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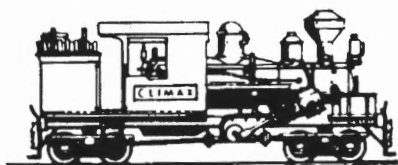
Kangaroo Island Salt Tramways

ISSN 0 727 8101



The Light Railway Research Society of Australia Inc.

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**Light Railway Research Society
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Subscriptions: \$31.50 per year covering 4 issues Light Railways, 6 issues Light Railway News and information on Society activities, publications etc. Airmail rates on application. To Membership Officer, PO Box 21, Surrey Hills VIC 3127. Back numbers Light Railways and other publications from LRRSA Sales, 21 Temple Road, Belgrave South Vic 3160.

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Cover Photo: *Kerr Stuart loco, on the Australian Salt Co. tramway at Salt Lake, Kangaroo Island, c. 1920. Rob Read photo ex Bill Hart Collection: courtesy J. Moonie.*

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EDITORIAL

This issue marks my entry into the editorial stakes and I look forward to the challenge involved. The immediate past editor Bob McKillop did a sterling job in maintaining standards and developing the magazine throughout the 1980's.

It is not egotism that prompts me to include one of my articles in my first issue as editor. Bob McKillop selected the timing and edited and arbitrated the article so that the two approaches to research on the Kangaroo Island salt fields, (one being Arnold Lockyer's based on site observations and interviews, the other being my detailed archival research,) can provide a different focus on the same topic.

The editor's in-tray is bulging at the moment with a swag of articles and letters covering tramways in New South Wales, South Australia and, to a lesser extent, Victoria. It is pleasing to see so much research activity being undertaken and this augurs well for the future of the Society.

Not so happy is the Society's book and booklet publishing prospects due to printing costs and static membership and investigations are being made into cheaper, limited print run editions for several projects in the pipeline. The current recession is not helping sales prospects and the situation is so bleak at the moment that things can only look up.

Norm Houghton

CHEETHAM CHRONICLES PART III

Kangaroo Island Operations

by Norm Houghton

Introduction

Editor's Note: This is the third part of a continuing series on Cheetham Salt Ltd. tramways operations. Previous segments have appeared in *Light Railways* No. 112 and 115.

Salt harvesting on Kangaroo Island first began in 1814 at White Lagoon but such harvestings were small and unsystematic. The first long term working of salt resources was initiated by the Globe Salt Co in 1897 at the eastern end of the island at Salt Lake on a small depression of 215 hectares. This company had a difficult start and by 1901 had been taken over by the Commonwealth Salt Refining co. In turn this company made optimistic plans and began some development work before it too fell into trouble. The company was rescued and reconstructed by Mr Arthur Muston, a Sydney merchant who planned to direct most of the Kangaroo Island product to Sydney.

The Commonwealth plant under Muston's proprietorship was designed and built on a large scale. At the Salt Lake was erected a factory, bag room, loading shed, engine room, furnace room, crushing shed, blacksmith and carpenter shops and a store shed. Staff were catered for in a manager's residence, two storey harvest barracks, a boarding house, general store with residence attached, several cottages a school and a sports ground. The company divided the lake into eight, and eventually nine, crystallisers by means of earthen walls. A network of sluice gates and a pumping system powered from the factory enabled the brine flows to be controlled.

Salt was manually forked up from the mud bottom and deposited into tramway trucks on portable lines. The raw salt was then trucked to one of several stacks near the factory where it was mechanically elevated. From the stock-piles the salt was further trucked as required over a permanent line to the factory and, once processed, bagged and loaded onto flat top tram trucks for the trip to the jetty (built by the company) at Muston where coastal steamers and later

auxiliary ketches took loading to Adelaide for wider distribution.

The tramway plant comprised two steam locomotives and an assortment of five tonne, main line trucks, harvest trucks, and a petrol motor track inspection truck. Trackwork was 10 kms of 2 ft 6in (762mm) gauge main line and 2.4 kms of portable harvest lines. A loco shed built of stone and a workshop were also provided to service and maintain the rolling stock.

Australian Salt Company

In the early years the factory operated all year round when yields were high but after the Cheetham takeover, through the Australian Salt Co in 1930, the field worked for only half the year. Under ASC management there was a shakeout. Jack Cunningham was very critical of the methods used by the ailing companies that Cheetham had bought out (e.g. describing the Castle Co's operation at Lochiel as 'idiotic') and at Kangaroo Island there was a wholesale restructuring. Staff levels, then at 16 hands and two loco drivers, were cut back to the barest minimum, the factory was made seasonal, and the tramway trimmed of 'extravagances' such as two locos in steam at the same time. The harvest was secured during February and April, and processed April to August each year. Once the harvest was processed the works closed, with the company retaining only a skeleton work force. The reason for this policy was the small productive capacity of the lake and the cost structure. The factory could process a maximum of 35 tonnes per day and within a few months it had worked through the 5000 tonne harvest. Climatic conditions and natural features made it impossible to increase the size of the harvesting catchment and this, together with labour shortages from the 1940's and shipping transport problems eventually led to the closure of the field in 1954.

After 1930 the annual harvest cycle began each November/December when brine pumping began and the factory machinery was cleaned, oiled and made ready. The steam locos were inspected and

prepared for duty. Harvest labour and extra horses were hired as soon as the salt began to make in the crystallisers. Labour supply was a problem and difficulties were usually encountered in hiring a minimum of 10 to 14 men. All hands were put onto the harvest and once the salt was gathered the factory began the processing of it. The jetty tram then came into use and one locomotive ran two trips per day to the jetty with the bagged salt to assemble a boatload in the jetty shed. Ketches called every week to ten days until the harvest was cleared. On boat days all factory hands were called out to assist so production was halted. Once the last of the year's production was shipped out, the factory and the tramway closed down.

During the off season some maintenances was carried out on the tramway but under A.S.C. management this was held to the minimum consistent with safety. There was no locally resident qualified driver on hire after 1930 but an ASC employee from Lochiel named Bill Boanas, who held a steam ticket, was seconded to Kangaroo

Island for three months each year to drive and service the loco. After 1938 a local man, D. Turner, was trained to drive the loco tractor but as the steam locos had been condemned by then the new arrangement made no difference to operating practices.

During the 1939-45 war, harvest labour was even more difficult to procure than usual. A contingent of 50 prisoners of war was made available but these proved troublesome and had such low productivity that the company was relieved when the war ended. One exasperated manager reported that the 50 prisoners shifted the same amount of salt in a week as 9 Australian labourers did in a day. After the war a batch of European war refugees, the Balts, was employed but the work proved too arduous and only a few persevered. These difficulties are mentioned to highlight the problems confronting the company in the running the Kangaroo Island salt field.

The Cheetham files have very little in them referring to the pre-1930 period but this gap has been covered in Arnold Lockyer's article.



Day loco at Salt Lake soon after entering service, July 1938. Shipping codes "A.S./A." and "A.S./S.A" clearly visible on parts of loco. 'Adelaide Chronicle'

Photo from A. D. Lockyer Collection.

HARVEST LINES

Salt Harvesting

The harvesting plant on hand in 1930 comprised the following:

62 x wooden body trucks 1 tonne capacity; 560 x sets portable 14 ft. x 10 lb. (5 kg/m) track panels on 6 x 1½" (152 x 38 mm) h.w. sleepers; 49 x sets portable curves; 15 x sets portable points and cross-ings; 400 metres x permanent line, 16 lbs. (8kg/m) laid on lake; 800 metres x permanent line, 24 lbs. (12kg/m) laid on embankment. (The latter two items referred to the permanent lines running from the factory south-east across the centre of the lake and south-west into No. 1 crystalliser.)

In 1934 the methods were reported as follows. A gang of eleven men worked one crystalliser at a time with 7 scraping up the salt, 1 horse-driver on the tram rake of 4 trucks, 1 tally clerk and 2 on the stack. Three of the scrapers were in constant attendance on the last truck in the rake, as these operators were required to shift the portable track to follow the scraping. In a typical day-shift from 7.20 a.m. to 5 p.m. around 80 trucks or 56 tonnes were lifted.

The horse driver took the filled trucks across the crystalliser to the lake bank where the stack was formed by shovelling the truck contents onto an elevator belt. All of the lake track was portable, and was shifted around to suit harvesting.

In November-December, 1936, the track panel timbers were renewed 'as the timbers are getting old (and) a good many of the ends are split and will not hold the dogs'. Similar work was done in October, 1939, when 1280 metres of 6 x 1½ inch (152 x 38 mm) timber was requisitioned for this job. The Kangaroo Island foreman also asked for 14 lb. (7kg/m) rails and timber to make up 400 metres of track.

Improved methods

During the 1941 harvest the Kangaroo Island foreman mentioned that the length of lake lines permitted only two gangs of up to 14 men to work. Labour shortages were always a problem on the island, and steadily got worse as the years went by. In 1947 the Company critically reviewed its methods on the island and decided that side-tipping trucks would be one means of saving harvest labour.

Enquiries were made for the supply of new or second hand side-tipping trucks, but these were unobtainable. In July, 1947, Jack Cunningham thought

that the stack to factory line might be converted to 2 ft (610 mm) gauge trucks. ASC Adelaide sent a fitter to Kangaroo Island to do some other work and also asked the tradesman to convert some of the trucks to side-tippers, but the necessary angle-iron was then unobtainable, so the idea was dropped.

Cheetham had obtained quotes, and could purchase immediately from the Bingle Machinery Co. 8 second-hand side-tippers of one yard (0.76 cm) or new ¾ yard (0.57 cm) Hudson trucks from Cameron & Sutherland. Nothing was done immediately, as the Company was mulling over different strategies for harvesting, and giving consideration for the introduction of mechanical harvesting. Mechanisation would cause bottlenecks in the haulage and offloading of raw salt, and these problems required to be solved first.

