ores are useful metals, and are found accompanying lead, iron, and copper.

No. 21, Sand Stone.—This rock should be viewed not only as valuable building stone, but as a member of the coal-measures.

No. 25, Tin Stone.—As regards the tin-stone, I need not remind you of its value. If you can open a mine as rich in tin as this specimen, you would be very fortunate in the mining department.

Nos. 27, 28 and 29 embrace the Mountain Limestone, which form the great depository of the lead, copper, and many other metals in this country, and every other country on the face of the earth. My reason for calling your attention to the minerals and metals a second time is to point out to you their particular merits. They constitute the most useful and richest strata of the globe; and believing you brought the specimens to this country more on account of their utility than for any other cause, I thought it right to be particular in pointing out the most useful, rather than the most curious.

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A List of Fossils, Minerals, and Metals from Van Diemen's Land, in Mr. Thomas Winsmore Wilson's Museum; received through the favour of Mr. Thomas Moore, of Bolton, in Lancashire:—

No. 1, Pebbles found on the surface at New Norfolk.

These pebbles have been detached from the primitive rocks, and abraded by the flux and reflux of the water, forming the shingle or gravel of the district. They consist of jasper, agates, carnelians, and quartz.

No. 2, Fragments of Fossil Wood from Evandale,\* near Macquarie Plains.

These are very interesting specimens, showing us the powerful tendency of the absorbing properties of wood for mineral matter. These specimens are now principally silex, but will not scratch glass nor give fire with steel, and hence I shall denominate them opal.

They are capable of receiving a high polish, and remind you of those striped agates and flints which are used for brooches and the lids of snuff-boxes.

\* Some locality between New Norfolk and Hamilton doubtless,—under a wrong name.

*Query.*—Have the so-called striped agates and flints originally been woody matter, and by the absorption of water charged with molecules of mineral matter, say silex, become crystallized minerals?

No. 3—the Fossil Tree at Macquarie Plains—is a very interesting fact, and opens a wide field for geological and mineralogical speculation. The specimens you have sent me show no appearance of the action of fire nor vitrification, or at least no more than opalized wood does; and when you crumble the fibres of the tree with your fingers, which you easily can do, it is reduced to a powder of silex—and when viewed through a magnifying-glass it exhibits, when only half reduced to a powder, rather a high state of crystallization, in a needle-shape form, which is nearly transparent.

The darker part of the graining of the wood, which I consider to have been the resinous part, is much harder, and requires a light hammer to break it; and when broken into small fragments, it resembles in appearance gum-arabic. It appears to me that this fossil tree has never come into direct contact with the real fire of the volcano, but has been overwhelmed or covered by what the volcano has discharged; and at the same time been placed in a favourable position for absorbing moisture, mixed with mineral matter, and warmth through the cracks or fissures of the strata in the neighbourhood—and so gradually becoming mineralized and crystallized, at the same time preserving the ramification of the structure of the tree, almost as perfect as when a living tree.

The rock in which it has been imbedded resembles much in appearance the structure and colour of porcelain jasper, but does not, like that mineral, scratch glass; but as regards hardness under the knife, they are very much the same, and

when breathed upon emit that odour common to all argillaceous substances, and I have no doubt of its being of the same family of minerals.

No. 4, found on the surface at St. Paul's Plains.

This is Lievrite or Yenite imbedded in quartz : it is rather a scarce mineral, and is found in Elba, at Rio, La Marina, and Cape Caluute. It is said to have been met with in Siberia, but has certainly been discovered in Brodgang Mine, Fossum, Norway.

No. 5, This specimen is a small one, and not labelled.

It is magnetic iron ore, and nearly attracts the needle as powerfully as native loadstone. It is a valuable little specimen.

No. 6, Gypsum from near New Norfolk.

This is gypsum, as you supposed. It is granular anhydrous gypsum,—scaly anhydrite.

No. 7, Found on St. Paul's Plains.

It is Augite, Pyroxene, composed of siliceous lime, protoxide of iron, protoxide of manganese and alumine. It is met with in the production of volcanos, and in all volcanic countries.

No. 8, Asbestos, from the Asbestos Mountains, near George Town.

This asbestos is imbedded in a very valuable mineral called steatite or soap-stone, and is a very interesting specimen.

The steatite contains a small vein of silver, which by the way is not uncommon in this mineral, and is met with in most of the primitive mountains.

It is used for the manufacture of the finest earthenware.

No. 9, Slate from Port Phillip, Australia.

This slate is rather soft and adheres to the tongue, and is smooth to the touch.

It is generally called roofing slate.

No. 10, Found on the surface of St. Paul's Plains.

It is compact, granular, primitive limestone.

No. 11, From St. Mary's Pass, near Falmouth, East Coast.

This is fine grained granite or gneiss with purple garnets, and, I think, with scales of *native gold*.

It is a most singular compound mineral.

No. 12, From a bed of Rock at St. Paul's Plains.

This is massive hornblende rock, what some mineralogists would designate basaltic hornblende.

No. 13, From Hunterston, on the Shannon, near Bothwell.

This is blende, the sulphuret of zinc. It occurs in primitive and secondary rocks, and is found principally with sulphuret of lead, iron, and copper, and is common in most veins of those substances everywhere.

No. 14, From the summit of Mount Wellington, near Hobart Town.

A rare specimen of siliceous oxide of zinc. It is highly magnetic, and is found in lead and copper mines.

No. 15, From the Cataract Hill, Launceston.

Is carbonate of zinc, calamine.

