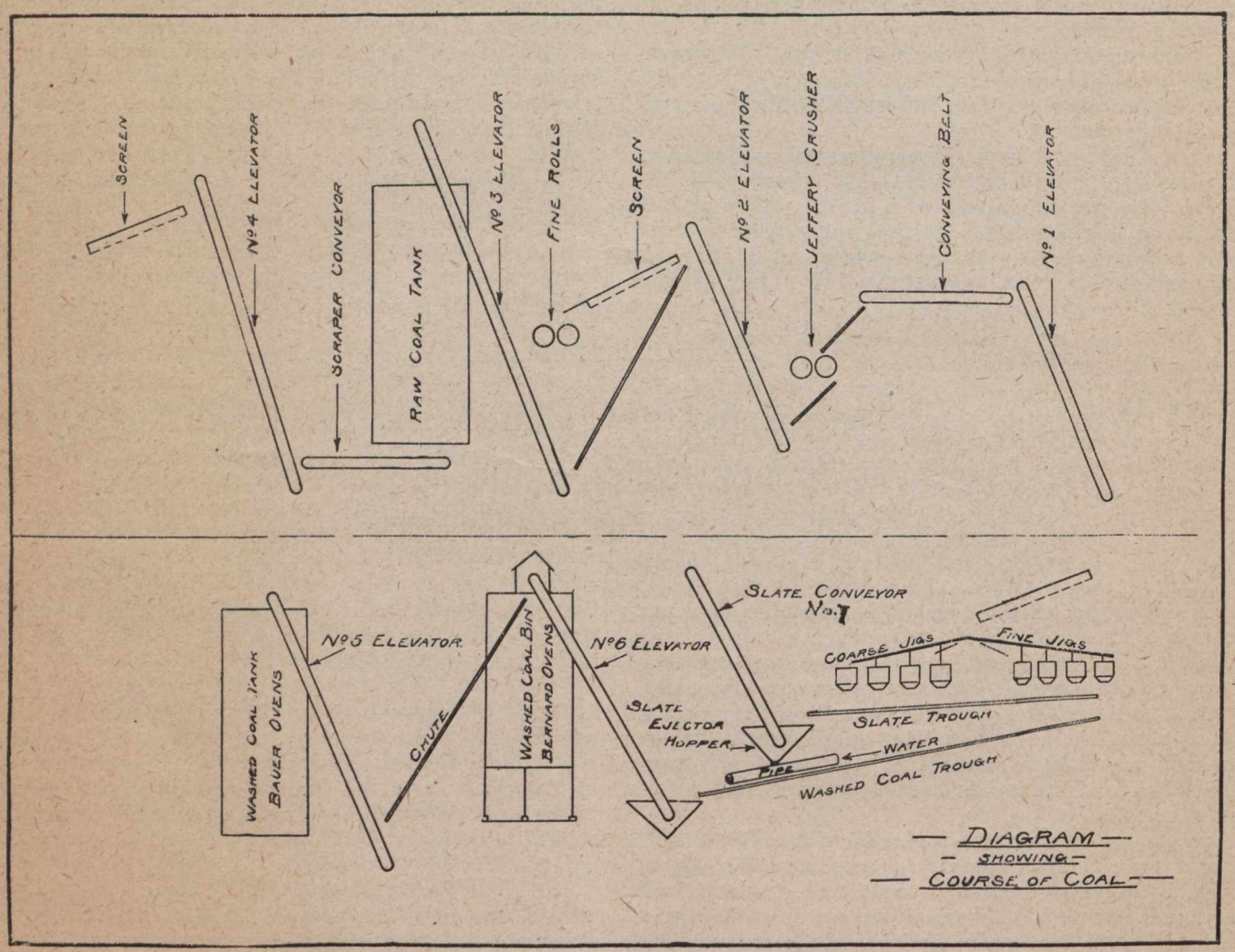
colliery, from which it formerly drew all its coals. Now, however, the coals treated are screenings collected in cars from several collieries, and are what is locally known as culm or duff, that is to say, the screenings removed from the run of mine coal as prepared for the market. These screenings include practically all the fire-clay contained in the clay parting between the coal seam and the roof and the foot wall. The undercutting being in the clay-band next the foot wall, the proportion of ash in these screenings is from two to three times as great as in the seam coal proper.

An outline of the whole process is shown in the appended sketch.

The cars of screenings are emptied, as required, into No. 1 elevator pit, and the coal is lifted by bucket elevator to a Robins belt conveyor, which carries it 135 feet, over sidings, to the breaker house, where it is lowered by chute to a modified type of Jeffery rolls. These rolls are 24 inches in diameter, and turn at 180 and 270 revolutions, respectively, per minute in opposite directions. The original rolls (the frame being of cast iron) were designed with one roll stationary and the other adjustable, the adjustable roll being held within a half inch of the other by means of a counter weight acting through a toggle joint applied to each bearing of the moveable roll, it being necessary to have one adjustable on account of foreign material, such as bolts, spikes, etc., finding their way into them with the coal.

While the toggle joints gave very good results for small pieces of iron and rock, they would not allow the rolls to open up quickly enough to pass a two-inch machine pick, and this caused frequent breakages of the roll frame. To overcome this trouble the cast iron frame was discarded and the original rolls, bearings, and toggle joints were mounted in a frame consisting of two steel channel irons on each side, with a top and bottom cover plate, forming a box girder; to this girder is fastened, on each end, cast steel pedestals to receive the bearings, these last being held to the girder by means of four three quarter-inch machine bolts. The effect of this construction is that when a machine pick passes through the rolls, and the toggle joint does not act quickly enough, the four three-quarter-inch bolts, holding the pedestals to the girder frame, are sheared off, allowing the rolls to separate and causing no other damage than the loss of the four bolts, which are easily replaced, and the machine put in running order again.



The product is elevated by No. 2 elevator and deposited on a shaking screen with half-inch perforations. The screenings fall directly to No. 3 elevator pit; all portions larger than half-inch going over the screen into plain rolls, 16 inches in diameter, and running at 80 revolutions per minute, and thence to No. 3 elevator pit. From here all the coal of half-inch diameter and under is elevated by No. 3 elevator to the raw coal storage tank, which is built of steel, brick lined. This storage tank is self-trimming, and holds 1,000 tons, a fea-