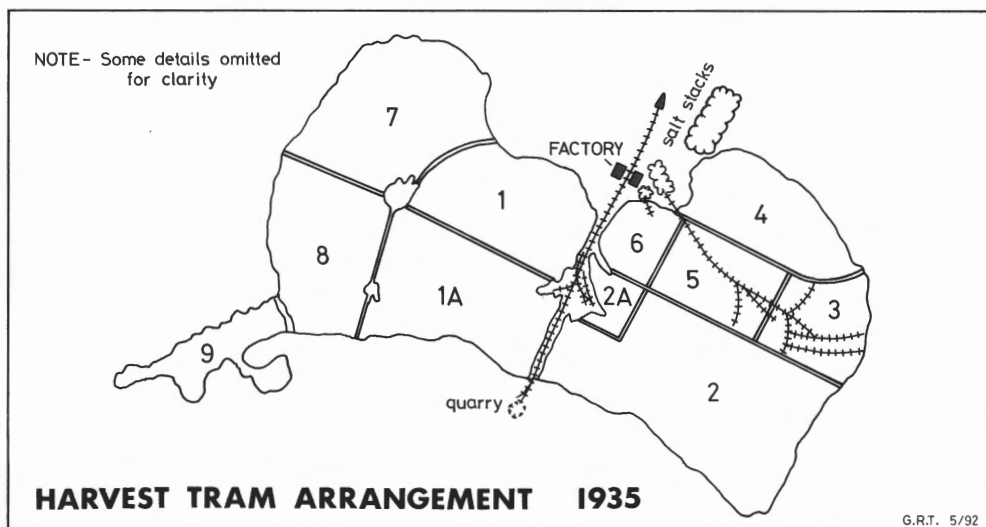
Tramway Regauging:

A lesser problem was that of re-gauging the tracks from 2 ft 6 in (762 mm) to 2 ft (610 mm). One simple solution suggested was to add a third rail inside the 2 ft 6 in rails. The major problems were in re-designing and re-building the main elevator at the factory to enable direct tipping from the salt trucks and in keeping the trucks moving at a faster rate to match the mechanical harvesting machine. The Day loco was too heavy to use on the harvest lines, and could hardly be spared from its main role in hauling bagged salt to the jetty. One option was to acquire a 2 foot (610 mm) gauge loco, possibly one on loan from Price for the duration of each harvest.

No firm action was decided on until September, 1948, when ASC Adelaide advised Jack Cunningham that the harvesting machine, then being designed, could adequately be served by horse-hauled truck rakes comprising three rakes of three trucks. The dimensions of the trucks were given as 6 ft 9 in long by 3 ft 3 in wide by 2 ft 9 in high (2057 x 991 x 838 mm).

Mechanical Harvesters:

The harvester was delivered to Kangaroo Island on 1st March, 1949, and after final assembly and adjustments, began work on 8th March, 1949. The truck line system was more than adequate, as the harvester engine proved troublesome - output was very slow and erratic but by 15th March, 1949, all systems and procedures were working. The aim was to achieve a harvest rate of 100 trucks per day, but various minor problems limited this to 80



trucks. A gang of eight men was all that was necessary to achieve this output - three at the stack, two on the truck lines and three on the harvester.

Tramway Operations:

Early in April, 1949, Jack Cunningham ordered some more harvester tram trucks for Geelong and Laverton, and asked Kangaroo Island how many it would require for use on (a) the stack to mill line and (b) from crystallisers to stack. Some second hand trucks were available at Devonport (Tasmania) ex BHP at the Melrose quarry; 24 inch (610 mm) gauge.

Kangaroo Island replied that 12 trucks were used on the stack to mill line, usually three rakes of four i.e. four being loaded, four empties in transit and four being unloaded. On the harvest lines 16 trucks were used. This season the foreman originally tried 5 rakes of 3 with one spare, but ASC Adelaide rearranged them to 4 rakes of 4 to make better use of the horses. It was obvious that with the harvesting machine the harvest would function best with 6 rakes of 4 trucks to coordinate the harvesting machine output per cut for each length of the crystalliser with the tractive power provided by three horses. The trucks were not side-tipping types, and all the salt had to be shovelled onto the stacker belt. One method thought to speed up the process was to use side-tipping trucks, but the likely available trucks from Devonport were 2 ft (610 mm) not 2 ft 6 in (762 mm) gauge. Jack Cunningham revived the

idea to re-gauge the stack to mill line or add a third rail and use the Day loco on this line. Cheetham (Vic) would have two spare locos before the next harvest (as it had ordered 2 new Rustons), but these were considered to be too heavy for the Kangaroo Island harvest lines, in which case a small, light loco such as at Lochiel, might have been suitable.

ASC Adelaide advised Geelong on 22nd April, 1949, that Kangaroo Island would require 30 side-tippers, two locos and a horse to handle the harvest under the proposed new scheme. Jack Cunningham placed an order in May for 30 x ¾ yd (0.57 cm) side-tippers ex Devonport for Kangaroo Island and some for Cheetham (Vic) with Bingle Machinery Co.

Advice was received by ASC Adelaide on 27th October, 1949, that the 30 trucks had been shipped from Devonport per the S.S. 'River Norman' to Port Adelaide. The trucks were delivered to Gray & Donaldson's works in Adelaide for reconditioning. A report on the trucks, dated 31st October 1949, stated that they were in poor condition, seven needed rebuilding, some had no draw gear, and most required replacement of axle bearings, but as such equipment was then almost impossible to buy at anything under 90 pounds, the trucks, however deficient, were considered good value. A second report on the trucks a couple of weeks later mentioned that 80% of the axle boxes were either cracked or the frame-holding lugs were broken off,

and that BHP kept the trucks running by fitting a hoop iron band underneath.

Once the trucks were repaired and delivered to Kangaroo Island the stack to mill line was regauged to 2 feet (610 mm).

Closure

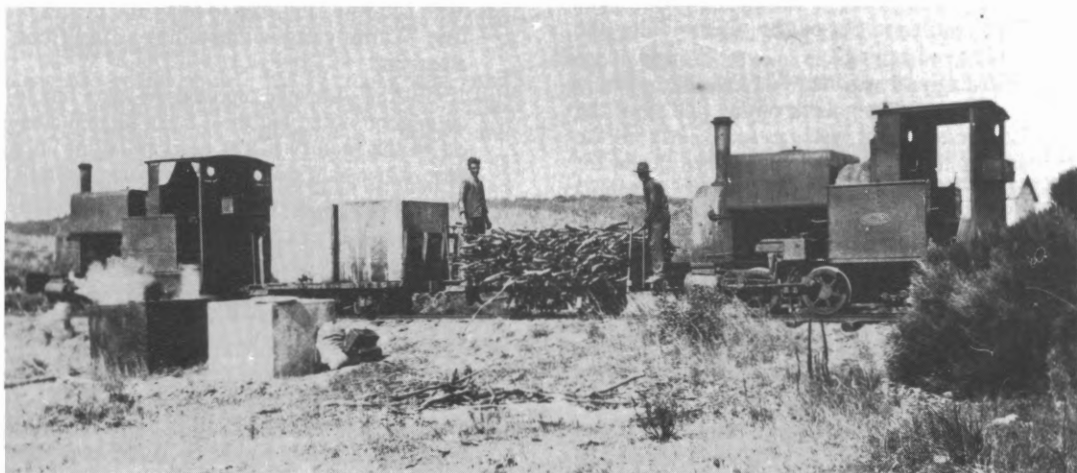
In April, 1954, management considered that all harvest lines and trucks could be sold in the wind-up of the Kangaroo Island operation. ASC Adelaide, replied that the side-tipping trucks could be used at Price.

A detailed inventory and report of all Kangaroo Island plant drawn up in May, 1954, noted that the harvest plant could be disposed of as follows. The mechanical harvester to go to Edithburgh, the usable lake lines (100 sets) to Price, with the balance (200 sets) to be sold locally for fencing etc. and the 30 side-tipping trucks to Price. A subsequent report detailed the exact plant to go to Price immediately and listed the tipping trucks amongst numerous items. A memo dated 25/11/1954 mentioned that rails and timber were being loaded for Price.

MAIN ACCESS TRAMWAY CHRONOLOGY

- 25.4.1931 Report issued by former Commonwealth Co. engineer on condition of the tramline at the time of the takeover and measures to be taken to bring the line up to standard. He stated:
'In the 5½ miles of tramway we have a mile section length laid with 21 ft, 40 lb rails, the balance of the 5½ miles of tramway is made up of mostly 24 lb rails, also some 30 lb rails; the reason that we stipulate the 40 lb tramway rails is that the cost of upkeep is not nearly so heavy as the lighter class tramway rails. We also found it difficult to purchase any second hand 30 or 24 lb tram rails, but could always procure good second hand 40 lb rails from the Government Stores Department.'
- 14.1.1932 The hot weather over the Christmas/New Year period buckled the line 'a good deal'. Two men were put on the repairs doing the 'lifting and pulling'.
- 15.2.1936 Engineer reported that 'We have done a good bit of repair work on the line since the Loco ran over it last - in fact nearly all the second hand spare rails have been put in for repairs. We mentioned to Mr Mitchell [Cheetham's Chief Engineer, Ed.] when he was on the Island last that we would be requiring some more rails and sleepers, if there was much salt to go over it. However, the line is not that bad that we cannot run the salt down (with care). To look at the line the running surface looks good, on the other hand, you can see daylight through the webs in places.'
- 8.2.1937 Sleepers for repair and maintenance work are about to be sent from Lochiel, as well as 15 tonnes of rails from Edithburgh.
- 1.3.1937 Repair works detailed in a report: 'Everything is in readiness (for the harvest and carting), and the tramline from works to jetty has been repaired, where necessary. The 30 feet second hand rails we bought from the Railways have been laid at the jetty end where the line was worst, and the few good rails that were taken out will be utilised to replace any faulty rails in the rest of the line. We did this to save cutting, as the main line rails are in 20 feet lengths, so the 30 feet lengths were laid on the one section.'
- 14.7.1937 The Company secured 29 tonnes of 40lb rails surplus from Adelaide Quarries (who had just lifted 5.5 kms of line). We propose utilising the rails at the Island by carrying on from the good section, and any good rails that come out of the line can be kept for repairs on the other section.
- 12.8.1937 The 40lb rails used to relay 700 metres of line. Warning signs erected at all rail/road crossings.
- 30.10.1939 ASC Adelaide reported the main line to be in good order, but the 1.5 km section closest to the factory might need re-laying in a year or two as it was laid with the lighter rails lifted from the jetty end in the 1937 renewal works.
- 6.4.1949 ASC Adelaide advised that Kangaroo Island required 450 metres of 30lb rails to relay the worst sections of the jetty line. Such a quantity of rails was then estimated to take up to 12 months to secure from the B.H.P. Steel Mills.
- 27.9.1949 Cheetham ordered 1,100 sleepers (7 in x 5 in x 4 ft 6 in) for Kangaroo Island and Price from a red gum mill near Casterton (Vic).
- 25.1.1950 Dog spikes required for harvest line regauging to 2 feet.