No. 16, From Lake St. Clair.

It is grey sandstone coated with calamine.

No. 17, From elevated ground in the vicinity of an extinct volcano in Macquarie Plains.

This is vesicular lava; some of the vesicles are empty, others are filled up with oxide of zinc or calamine.

No. 18, Volcanic Rock, in which the fossil pine tree at Macquarie Plains is imbedded.

This specimen is also vesicular lava, and coated over with

calamine. The interior is not much changed, and is spotted with small patches of a white, shining, metallic substance.

This mineral is in colour a kind of slate or blue green, and when cut with a knife gives out an odour something like arsenic.

No. 19, Volcanic Rock, in which the pine tree is imbedded.

I think this specimen is zinc and copper, imbedded in dove-coloured mineral.

No. 20, Rock cropping out near the summit of a hill at Macquarie Plains.

The whole of this specimen is calamine.

No. 21, Sandstone from a quarry near Hobart Town.

Sandstone of this description is always found overlaying the coal formations, and I have no doubt coal will be found in the neighbourhood. It is also a good building stone.

No. 22, Coal from Schouten Island, East Coast.

This is anthracite coal. It is found at Flocton, near Barnsley, Yorkshire; at Walsall, Staffordshire; also in Wales, Scotland, and Ireland.

No. 23, From the banks of the River Derwent, near Hobart Town.

This is the brown oxide of iron-stone; the largest piece is covered with impressions of vegetable matter, similar to the iron-stone which overlays our coal measures.

No. 24, Nodule of Iron-stone, found in deep beds of gravel at New Norfolk.

This is brown hæmatite,—iron ore. It is found in this country and Scotland in veins in sandstone; also in Cumberland, Cornwall, and the Shetland Isles. It affords good iron and steel for needles.

This specimen assumes what is called stalactiticform. It

sometimes assumes the form of the madreporé and fungus and other shapes.

No. 25, On elevated land below the tier, St. Paul's Plains.

This is *tinstone*, or the oxide of tin, and a very fine specimen, and is evidently in a clay slate of the primitive mountains, and the same as in Cornwall, being the *killas* of the miner. The principal part of the numerous copper and tin mines of that county are in these strata.

No. 26, Fossil Shells from a bed of rock at Hunterston, on the Shannon River, near Bothwell.

This is a conglomerate magnesian limestone. The names of the shells, which can just be made out, are the *Productus gigantea* and *Productus antiquatus*.

No. 27, Fossil Shells from a lime quarry near New Norfolk.

This specimen is mountain limestone, and the shell is of the family of the *Trigonotreta speciosa*.

No. 28, Fossil Shell from a quarry near Hobart Town.

This shell is a very fine specimen of the *pecten* family.

The mineral in which it is imbedded is mountain limestone, as before.

No. 29, Specimen from the Limestone bed below the White Rock Tier, St. Paul's Plains, containing large quantities of fossil shells.

This is also mountain limestone, a formation prolific in shells.

No. 30, Fossil Rock found in great abundance near Swan Port, East Coast.

This is a very interesting specimen of the mountain limestone passing into chert, proving the transition of limestone into silex.

The shells are not definable, as they are too much broken.



No. 31, From St. Paul's Plains.

This specimen is limestone converted into chert and chalcidony; and would, if cut and polished, make a nice gem.

The shells are of the family of *Trigonotreta*.

No. 32, From a bed of Rock at the foot of Cummins' Hill, New Norfolk.

This is magnesian limestone rock.

No. 33, From Hunterston, near Bothwell.

These specimens are magnesian limestone, and all marked with impressions of the skin of some reptile or crustacean.

We have the same markings upon the magnesian limestone near Sunderland in this country, and no doubt the same formation.

No. 34, Scorix from the vicinity of the extinct volcanic crater at Macquarie Plains.

This is a beautiful specimen of scorix, and when viewed through a magnifying-glass has a gem-like appearance.

No. 35, Minute fibres resembling asbestos, collected from the outer coating of the fossil pine tree at Macquarie Plains.

Had this been presented to me without its history, I should have concluded it was asbestos. Mineralogists have what they call ligniform asbestos very much resembling this specimen, and they say it breaks into long masses in the direction of the fibres, and also separates with ease. This description answers to the outer coating of the fossil pine tree which you have sent me.

*Query.*—Has heat anything to do as an agent in changing wood into asbestos?

All the localities where it is found would lead to this conjecture, for it is generally found in primitive rocks in all countries. This specimen is nearly become all silex, and when seen through a magnifying-glass it exhibits long, slender, transparent crystals.

No. 36, Not labelled.

It is quartz hornblende and felspar coated over with calamine; and what makes this specimen interesting is a small streak of sapphire in the centre.

Here Mr. Wilson's remarks conclude, and if I could have produced duplicates of the various specimens which he has so ably described, it would have been satisfactory; but the fact is, I had presented the residue of my collection to the Manchester Geological Museum before receiving the notes I have just had the honour of reading.

Your worthy Secretary, Dr. Milligan, and others here who take an interest in geological pursuits, will at once, however, recognize the localities and nature of many of the specimens described; and of those which are not marked I have so vivid a recollection, that it will be in my power to point out the positions in which the principal portion of them were found.

You will perceive that amongst the 36 specimens mentioned, there are some valuable minerals; and if Mr. Wilson has reason to be proud of the collection, how much more ought you to be proud of the country which produces them!

No mention has been made here of the coal measures of the island, which have, however, engaged my attention, and may on some future opportunity form the subject of a paper to the Society.

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