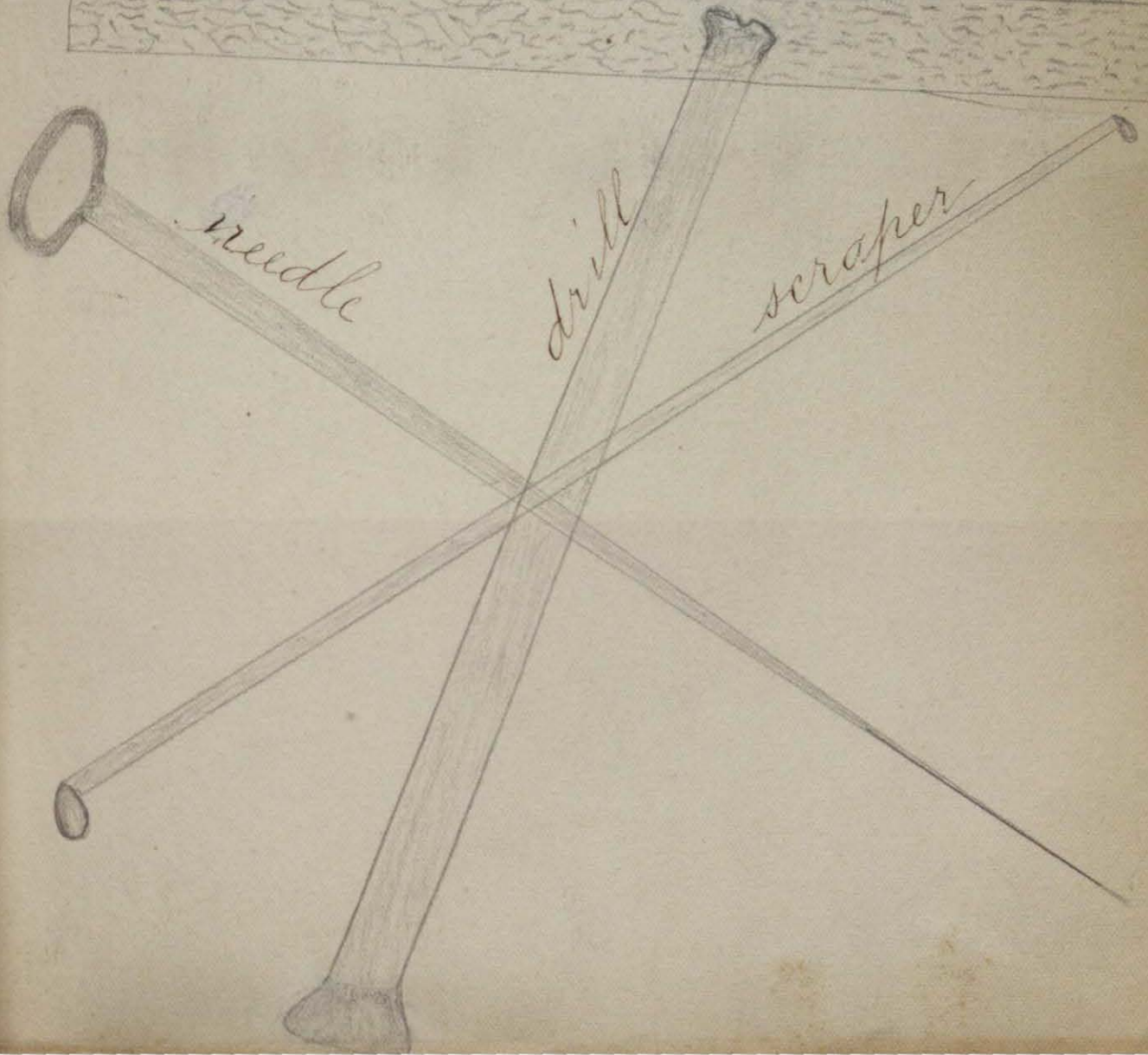