- 7.4.1954 Bushfire swept over portion of line, burning some sleepers and two 'Look out for trains' notices.
- 28.4.1954 Management began considering work schedule and timetabling for disposal of plant and tramway at Kangaroo Island. Tramway was to be dismantled after factory equipment and buildings had been stripped of re-usable components.
- 17.5.1954 Initial inventory of line described most of the rails as being in good condition with fish plates, bolts and dog spikes being in a re-usable state. Sleepers were listed as very poor, with the exception of those put down after 1937.
- 13.9.1954 Dismantling of tramway commenced at factory end using Day tractor, platform trucks and four hands (including Kangaroo Island foreman).
- 18.11.1954 Dismantling gang making heavy going on the 50lb line section. Rails reported to be very awkward to lift with only three men and a youth.
- 25.11.1954 Kangaroo Island foreman injured in road accident and wrecks his truck. Dismantling operations thrown into disarray. Youth disappeared, and remaining two men could not handle the rails nor be driven to the site each day by foreman.
- 8.12.1954 Kangaroo Island foreman resumed work on 29th November with his two helpers. Walked to site each day from the factory (6.5 kms).
- 7.2.1955 ASC Adelaide reported rail dismantling and stacking was completed a 'little over a fortnight ago'.
- 1.4.1955 Various new offers for sale of the rails considered but prices deemed too low. An accompanying schedule, listed five rail weights -50, 40, 30, 28 and 24lbs for a total of 172 tons. ASC Adelaide decided to retain all 50lb and 40lb rails for transfer to Price and Lochiel, and publicly advertised the 30, 28 and 24lb rails. Tenders close 15/4/1955. Price, Lochiel and Edithburgh subsequently took delivery of 79, 39 and .75 tons of rails respectively.
- 22.4.1955 Offer for rails received from C.H. Morrell of Adelaide for 26 pounds four shillings and six pence per ton.
- 3.5.1955 Morell's offer accepted as well as agreeing to let go 17 tons of 40lb rail previously earmarked for Price.
- 10.5.1955 ASC Adelaide reported that 30 tons of Morrell's rails were despatched from Kangaroo Island on 26th April, and the balance of 100 tons on or about 3rd May, 1955.
- 23.5.1955 Sleepers sold 'as is where is' for one shilling each at public auction.



The two Kerr Stuart Locos on a firewood gathering shunt. Unloading at Salt Lake.

Photo courtesy Port Dock Railway Station Archives from Rob Read Family Collection.

MOTIVE POWER CHRONOLOGY 1927 - 1954

When the Australia Salt Co. Ltd took over the Kangaroo Island operation its main access tramway inventory revealed the following contemporary position:-

- 2 x Kerr Stuart Saddle tank locos, 30 h.p.;
- 6 x 5-ton iron trucks;
- 6 x 5-ton wooden trucks;
- 1 x heavy plate layers truck;
- 1 x 3 ½ h.p. petrol inspection truck.

Nov. 1927 One loco boiler removed and sent to Forwood, Down and Co., Adelaide, for overhaul. Works included fitting new tube plate and smoke box baffle plates, cleaning tubes and replacing three defective ones, renewing rivets in foundation ring, fitting four new plugs, over-hauling regulator valve and rescrewing stay bolts.

(early) 1930 Boiler-maker from Forwood, Down, sent to Kangaroo Island to carry out repairs. No.1 boiler: renew and clean rivets and plugs in fire-box No.2 boiler: repair around fire-box door, caulk throat-plate and tighten fire-box stays, chip out and weld cracks and braze holes in exhaust-pipe flanges.

25.4.1931 Schedule of work listed by boiler inspector to bring locos up to a minimum standard. Company decided not to spend large amounts on repairs, restricting work to some water tubes, bearings, furnace door baffles and one replacement 'Y' exhaust steam pipe.

Nov. 1936 Boiler Inspector passed boiler 1060 for another year's steaming. Boiler 820 condemned on several grounds - thin plates, rivet heads burnt off, plates cracked on rivet holes and foundation ring cracked.

8.9.1937 Jack Cunningham raised the question of acquiring an internal combustion loco to replace the steam locos if the Kangaroo Island field was to have a long-term future.

13.9.1937 Jack Cunningham suggested the internal combustion loco at Port Augusta Salt Works might be suitable for Kangaroo Island, but favoured a McCormick-Deering unit mounted on a Day's chassis. (Cheetham's Chief Engineer had seen a 6-wheel Day's tractor at work on the Granton Tramway at Healesville in Victoria, and was impressed with its capabilities).

8.11.1937 Boiler 1060 blew out in the fire-box and about 150 mm back from the tube plate, on the right hand side. Loco withdrawn from service.

16.11.1937 Jack Cunningham ruled that purchase of an internal combustion loco was not cost-effective and that it would be cheaper to sell the rails and purchase a road truck with the proceeds.

27-9.11.1937 Inspector examined both boilers to determine if one or both could be repaired. Inspector condemned boiler 820 and indicated he would issue temporary certificate for boiler 1060 only if certain works were done. Inspector recommended that the blow-out hole be drilled out, tapped, plugged and welded. 29.11.1937 Loco driver tapped hole and fitted plug. Jack Cunningham suggested the Kangaroo Island field was an operating nuisance to the company and ought to be shut down.

1.12.1937 Boiler steam-tested and given a limited certificate until the 28th May, 1938.

8.5.1938 Jack Cunningham advised ASC, Port Wakefield, to send expired boiler to Adelaide in order to secure a quotation for a new one provided the cost was reasonable.

9.5.1938 Jack Cunningham reversed earlier decision and opted for an internal combustion loco.

11.5.1938 Kangaroo Island manager instructed to halt the dismantling of the loco as the full cost of boiler and other repairs (to the saddle tank and the tyres) was uneconomical.

20.5.1938 ASC ordered internal combustion loco from Days Engineering Works.

8.7.1938 Day loco left Melbourne for Adelaide per S.S. Muldra.

18.7.1938 Day loco arrived at Kangaroo Island.

21.7.1938 Day loco made first run with two trucks. Draw bar position found to be unsuitable for local trucks.

22.7.1938 Day loco hauled 12.75 tonnes (same as for steam loco) at an average speed of 10 km/h, taking 2 ½ hours to do a round trip.

28.7.1938 New perch pole devised for drawing trucks; loco buffers turned upside down to fit.

- 5.9.1938 Loco successfully hauled four trucks. Canopy standards gave way and had to be strengthened and re-welded to chassis.
- 8.9.1938 Loco can now comfortably handle loads of 17 tonnes and can do two round trips per day to assemble a full boat-load in a week.
- 30.9.1938 Steam locos written off for accounting purposes.
- 31.3.1941 Day loco's rear axle broke. Day's Engineering did not have an axle in stock so axle taken off loco and shipped to Forward, Down, Adelaide, for new axle to be made, wheels fitted and ball races replaced by brasses. (It was thought that ball races were too rigid).
- 14.1.1943 New front axle fitted at Kangaroo Island.
- 22.6.1943 Kangaroo Island foreman suggested the steam locomotives be attended to - 'As you know, both of these engines are in very bad repair, and I was wondering if they were being sold for scrap or to be done up. I doubt if *Capellas*' lifting gear could handle the heavier pieces of the locos. These machines weigh approximately 9 tons and, of course, when the boiler, wheels and all other gear are stripped off, there will still be some heavy pieces. There are also three spare axles with wheels attached belonging to the locos.'
- Aug.1943 Both derelict steam locomotives listed for sale.
- 25.10.1943 Loco rear axle reported to be giving trouble, possibly through wear in the bearing brasses; in addition the drive rods were faulty. Rear wheels removed for shipping to Adelaide for repair.
- 7.5.1945 Jack Cunningham suggested details of the two steam locos be advertised through a (unnamed) Sydney machinery broker in the hope of selling them, hopefully, to some mining venture, 'otherwise they will never be got rid of except as scrap iron'.
- 15.5.1946 Loco breaks dog-clutch. Broken pieces and mounting spindle sent to Melbourne for renewal by Days.
- 18.6.1947 Details of tyre wear given in a report - 'The tyre on the offside front wheel is now showing signs of working on its wheel centre, and that the near side rear wheel rim, and which was pegged to its wheel centre by Forwood Downs in December last, and after Days advised that they could not supply new rims until after the foundry strike was over, is showing signs of loosening.'
- 25.6.1947 Kangaroo Island asked by Cheetham to measure the axle length of the loco and indicate the position of the sprocket on the axle, as Days did not 'have the measurements for a loco made by themselves'.
- 11.7.1947 Days had difficulty meeting order and required the main casting to be sent to them to ensure a perfect fit. Kangaroo Island agreed to send the entire loco, minus motor, to Forwood, Down who would fit Days parts, keep the old wheels and axles, shrink the tyres on, and make good any other parts.
- 6.8.1947 Detailed report on work being done by Days on the loco - 'The two axles have been cut off to the required length. The four bronze bearings have been completed. The two sprockets have been completed, and two of the wheel blanks together with the four tyres are expected from the foundry today, and this seems to be the main part which is holding them up.'
- 22.8.1947 Loco parts sent from Melbourne to Adelaide.
- 15.9.1947 Forwood, Down had trouble fitting all the parts. The problem was in the differing widths of the old ball-race bearings and the new bearing brasses, requiring a different spacer-piece on the wheel boss. Forwood, Down were concerned that the bearing brasses were of lighter construction than the original ball-races and may not have been suitable, but Cheetham indicated that the new bronze bearings were more serviceable and more easily replaced than ball-races. Days now supplied as standard to their locos axle brasses bedded onto slipper sections on bed plates.
- 4.10.1947 Forwood, Down advised the loco would be ready for shipment to Kangaroo Island in two days.
- 6.1.1948 Cheetham advised ASC Adelaide that as the works foreman at Days gave the impression that Days 'do not have definite plans to work from and build each unit as they go along' the exact measurements for the Kangaroo Island axles etc were to be taken and sent to Days for future reference, 'so that

if any mistake should be made, the blame can be thrown back onto Day's Engineering Works'.

