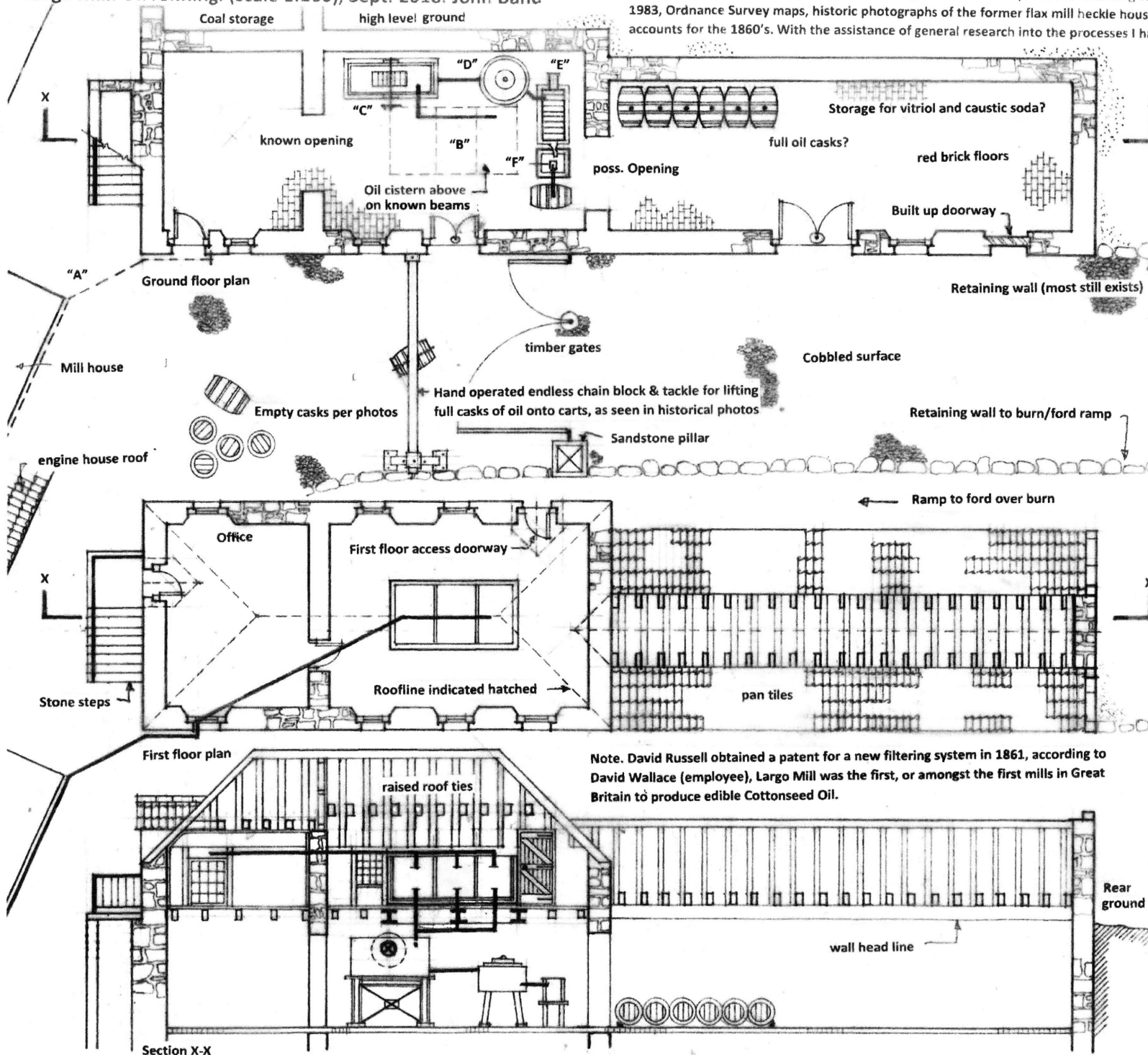


Largo Mill. Oil refining. (scale 1:100), Sept. 2018. John Band

This drawing and the description of the refining of oils has been produced following visual site evidence during the construction of Seatoun Place in 1983, Ordnance Survey maps, historic photographs of the former flax mill heckle house both complete and partially roofless & David Russell's financial accounts for the 1860's. With the assistance of general research into the processes I have attempted to put together a plausible layout/description.



The oil expressed by the hydraulic presses in the mill house and stored in the "spell tanks" was pumped to the first floor oil cistern "B" supported on heavy steel beams (as seen in photos) in the refining house via the overhead pipe "A" (as seen in photos). The oil cistern may well have contained 3 compartments i.e. for linseed oil, cottonseed oil & rape oil. Via a system of pipes/ valves each type of oil when required would flow by gravity to the lead lined timber agitator tank "C" where the solid particles of seed from crushing were kept in suspension by a hand operated wheel (all as described by David Wallace, Largo Oil Mill employee from 1861-1877). During this agitation process is when I suspect depending on the oil to be refined either Vitriol (Sulphuric Acid) or Caustic Soda was added to assist in breaking down the fats within the oil. The next stage was to warm the oil by steam in a kettle "D", this thinned the oil prior to it passing to the horizontal filter press "E" (perhaps manually operated) to remove the particles of seed and other impurities, this press consisted of several panels of filter paper or filter cloth of varying porosity (the best filter cloth was made of woven human hair). The seed residue captured by the filtering is returned to the mill house presses for inclusion in the cattle cake. The resulting refined oil was collected beneath the horizontal press and contained within a tank "F" where it was pumped by hand in to the casks ready for sale/ onward transport.

Records exist for David Russell receiving deliveries of both Vitriol (sulphuric acid) & Caustic Soda to Largo Mill by rail. The refining of Linseed oil for the floorcloth/ linoleum industries and the manufacture of paints/ varnishes and glazing putty required Vitriol to be used. Cottonseed oil for the manufacture of soaps, cooking oil/ lard required the addition of Caustic Soda in the refining process. Rape oil for cooking required Vitriol to be added in its refining.

The uses of the above additives in the refining process was extremely hazardous to the health of the mill employees involved in the refining process.

Note. David Russell obtained a patent for a new filtering system in 1861, according to David Wallace (employee), Largo Mill was the first, or amongst the first mills in Great Britain to produce edible Cottonseed Oil.

Raised area of old heckle (the first process in preparing flax for spinning) house roof as carried out by Alexander Mitchell, builder, Lundin Mill, cost £2.6.7.

Oil refining apparatus supplied/installed by Samuel Melville, plumber, gas engineer & tinsmith, Upper Largo at a cost of £30. The refining ram cost £16.

The oil cistern was supplied by Mr Bryce, engineer, Kirkcaldy, cost £52.