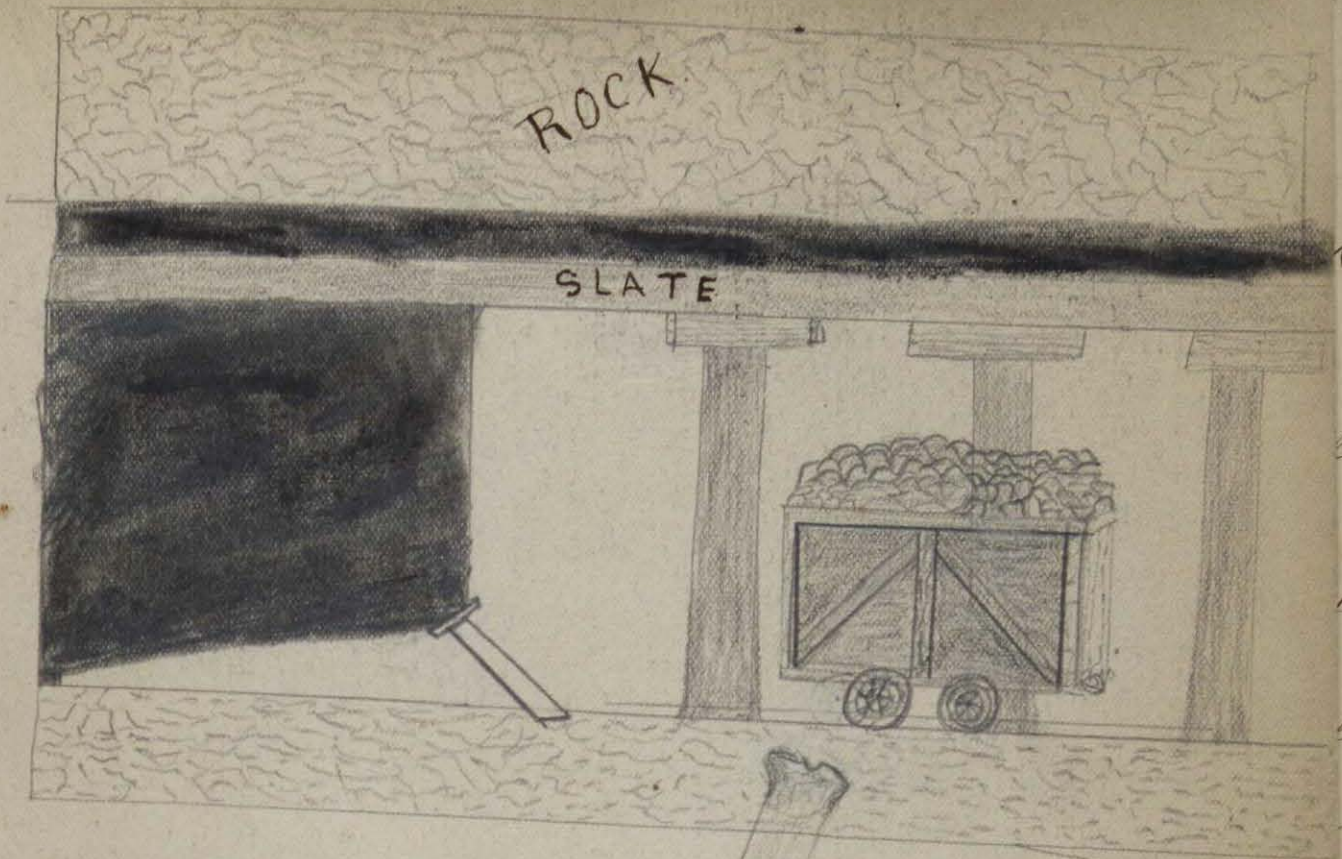