12.1.1948 Days advised that the new tyres had been cast.

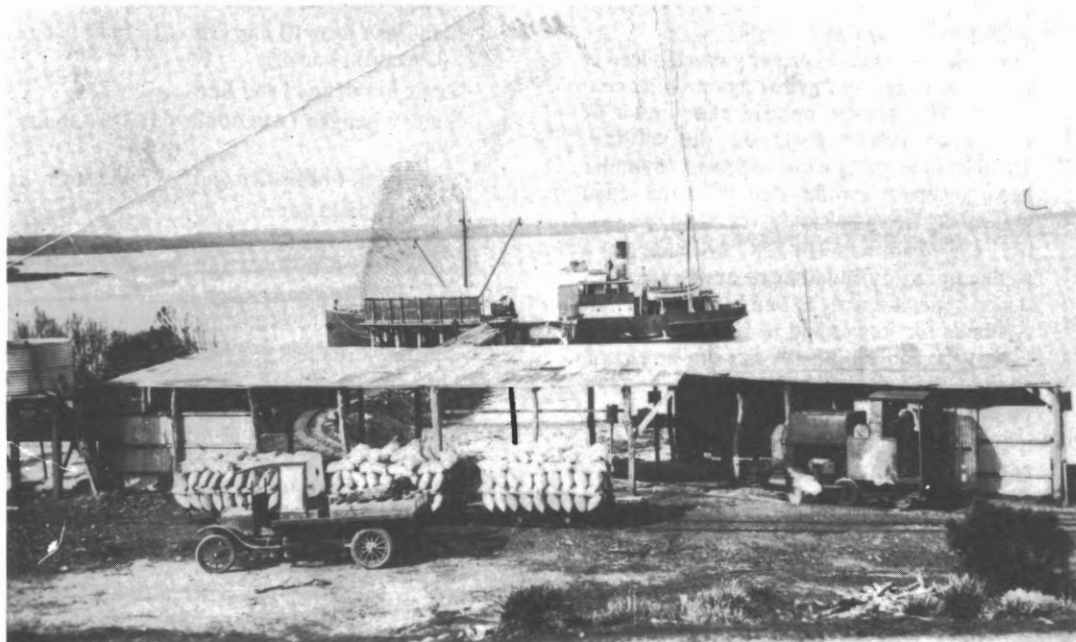
21.1.1948 Cheetham Production Manager called on Days to check on progress of the work. Advised that Day's had been sold, now traded as 'Day's Engineering Works Pty Ltd.', and the new management was smartening up in its efficiency and should offer an improved service to clients in the future.

5.1950 A report from Kangaroo Island foreman alerted management that horses were becoming hard to hire for use on the harvest line, as local farmers were now buying tractors. He suggested if horses were to be used in future the company should acquire some surplus animals from the farmers, but if not, then the company would need a light-line loco. Jack Cunningham agreed to the horse option for the time being until the loco position became clear. The smallest loco Cheetham could

acquire would be a 2.5 tonne Hudson (ex U.K), but this would be too heavy. Cunningham then suggested that Cheetham could build its own light locos, 'as there is not a great deal involved in building units of about 30 cwt. (1524 kg), except for the gearbox with reversing gear. The Ford 10 h.p. engine has proved itself at Laverton as being quite suitable' (as power plant). Cheetham's Chief Engineer requested to draw up a standard design plan.

1.2.1951 Small loco completed as part of an order for two for Kangaroo Island.

8.2.1951 ASC Adelaide advised that Kangaroo Island harvest loads comprised rakes of six trucks, with these trucks weighing 4 cwt. (203 kg) empty and 16 cwt. (813 kg) full running up a grade of approximately 1 in 25. Cheetham subsequently tested loco hauling six trucks of three tonnes each of salt on the level at Moolap.



Muston Wharf with 'S.S. Kapoola' tied up. One of the Kerr Stuart locos has just returned from placing a salt wagon at the wharf head.

Photo courtesy Port Dock Railway Station Archives from Rob Read Family Collection.

23.2.1951 Cheetham decided to build a second harvest loco, but advised it would not be ready for the 1951 harvest.

5.4.1951 Loco unloaded from 'Ulonga' at Kangaroo Island.

6.4.1951 Kangaroo Island reported safe arrival of new loco, but staff far from impressed with it. The loco was prone to wheel-slip and poor haulage capacity, and could pull only four loaded trucks across the lake on the level. The trucks were then hauled from the lake to the stack on the bank by horse.

9.4.1951 Kangaroo Island formally reported the new loco to be unsatisfactory due to difficulties in hauling its load, and the engine being troublesome. Cheetham advised that slippage could occur through driver inexperience and salt build-up on rails; recommended placing extra ballast on frame and rigging-up sand boxes and fresh-water drip pipes for rails. Cheetham denied the engine was a dud.

21.5.1951 Cheetham advised ASC Adelaide on driving techniques for the loco. Kangaroo Island manager, who drove the Day tractor, gave tuition to the lake driver and reported improved haulage results.

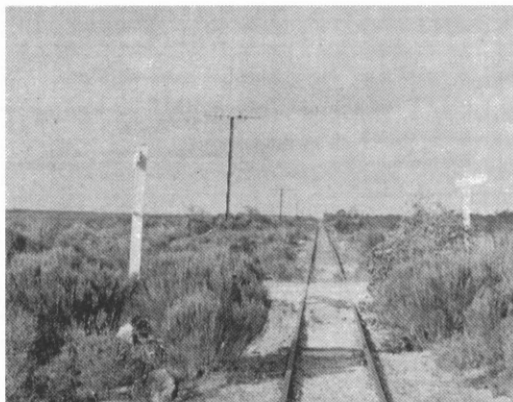
13.7.1951 ASC Adelaide Manager inspected loco at Kangaroo Island and issued report on its condition. His report upheld the views of Kangaroo Island staff on the engine. Troublesome parts were removed (cylinder head, generator and fan assembly) and railed to Geelong (from Adelaide) for attention.

3.12.1951 Cheetham minuted ASC Adelaide that a replacement cylinder head and a reconditioned generator and fan had been sent to Port Adelaide for forwarding to Kangaroo Island. (The 1952 and 1953 harvests were very poor, so the locos saw very little service during this period.)

26.4.1954 Management considered that all locos could be sold in the proposed wind-up of the Kangaroo Island operation. The Day loco could possibly go to Price or Geelong if it could be re-gauged to 2 feet (610 mm).

Plant Sales

27.4.1954 Report detailed exact plant to go to Price immediately, and listed the light loco, spare truck wheels and the sundry gauges. The Day loco was to remain until the main line was dismantled.



Looking along the long tangent at a road crossing with 'Look Out For Train' signs. February 1950. Photograph: A. D. Lockyer

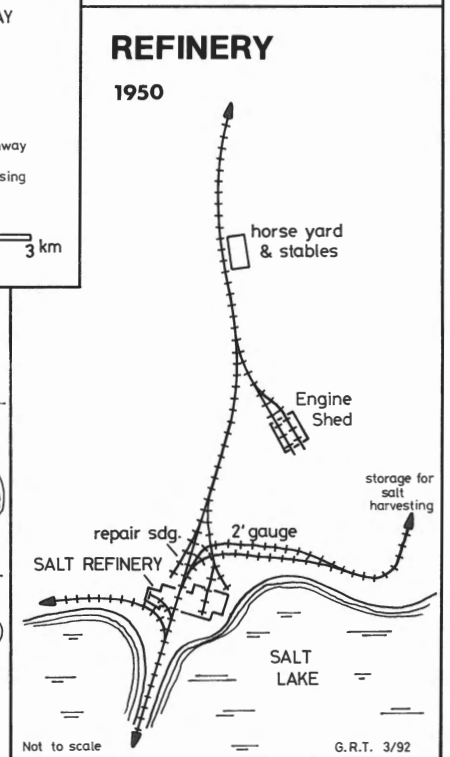
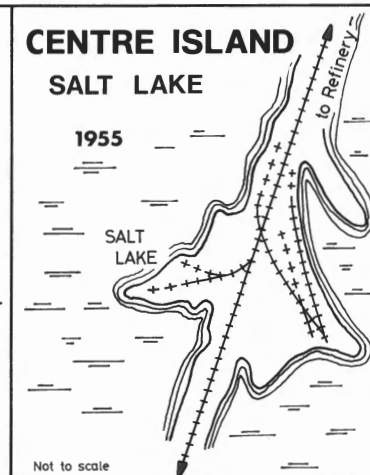
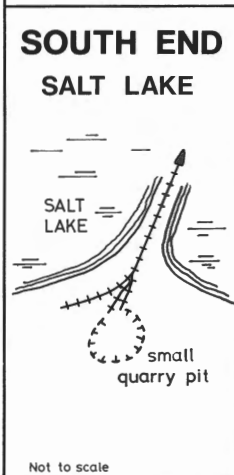
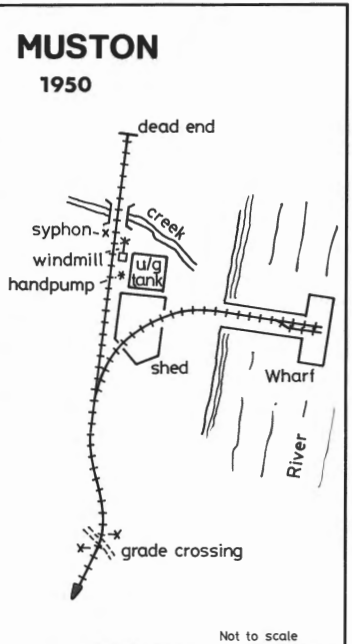
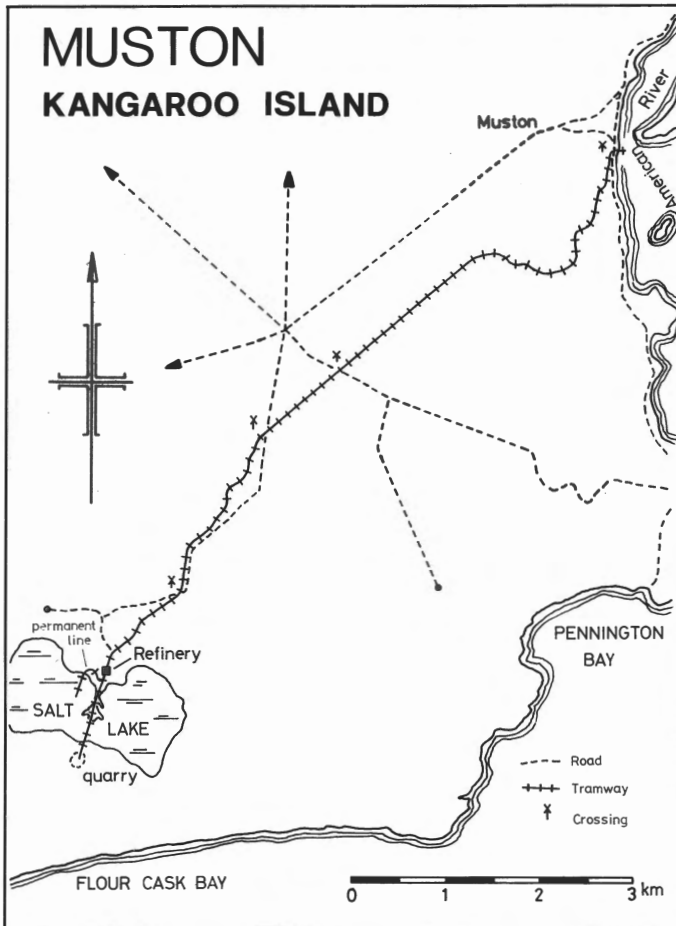
17.5.1954 Detailed inventory and report of all Kangaroo Island plant prepared by A.S.C. Adelaide and Ocean Salt, Price. Inventory listed all main-line stock as:

- Main line loco 10-20 h.p. 2 ft 6 in (762 mm) gauge with spares (Day's tractor)
- Light lake loco 10 h.p. 2 ft (610 mm) gauge (Cheetham tractor)
- Steam locos Stuart and Kerr
- Sundry gauges (Ammonia type) ex steam locos
- Spare truck wheels, 2 ft and 2 ft 6 in gauge
- Haulage trucks (steel)

Report recommended the Day loco and the light loco be transferred to Price and regauged to 2 ft (610 mm), and the steam locos be sold for scrap. The bodies and chassis of the mainline trucks were considered scrap, but the bogies could be re-used at Price.

[A comparison between the 1954 and 1930 inventories shows that the 5 mainline wooden trucks, the petrol inspection and the 62 wooden lake trucks had disappeared in the interim. No references were located to the despatch of specific items to Price in the period 27.4.1954 to 20.5.1955, but the shippings appear to be regular. The steam locos do not rate a mention in the files or in inventories after 17.5.1954, but a company reminiscence by W. Laker of Adelaide written in 1974 states that the steam locos were acquired by Hines Metals.]

20.5.1955 Day loco to be loaded onto a ketch today for despatch to Price.



KANGAROO ISLAND SALT TRAMWAY

by Arnold Lockyer

Introduction

Salt fields in South Australia were in most cases situated in remote, inaccessible areas, away from larger communities which had a local newspaper. As a result, contemporary records of their operations are limited to official Mines Department reports, the odd photograph taken by one of the employees or the passing 'trail blazing' tourist, and the occasional report in the Adelaide press, often emanating from the 'trail blazing' tourist.

The salt field on Kangaroo Island, whilst isolated from the mainland and, until recently a 'back water' with regard to tourism, did however have the benefit of a local newspaper called *'The Kangaroo Island Courier'*. The paper was printed in Glenelg on the mainland and shipped to the Island for many years and had an editor who was interested in the Salt Company at Salt Lake and its tramway. When the paper ceased publication (c. 1950) the complete set of issues kept at the printing office, was forwarded by the publisher to the Institute at Kingscote. Shortly afterwards, Mr Jeremy Wainwright, who was holidaying with relatives at Kingscote, extracted from the papers all references to the tramway and passed them onto the writer. Without these extracts it is doubtful whether this article could have been written. The only unfortunate aspect was that the editor, who showed such interest in the Salt Company and the tramway, died in about 1923 and, to quote Mr Wainwright, his replacement was 'a poor substitute', as nothing further appeared in the paper regarding the tramway.

Commonwealth Salt Refining Co Ltd.

Construction of the Tramway

In 1900/1901 a tram route from Salt Lake (also known as Salt Lagoon) to a point on American River (later to be known as Muston) was surveyed by C.J. Sanders and on 3rd August 1901 the District Council of Kingscote granted permission for the tramway to cross Council roads.¹

Following this early activity, the company ran into some problems and construction of the tramway did not commence for some time after the original survey. It was not until 1st February 1908 that the K.I. *Courier* could announce that 'four and a half miles

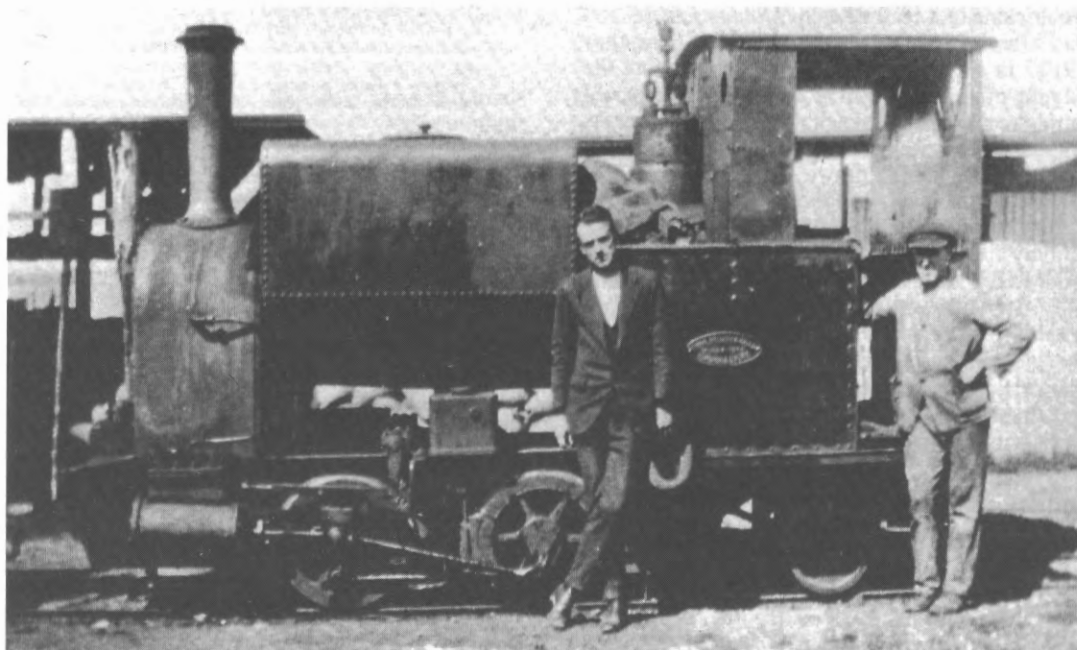
of railway lines have been laid down on the way to American River, which covers half the distance. When the remainder is completed the trucks will be drawn, most probably, by a locomotive, to a jetty on the river. Though small, this will be the first railway on the Island. May others follow.' In preparing this news item the editor appears to have let his enthusiasm get away. Subsequent news items would indicate that the 'laying down of the line' only covered the earthworks and not the laying of track and seven kms represents a great deal more than half of a line that was only 8.8 kms long.²

Ten months later the K.I. *Courier* on 12th December 1908 reported that tenders had been called for the supply of 12,000 sleepers to be used 'in connection with the construction of the tramway'. The issue dated 13th February 1909 quoted a Mr Kinnane as stating 'that the tramway is proceeding satisfactorily' and three weeks later, readers were told that Mr C. Western's saw mill at Cygnet River had started on the tramway's 12,000 sleepers. Another almost 12 months were to pass before the paper could announce on 22 January 1910 that 'it was anticipated that the tramway will be completed in about three weeks' followed by the news that 'the tramway to the jetty has been completed' in its issue of 19th February 1910.

Route of the Tramway

Salt Lake is situated on the south side of Kangaroo Island and at one place the edge of the lake is only about 250 metres from the sea. American River is a large inlet on the northern side of the Island and it almost divides the island in two. Muston, on American River, lies eight kilometres north east of Salt Lake. Between the two, the country is quite hilly and the line had to cross ridges up to 80 metres high after starting and finishing at about sea level at Salt Lake and Muston. Because of the poor, sandy soil and a reasonable rainfall, the line passes through low, fairly dense scrub.

After leaving Salt Lake, for the first three kilometres, the line worked its way up grade by a series of reverse curves and short tangents, until it crested a ridge about 50 metres above sea level. In May, 1955, I recorded six reverse i.e. left/right or



Kerr Stuart loco B/N 1053 of 1909 at Muston, c. 1930.

J. L. Buckland Photograph: A. D. Lockyer Collection

right/left curves in this section together with several cuttings and embankments. Over the crest, the line was straight for the next three kilometres, during which it traversed some undulating country by a series of switchbacks - three large and three small. For the first part of the three kilometres, the line was descending after which it started to ascend to enable it to cross another ridge, this time 80 metres above sea level, at the far end. To me there appeared to be only one short section of level track in the whole of the three kilometres. Standing on the track at either end of this straight section, it was possible to look across the lower country between and see the line passing over the ridge at the other end.

