

een fifties but no attempt was made to investigate or exploit the nature of the mineral thus exposed until a stockman found a loose piece of kerosene shale in the valley below the out-crop and was informed of its inflammable character and oil producing structure. However, it was not until October 1873 that Edward Carter decided to visit Berrima and make application for a conditional purchase of sixty acres of land surrounding the out-crop with a view to exploiting its mineral riches.

Then commenced the rush to the Joadja Creek shale-fields, and land adjacent to the sixty acre block held by Edward Carter was taken up by eager prospectors and sundry mining syndicates. Considerable wrangling followed about the legal validity of the original Carter claim and it was not until the area generally was properly surveyed and boundaries allotted that it was safe-guarded against the machinations of "Claim-jumpers", "Spielers", and others of like ilk, who infested every newly opened mining venture in the so-called "Good old days".

The shale-miners were situated on the northern side of the north-western branch valley and the adits, or tunnels, were driven near the base of the sandstone cliffs at an approximate height of about 500 feet above the valley floor. The lower division of the shale seam was between 10 and 14 inches in thickness and proved to be the richest in its oil content, an upper seam ranging between 7 and 10 inches was also worked. The drives and tunnels were ventilated by air drawn through mine workings by means of a large furnace and discharge chimney. The output of shale at this period amounted to about two hundred tons per month, the miners receiving six shillings per ton.

In the early days of the industry the transport of shale to the railway station at Mittagong, a distance of some eighteen miles, was a very hazardous and expensive procedure because of the almost unsurmountable barrier afforded by the rugged sandstone escarpment. On the southern side of the Joadja Valley a rough bush track, known as Carter's Road, was followed along the crest of an outlying spur. After negotiating numerous hair-pin bends and zig-zags, the summit of the cliff was reached and access gained to the more level Joadja to Mittagong Road. This highway itself was little better than a horse track winding through undulating forest country, dodging gullies, rocky outcrops, and the trunks of the larger trees, before reaching the grazing levels of Mandemar and the Great Southern Road near the old established village of Fitzroy.

To climb Carter's Road the combined efforts of

fourteen bullocks were needed to drag a wagon containing one tone of shale to the depot at the top; three such teams being normally engaged on this section of about one mile in length. Upon reaching the summit the shale was loaded into wagons of six tons capacity and conveyed by horse teams to the Mittagong goods yard.

To add to the trials of the enterprise a portion of land south of Carter's property was taken over by a rival company who debarred Edward Carter from using the track to the top of the range. To overcome this difficulty Mr Carter arranged to have two double-tracked tramways built, one on the self-acting principle from the shale adit to the valley floor, and the other, a haulage inclined way, from this low level to the top of the southern ridge, where a track was cut through the forest to link With the Mittagong Roadway.

The first mentioned inclined way was, on the score of economy, laid with sawn wooden rails, spiked to cross timbers, and had a large drum at the top which was controlled by a hand-brake operated by a hand lever. A strong cable was wrapped several times around the drum, which was fitted with side flaunches to keep the rope in place, one end of the cable was attached by a link to the loaded skips waiting to descend and the other end to the corresponding number of empty skips waiting at the bottom level of the inclined way. Upon the drum-brake being released the loaded skip, or skips, each containing about eight hundred-weights of shale, descended the inclined way by gravity, hauling up the empty skips on the adjacent line. The controlled speed was, as a rule, kept to about four miles per hour.

It may be mentioned, for historical reasons, that the self-acting or gravity principle of operating inclined railways appears to have been first introduced in 1798 at Benwell Colliery, North England. At this time the descending loaded wagon drew a plummet (or weight) out of a pit, which on being lowered again drew up the empty wagon. This method was improved during 1810 at the Bewicke Main Colliery (later renamed Pelaw Main) when the loaded wagons, on descending, pulled up the emptied wagons on an adjacent track. There were several different track arrangements in use on the old-time inclined ways, some commencing at the lower level with two rails, dividing to four rails at the centrally placed meeting (where the ascending and descending vehicles passed one another) and then closing to three rails for the upper part of the route. Other installations had double tracks, whilst some commenced with two rails and dividing into four immediately before and beyond the meeting.