THESIS.

Subject, A Coal Mine.

Name, William M Ewan.





BUTTENTRY NO 6

160 YARDS FROM 2 TO 6.

SOLID COAL

WOODEN TRACK

POSTS

MAIN ENTRY

RETURN AIRWAY

BUTTENTRY NO 2

BUTTENTRY NO 1

TRAMP DOOR

BUTTENTRY

BUTTENTRY

*AN AIR PASSAGE

ROOM BEING DRIVEN

TOWARDS THE SURFACE

MAIN ENTRY

*FURNACE

SOLID COAL

SOLID COAL.

FIDELITY MINE.

A Coal Mine

(1)

In opening a coal mine the earth and stones are first cleared away; when the coal has been reached, an entry 8 ft. wide is then cut through the solid coal, care being taken to make the roof secure by means of stout timbers; when the rock is reached it is strong enough to support the strata above without timber. After this entry has been driven about 50 yds., another entry is driven at right angles to it; from this side entry, or crosscut, an entry is driven parallel to the main entry, a

50 ft. pillar being left between the entries to support the roof. Crosscuts are driven between those entries every 50 yds; the old one being closed as the new one is finished; by this means the fresh air is forced up to where the miners are working; the impure air returning by this aircourse passes over a furnace which rarefies it and causes it to ascend the air shaft very rapidly, thus generating a strong current which ventilates all the workings of the mine.

After these entries have been driven about 100 yards

from the surface two entries with 50 ft. of coal between them are started at right angles to the main entry, which are called butt entries. A trap-door is placed on the main entry between these two butt entries which forces the air up butt entry No 1, after ventilating the rooms of this entry it passes through a crosscut to No 2, after ventilating this entry it passes down to the main entry on the inside of the trap-door, and forward to the men in the main entry.

It is from these butt entries that the rooms are driven parallel with the

main entry. These rooms are broken off from the entry every 32 ft.; for 24 ft. they are driven 8 ft. wide in order to leave a pillar to support the entry; they are then widened out to 26 ft. leaving a pillar of 6 ft. of coal between the rooms to support the roof until the rooms are worked out a distance of 200 ft., when they meet rooms which have been driven the same distance from another entry in the opposite direction, thus the 400 ft. of coal between the two entries is worked out.

As ninety per cent of the coal dug in a mine

comes from the rooms, they are in the Pittsburg seam, driven nearly on the face, this makes the digging very much like sawing a log across the grain, which is much easier than with it. Two men work in each room. Let us look at them a few minutes; after having placed their dinner, coat, and vest in a safe place in their room, they advance towards the face, with a pick he sounds the roof to ascertain if it is safe to stand under, if not he gets a post 7 inches in diameter, and about 7 ft. long, putting a wedge or cap on top the

post is driven up tight, the cap thus serving the double purpose of tightening the post and supporting a greater part of the roof than the post could do alone. There are 4 posts placed across a 26 ft. room, one on each side of the wooden track, and one on each side, between the track post and the side of the room. After the roof has been secured, the miners begin mining by dealing hard sharp strokes on the bottom of the coal; they gradually undermine the coal for a distance of 3 ft., then come to the front again and hew down the coal to

(7)

a height $2\frac{1}{2}$ ft. as far as they have mined; after shovelling this coal into the car, which is pushed in by the miners, and stands about the center of the room, a sprag is set to the center part of the shot, which acts as a support to the undermined coal. The miners now creep underneath the undermined coal, placing their shoulder on their knee so as to act as a fulcrum as he swings his pick. Other 3 ft. is mined in this way; the shot is now 6 ft. deep, 14 ft. wide, and 7 ft. high, and will turn out about 24 tons of coal. The holes are now

drilled, one at each end of the shot. These holes are started about the center of the seam, and are drilled with a gradual rise.

A cartridge of powder is now pushed back to the extremity of the hole by a tool called a needle; a handful of damp dust is thrown in to the hole, and is pushed back close to the powder, and pounded firm, and so on until the hole is closed to the mouth.

This is called tamping a hole and is done by a drill which is sharp at one end like a chisel for drilling; and stumped at the other

for tamping. The needle is then carefully drawn, and a squib placed in the needle hole; the miner then lights the match attached to the squib, and runs behind a pillar of coal; the squib gives the miner time to get to a safe place, then springs forward igniting the powder which causes an explosion, and forces the coal down, the other shot is fired in the same manner, the miners then advance to the face peering through the thick smoke to see that the posts are standing firm so that the treacherous slate will not drop on them.

while loading the car with coal. The car now being loaded, a driver comes in, hitches his mule to the car, and hauls it out to the parting where the dilly trips are gathered and hauled to the tipple. So the work continues; as the coal is loaded, posts are set to secure the roof. After the room has gone under this slate, which is ten inches thick, about 30 or 50 ft., these posts are knocked out and the slate dropped; the slate is then moved from the track, and heavier posts set every 6 ft. along each side of the track. Propping slate is very dangerous work.