Just after the end of the straight section, the line passed over its highest point before commencing the descent to Muston, about 1700 metres distant. This descent was very similar to the ascent out of Salt Lake, a series of reverse curves, and short tangents, with some cuttings and embankments. Strangely enough, it also had six reverse curves, but because of the shorter distance between the summit

and Muston and the extra height of the ridge, it was not as direct, taking about 2250 metres to cover the 1700 metres.

When the line was in operation it was usually described as being of 40 in (762 mm) gauge, 5½ (8.75 km) miles long with a ruling grade of 1 in 28.

Tramway Operation

Once completed, the company wasted no time in getting the tramway into operation. A fortnight after announcement that the line had been completed, the paper contained a report of a visit to Salt Lake which included the following:- 'We started our return journey by the company's horse tramway .. as we wend our way down the long winding run to the Salt Company's jetty, we find our attention drawn to the fact that once more we were on the Commonwealth Salt Company's tramway on the down grade, with a man of courage at the brake, who, in response to our inquiries said, 'The boss won't let us travel over 30 miles per hour down here; we have to go slow''.³ Horse haulage would have continued for about six months, until the Company's first steam locomotive arrived at

American River on the ketch 'Maldon Lewis'⁴ and had a satisfactory trial on the 9th September 1910.⁵ In addition to the use of horses before the advent of the locomotive, according to an old employee Laurie Shakeshaft of Muston, horses were also used when the locomotives were out of commission.⁶ Horse drawn 'trains' consisted of three trucks, each loaded with about 5 tons (tonnes) hauled singly by two horses, running 'in convoy'. On the run to Muston (loaded) horses would be detached at the top of each incline and the trucks allowed to free-wheel down hill controlled by a brakeman. At the bottom of the incline, the trucks would wait until the horses caught up. On the return trip (empty) the horses remained attached to the trucks for the whole run. With horses, it was possible to do two round trips per day, but they took more than eight hours.⁷

With the coming of the locomotive, trains normally consisted of three trucks, i.e. a load of 15 tons (tonnes) and the number of return trips per day increased to an average of four.⁸ On 26th June, 1915, the K.I. *Courier* reported that 'a new locomotive for the tramway is expected shortly' but contained no further information concerning its arrival. This second locomotive was registered at the Steam Boilers Department in 1915, so it is reasonable to assume that it arrived during the latter half of that year.⁹ With two locomotives, when the line was busy, both were steamed up, and the usual practice was for trains to consist of 6 trucks (30 tons - tonnes) with a locomotive at each end.¹⁰ Also during busy periods, trains ran at night and the locomotives had large oil headlights.¹¹ (When the author attended the clearing sale at Salt Lake in May 1955, he saw the remains of one of these headlights in a parcel of scrap metal.)

When originally built, the line had two passing sidings, one at the top of the hill leaving Muston and the second just before the Main Rod to Kingscote crossing. Originally intended to allow trains to cross, they saw little service and were dismantled.¹² This second siding was near a property known as Kiowie, and in 1911 had a sign 'Kiowie Siding'.¹³

In addition to carrying the Salt company's product to Muston and supplies back to Salt Lake, there is also some evidence that the line was used for the transport of other people's supplies and produce. The K.I. *Courier* of 4th February 1991 contained the following news item:-

'The advantages of a Railway. A recent overland visitor to the Dudley district was very much impressed by an incident which came under his notice during the trip. After proceeding for about a mile past the Commonwealth Salt Company's works, he noticed at Mr R. Wheaton's farm the words 'Kiowie Siding' placed in a prominent position. This was really a siding on the Company's tramline as the iron horse passes Mr Wheaton's door and as illustrating what immense benefit to K.I. a line of railway would prove to be, Mr Wheaton informed the visitor that everything he wanted arrived by the train and that he was thereby saved much expense and inconvenience in the way of cartage.'

Three years later, on 14th March 1914, the ketch 'Lady Daly' was delayed at Muston because the locomotive on the tramway had broken down and it was waiting for a cargo of gum, stacked at Salt Lake, to be 'entrained for the River'.¹⁴

During the period 1908/1922, when the K.I. *Courier* was recording much of the activities of the Company and the tramway, it reported two serious accidents. The first, in the issue of the 24th March 1913, concerned the loco driver J. Rice, who 'was waiting to fasten the trucks to the engine and was caught between the two and severely crushed'. The second accident was much more serious and resulted in two deaths. The first report in the K.I. *Courier* of 8th April 1992 read:-

'Collision at Salt Lake. Two men fatally injured. A dreadful accident occurred on the railway line that connects the Commonwealth Salt Company's works at Salt Lake with Muston jetty at American River. A small trolley with six men on it, was proceeding to the Lake and travelling at a good speed down the incline approaching Mr J.T. Taylor's residence 'Kiowie'. Just beyond this there is a curve and the line is hidden by scrub. The Manager (Mr J. G. Clark), who was returning to Muston from the lake on a motor trolley, failed to notice the on-coming trolley until it was too late to avoid a collision and both vehicles crashed together. Two killed.'

A week later a follow-up report appeared:-

'We have also been advised that the truck on which the men were travelling got out of control when going down the incline towards Kiowie and though the motor trolley on which Mr Clark (the Manager) was travelling was practically at a standstill, nothing could have been done to avert the collision.'¹⁵

According to Laurie Shakeshaft, his son and daughter were returning from school on the motor trolley (which he described as 'a kerosine loco - a small truck affair') with Mr Clark and the men on the other vehicle had been working on the line. As this accident occurred on the long straight section near Kiowie, it would appear that the first report that the accident was partly caused by a curve in the line would not be correct. Any lack of visibility at this point would have been caused by the undulation of the track. The author would also point out that the spelling of 'trolley' in the reports was the news-papers.

Other than the accident in which his children were involved, Laurie Shakeshaft could only recall one other serious accident. One of the steam locomotives, with a train of empties, detailed and turned over onto its side near 'Kiowie'. No one was injured and he did not tell the author when the accident happened.

Shortly after the fatal accident already mentioned, in August 1922 the line was out of action for some time whilst 'one of the steep pinches' was regraded.¹⁶ It is not known the amount of traffic on the line during the early 1920's but it must have been fairly heavy, judging by the following K.I. *Courier* of 2nd September 1922:-

'The Loco Moves Again. The puff of the iron horse was heard coming towards out little city this morning, making the place more like itself. No wonder everyone had a peep at it, from some door or through some window, as it is three weeks since its last appearance in the main street. Never mind, it is something to be proud of, being the only railway on the K.I.; and old Fanny did not look much worse for her time out among the mallees.'

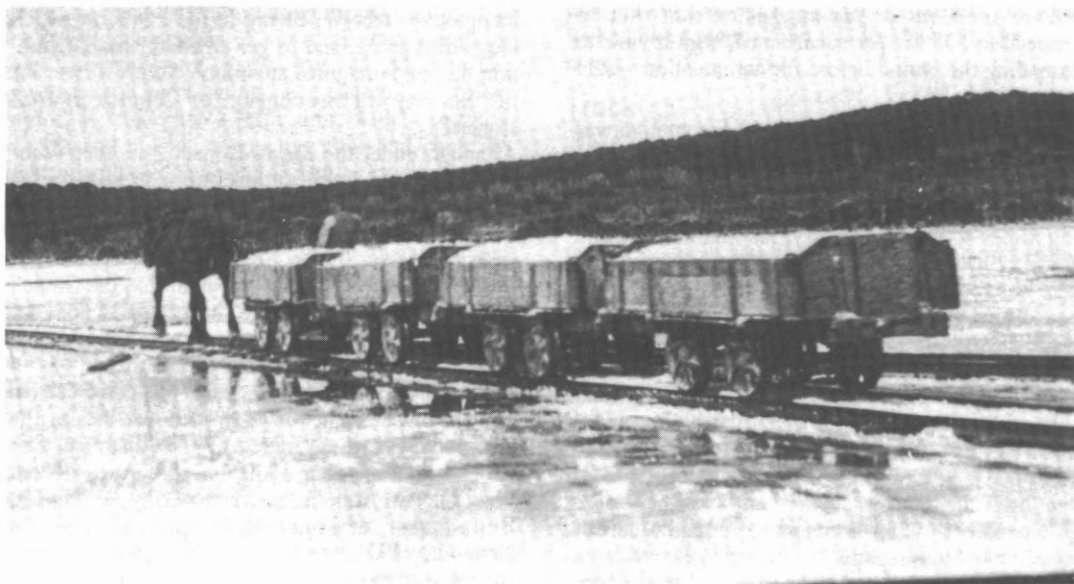
This issue of the paper also contained a cryptic report of a runaway on the line:-

'Was the brakeman singing 'Hold, I have bolted', when the truck of sand got away with him from the sand cutting, but shoved a bystander's hat off?'

The significance of the last part of this quote, like the bystander's hat has long since disappeared.

In 1930 the operations at Salt Lake and the rail link with Muston were taken over by the Australian Salt Company Limited who continued to work the line. In November, 1937, following the Government Boiler Inspector ordering certain repairs to be done to the locomotives, the Salt company stated that they were looking 'around to see what could be purchased in the way of a power unit other than steam...'. About six months later, at the end of April 1938, they sought and were granted permission to use the second locomotive for a short period, because due to road conditions, road transport was not possible and there was an urgent need to get a shipment of salt to Muston.

There were no further requests from the Salt Company to use the steam power, so it would appear that it was at about this time that the company acquired its 'power unit other than steam', a rail tractor built by Day's Engineering Works Pty Ltd of Melbourne. This unit remained at the works until the company ceased its K.I. operations.



Hauling a rake of filled trucks across the lake to the stacking area.

Rob Read photograph ex. Bill Hart Collection. Courtesy J. Moonie.

LOCOMOTIVES AND ROLLING STOCK

Locomotives

The first locomotive owned by the Commonwealth Salt Refining Co Ltd arrived in Muston in August 1910¹⁷ but was not registered with the Steam Boiler's Department until March 1913 when it was given the Registered No. 820. Built by Kerr, Stuart & Co Ltd of London & Stoke, it bore the Builder's No. 1053 of 1909. An 0-4-2 saddle tank it was described on the application for registration form as 'loco tattoo type - 2 ft 6 in gauge'. Principal dimensions shown on the form included 'horse power 30 - barrel 5 ft 3 in x 2 ft 0 in diameter - shell plate $\frac{1}{2}$ in - end plate $\frac{1}{2}$ in - 36 solid brass drawn tubes 1 $\frac{1}{4}$ in internal diameter - 12-14 W.G. thick - raised $\frac{1}{2}$ in at box end 7.5 x 12 inch cylinders - working pressure 160 lbs per square inch'.

Prior to registration, the loco had been overhauled by Simes and Martin's Engineer, Mr Park in January 1912. Once registered, the boiler was inspected by the Government Boiler Inspector in June 1913 and promptly declared as unsafe. This resulted in it being shipped per the coastal vessel 'Kapoola' to Simes and Martin at Port Adelaide for repairs. The boiler was tested on 8th July 1913 and was approved for a working pressure of 160 lbs per square inch but it was suggested that this be reduced to 135 lbs per square inch, with a view to extending the period before further attention would be required.

Between 1914 and 1930, when the locomotive was re-registered by the new owner, Australian Salt Co Ltd, the boiler did several trips to the mainland for major repairs at various engineering works including Simes & Martin, S. Perry, Jas Martin & Co and Forwood Down & Co Ltd. In 1915 the copper firebox was replaced by a steel firebox and tube plates and a new set of tubes fitted. Fifteen years later, after the Australian Salt Co had taken over, the Boiler Inspector reported that the tube plate were badly wasted, the result of copper tubes and steel tube plates! In November 1932, the boiler record showed 'not used much since last inspection' (15/11/31). In November 1933, the record showed 'not used since last inspection' and two years later, in November 1935, the Inspector issued a certificate, limited to 3 months. No longer in use, with the second locomotive, it remained stored in the loco shed at Salt Lake until some time after the Company quit the Island. Neither loco was offered for sale at the clearing auction held in May 1955.

Eventually they disappeared, believed to have been removed by a scrap merchant.

In 1915 the company purchased its second steam locomotive. This was identical to the first one made by Kerr, Stuart & Co Ltd, with Builder's No. 1290 of 1915. Registered with the Steam Boilers Department in 1915, it was allocated the Registered No. 1060. The application for registration form gave the same details as those for the first locomotive. On 8th April 1916, when the locomotive had been in service for less than 12 months, the company complained to the Chief Inspector of Boilers that 'this boiler is going in the same manner as the previous one'. A month later the Department was recommending the following repairs:- 'Firebox, firedoor plate removed and renewed or, if it can be done satisfactorily, patched. Smoke box tube plate removed, straightened and stayed.' On 9th June 1916, at S. Perry's works Gawler (previously James Martin & Co Ltd) the least repairs required were listed as 'have copper fire door plate repaired, front tube plate taken off, straightened and thoroughly riveted, tubes cleaned.' On the same day the Chief Inspector felt constrained to write to the company, stating in his letter 'I trust you will excuse my drawing your serious attention to the abuse your locomotives receive, owing to the grade on which they are running, and to get anything like satisfaction the grade requires attention'. Surely a case for the Society for Prevention of Cruelty to Iron Horses!

Although under the Steam Boilers Act, each locomotive would have undergone a yearly boiler inspection, the only major defect recorded by the Boiler Inspector up until when the locomotives were taken over by the Australian Salt Co Ltd was in November 1927, when he found that the firebox tube plate needed renewing. This of course does not mean that this locomotive spent more time 'out of shops' than its sister. It only means that it was in better repair at the time that the Inspector carried out his inspection. For example, just before the locomotives were registered by the Australian Salt Co Ltd in November 1930, on 10th April of that year, they were both 'under repair by W. Hodge, Boilermaker, of Forwood, Down & Co Ltd'. In November 1931, the Inspector recorded 'not used since last inspection' (15/11/30), a comment which he again used in November 1933, the previous inspection having been on 20/11/32. Annual inspections continued until 1937, when the Inspector's

report resulted in the letter of 9th November 1937, which has already been mentioned, and in which the Salt Company indicated that, rather than go to the expense of repairing the locomotives, they preferred to seek a 'power unit other than steam'.

As a result, the Inspector did not issue the usual 'Certificate of Inspection' authorising its use for a further 12 months, although to meet an emergency the Certificate, that would have expired in November 1937, was extended to the end of April 1938. In granting the extension, the Chief Inspector made it quite clear that he would grant no further extensions until 'the tubes have been withdrawn and a further inspection made'. As there was no further correspondence with the Company, it appears reasonable to assume that was the last time the loco was used.¹⁸

When visiting Salt Lake in 1950 and 1955, a spare set of driving wheels, one with a straight axle and one with inside eccentrics to operate the valve gear, were 'stored' outside the engine shed. It apparently was the practice to remove the wheels from the locos and send them to the mainland for turning or re-tying and these wheels enabled the locos to remain in service, whilst the work was being carried out.

The third locomotive to work on the line was introduced by the Australian Salt co in 1938, to replace the steam locomotives. It was a rail tractor built by Day's Engineering Works Pty Ltd, Melbourne, powered by a kerosene operated Caterpillar Tractor motor. It was quite a large unit, with 4 coupled wheels and outside connecting rods and could be rightfully classed as an 0-4-0. During its stint on the island, it did however undergo some cosmetic change, losing its primitive 'cab'. It remained at Salt Lake until the company ceased operations and in May 1955 it was standing at Muston awaiting shipment to Price.

Trucks

There were two types of trucks used on the line, both of which were basically four wheeled flat cars to be used for the carriage of bagged salt.

The first type, believed to have been made in Sydney¹⁹ had an open bulkhead, about a metre high at each end. At one end of the truck, beyond the bulkhead, about a metre high at each end. At one end of the truck, beyond the bulkhead was a small platform to accommodate a brakeman and an American style handbrake - a vertical shaft, with the brake wheel mounted on top.

The second type, believed to have been made by James Martin & Co Ltd, Gawler, S.A.²⁰, had four removable stanchions about a metre high at each end, with the more usual English type drop brakes, with no provision for the brakeman.

Both types carried a load of 5 tons (tonnes). In 1950, there appeared to be more of the first type than the second, and the number of trucks totalled about 12.²¹

Other Vehicles

There were at least two self-propelled passenger carrying vehicles on the line. According to Laurie Shakeshaft there were two, the bigger and better being built by Jack Kohler. This probably would have been the one involved in the fatal accident in April 1922, referred to earlier. When talking about the accident he referred to it as 'the kerosene locomotive, a small truck affair'.

Amongst the equipment disposed of at the clearance sale in May 1955, was a belt driven quad (section car) powered by a Triumph motor cycle engine. This was knocked down to a Mr Mansell of Penneshaw for \$4. Mr Mansell said that this had been built by a Mr Franklin of Muston, for his own use and to enable himself and Laurie Shakeshaft to get to work at Salt Lake. It replaced a manual unit previously used by them. To the writer, the unit looked like a manual unit that had been fitted with a motor.

Track

The following information regarding rails, sleepers etc. is based mainly on the writer's personal observations, when he walked over the track between Muston and Salt Lake in 1950 and 1955. In 1950 the track was in situ, but in 1955 the rails had been removed and the company had salvaged those sleepers it wished to retain.

In 1950 the writer paid particular attention to the size of rails, rolling marks and rail fastenings, whilst in 1955 with the rails removed more attention was paid to sleepers etc. When the line was originally built, the Commonwealth Salt Refining Company would have probably used new material and this assumption is borne out by their calling of tenders for 12,000 sleepers already mentioned. The line would have been laid for the whole of its length with light rail, of about 14 to 20 lb to the yard (7 to 10 kg/m) with the rolling mark B.H.P. Co Ltd or second hand rail from S.A.R. with various rolling marks including:-

W.I. & S. Co (Moss Bay) S.A.R. 50 lbs 1910
Silicon

* F. Krupp 1885 III Steel P. & N.S.W. B. Ry.

* " " IV " " "

* " " II " " "

* Cammel's Toughened Steel W. 1892 Sec.
380 SAR

* DOWLAIS Steel 1898 S.A.R.

* " " 1900 "

* 40 lb per yard. (20 kg per metre)

On the points at Muston was a cheese knob with the wording 'R. Dolling, AG, Dortmund' so there is the possibility that the original rails could have been of German manufacture.

When the company was quitting the Island in 1955, a quantity of surplus rails and fishplates were offered for sale by tender²², listed as:

336 lengths of 30 lb (15 kg) rail (length varying from 18 ft (5.49 m) to 30 ft (9.14 m))

95 x 18 ft (5.49 m) lengths of 29 lb (14 kg/m) rail and

871 lengths of 24 lb (12 kg/m) rail -

24 ft (7.32 m) and

30 ft (9.14 m) long

Like the rails, the size of sleepers used on the line varied greatly. Regularly shaped sleepers varied

from 6 ft 7 in x 9 in x 3 in (200 cm x 23 cm x 7.5 cm) to 4 ft 1 in x 6 in x 4 in (124 ½ cm x 15 cm x 10 cm) the larger sleepers appearing to be salvaged narrow gauge sleepers probably ex SAR. Bush timber sleepers ranged from about 4 ft 9 in (145 cm) and 4 ½ in (11 ½ cm x 5 cm) slots cut in them as if they were either intended for, or from, a post and rail fence. Other fence post type sleepers included:

4 ft 7 in x 6 in (140 cm x 15 cm) half round

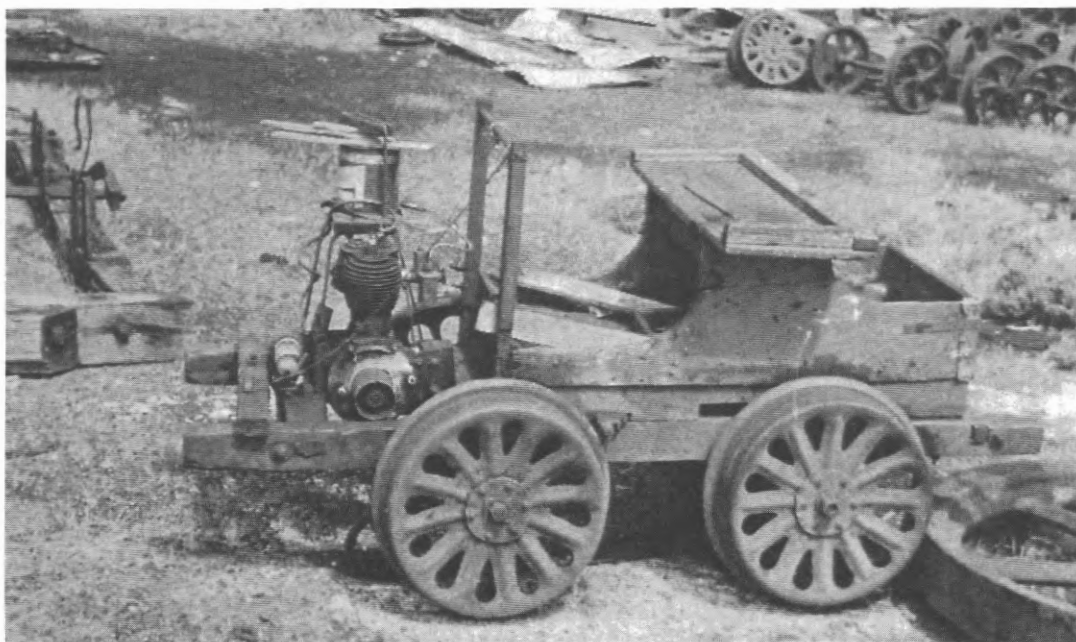
4 ft 8 in x 5 in (142 cm x 12½ cm) quarter round

4 ft 4 in x 9 in (132 cm x 23 cm) quarter round

3 ft 6½ x 8 in (108 cm x 20 cm) full round

According to one employee, sleepers were supposed to be spaced an average of a yard (.78 m). However, spacing was by no means regular and in extreme cases the distance between centre was measured as 1 ft 6 in (46 cm) and 5 ft (152 cm).

With the great variation in the size of rails, spikes also ranged from those normally used with 20 lb (10 kg/m) rail to those used on large railways which could have been acquired when they bought the ex SAR 40 and 50 lb (20 & 25 kg/m) rails. There were also some obviously 'home made' varieties, including one, which began life as a large bolt. The head had been cut off and that end sharpened, whilst the threat end had been bent over at about a right angle.



Section car with Triumph motor cycle engine and belt drive. Salt Lake, February 1950.

Photograph: A. D. Lockyer

Most of the roadbed consisted of white sand and limestone, with the sleepers embedded. Cuttings were through soft sandstone and limestone, and probably provided the material for the embankments.

All of the road crossings (4) were protected by standard SAR 'Look out for trains' signs.

Salt Harvesting Lines

At Salt Lake, the actual lake was divided into two parts by a low embankment, running from the salt works to the far side. Although the track had been lifted in 1955, it appeared that a 'permanent' line had run along this embankment. Half way across the lake, the embankment widened out to form a small island. On this island there was evidence that tracks had run off it in all directions. At the far side of the lake, there was a small quarry pit and signs of more track work.

During harvesting, track on portable panels was laid across the lake and was temporarily connected to this 'permanent line'. In May 1955, it appeared that for some time the 'permanent' line had only gone to the centre island. It is not known when the line beyond was lifted.

Originally the lake tracks were 2 ft 6 in (762 mm) gauge, the same as the main line to Muston. However, when visiting the area in February 1950, all the employees were engaged on gauge conversion, altering the portable track panels to 2 ft (620 mm) gauge, ready for the coming harvest.

Motive Power and Rolling Stock

Because of the light nature of the portable track, it is doubtful that the steam locomotives would have been used on the lake although they could have worked on the 'permanent' line across the centre. Old photographs indicate that animal power (men and horses) did the hauling on the lake up to the time that the gauge conversion took place. Laurie Shakeshaft also confirmed this. Salt harvesting trucks which numbered about 24, were of wooden construction with drop side doors. By 1950, the iron wheels and fittings on these trucks had reached the stage where they were literally 'falling to pieces' and the company decided to replace them with about 20 x 2 ft (610 mm) gauge iron side tipping wagons, with suitable holes drilled along the bottom for drainage. At the same time they introduced an internal combustion loco for salt harvesting²³. This locomotive was powered by a Ford Prefect engine



Day loco at salt store, Salt Lake, during 1948 harvest.

Miss N. Scherer Photograph: A. D. Lockyer Collection

and was made at Geelong, Victoria. After the operations on Kangaroo Island ceased it was transferred to Ocean Salt Proprietary Ltd at Price.

On 12 May 1955, at the disposal sale on the Island, the track panels comprising of very light rails in only fair condition due to their use in close proximity to the salt, laid on longitudinal sleepers with cross battens, were stacked in heaps about 1.2 to 1.5 metres high and sold in those lots. At the same time, the old wooden, drop side salt harvesting trucks were abandoned in the scrub and on examination, it was found that all of their wheels had recently been smashed, so that they would be of no use to anyone. They were not offered for sale and could be still there.

Disposal Sale

As already mentioned on the 12th/13th May 1955, the company arranged an auction sale to be held at Salt Lake to dispose of those items of plant not required by the company. As the writer had shown an interest in the company's operations, he was invited to attend the sale, and did so. In addition to the belt driven quad and the salt harvesting track panels other railway equipment sold included:- (1) The loco shed, constructed of limestone, with galvanised doors and roof, with double track, about 6 metres wide and 9 metres long. This lot also included the wooden hoist in front of the shed which was used for dismantling the steam locos. It was sold to Reg Stevens of Pardana for \$172. (2) Rails not required by the Company or already sold by tender, were sold in lots to suit the purchasers. (3) Sleepers not already removed by the company were also sold in lots 'in situ'.

Not offered for sale were the two steam locos, which were still standing in the loco shed; two flat cars with a square water tank on top, which were outside the houses up till then occupied by company employees, and one two foot gauge flat car at the site of the refinery.

Epilogue

In January 1957, Jeremy Wainwright visited Salt Lake and found the two locomotives standing between the limestone walls of the loco shed. One was leaning over at an angle of about 10° from the vertical - perhaps Reg Stevens had tried to recover the rails, which he bought as part of the engine shed. Both were showing signs of vandalism. By June 1961 both locos had disappeared, reported to have been cut up by an itinerant scrap metal dealer and the walls of the shed were just two piles of limestone rubble either side of the inspection pit. By this time the old 2 ft 6 in (762 mm) gauge wooden salt har-

vesting trucks were almost completely hidden by advancing scrub. In a vacant paddock near the Muston jetty there were the remains of one 2 ft 6 in (762 mm) gauge wooden salt harvesting truck, three old wooden frames that could have been harvesting trucks converted to flat trucks for use on the jetty or to transport gear from Salt Lake to Muston for shipping, and four of the mainline trucks with the American type brake wheels. On another visit a year later, Mr Davis of Muston told me that when the Salt Company moved out, he agreed to fill the old underground tank, which used to supply water for the steam locos, as it was considered to be a danger. The company intended him to bury the trucks with some other debris in the tank, but he decided not to do this and arranged with a friend, who owned a tractor, to drag them to their then position. As I was interested, he gave me a cheese-knob off one of the points, probably the one off the jetty, and offered me a truck, an offer which I had to decline because it would not fit into the boot of our car. Also at Muston at this time (June 1962) at the bottom of the embankment leading to the jetty were the remains of another truck. Visitors to the Island since I was last there have not seen the trucks in the paddock, which were plainly visible from the road, so it assumed that these have suffered the same fate as the two steam locomotives.

There were also the remains of a truck beside the line near Salt Lake. It is believed that this truck was abandoned when it broke an axle during the exodus of the company from Salt Lake. Originally lying completely exposed beside the old railway formation, in 1962, it was found to be almost completely covered by dirt and other rubbish, pushed aside during the widening of the road which at that point ran beside the railway. It is probably still there.

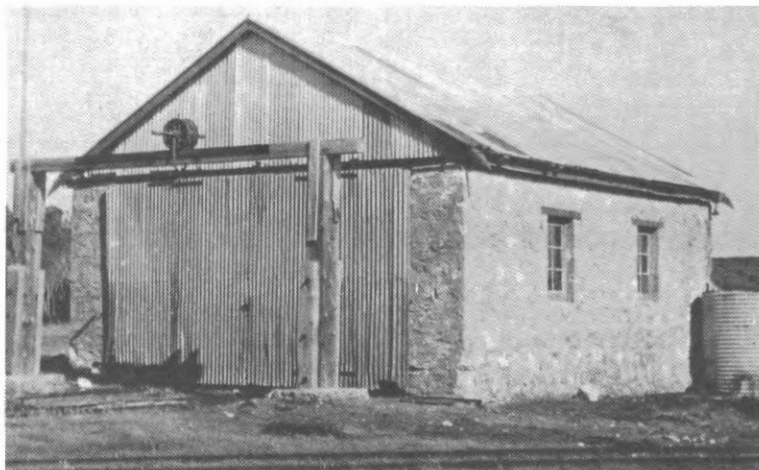
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Loco and rolling stock service and repair areas at Salt Lake. Above: Two stall loco shed and primitive overhead hoist. Below: Car repair area. note the recently arrived side tipping trucks in the background. February 1950.





Above: A main line wagon at the Muston Wharf shed.

Photograph: Leon Linnett: A. D. Lockyer Collection.

Below: Builders photograph of the Purcell inspection truck used on the Salt Lake to Muston tramway. Cheetham records show this unit to have had a petrol motor so the oil engine must have been replaced.

Photograph: Courtesy Bruce McDonald.

