

Removal of Cane Hill Covered Way, Southern Region

THE London, Brighton & South Coast Railway was authorised in 1894 to quadruple its main line between South Croydon and Coulsdon and construct a new line, the Quarry line, between Coulsdon and Earlswood, to enable fast trains to Brighton and other coast resorts to avoid the congested section through Redhill, shared with the South Eastern Railway.

At the Coulsdon end of the avoiding line, which was opened for traffic on April 1, 1900, it was necessary to pass through the grounds of Cane Hill Mental Hospital in a cutting with brick retaining walls. To comply with a provision in the Act for the protection of the London County Council, which at that time administered the hospital, the cutting was formed into a covered way by placing cast-iron girders with brick jack arching between them over the retaining walls of the cutting and restoring the topsoil of the hospital grounds. The covered way was 431 yd. in length and consisted of 195 cast-iron girders with additional steelwork at each of the skew ends. The site is remarkable in that the railway is carried over the main London-Brighton road at each end of the covered way.

Since this structure was erected expenditure on maintenance has been fairly heavy, and ultimately renewals would have become necessary. It was therefore decided, in view of the changed conditions since the line was built, to suggest to the South-Western Metropolitan Regional Hospital Board (successors to the L.C.C.) that the cover be removed and the line left in open cutting. When the covered way was formed, the hospital patients were generally confined to the grounds, and the presence of an open cutting might have led to fatal accidents. As most patients are now free to leave the premises at will, the hospital authorities decided that a cutting would be acceptable, subject to the erection of suitable fencing and an accommodation bridge to give access to parts of the grounds that would otherwise be cut off. Another factor was that steam-hauled traffic has been largely superseded as the result of electrification.

The Hospital Board co-operated in drawing up the scheme and gave every assistance in making possible an early start on the work, thus avoiding the necessity of carrying out further interim repairs. The whole site of the works was enclosed by temporary fencing, and the removal of the cover was begun towards the end of August last year, and is now complete.

A tractor with dozing and grading equipment was used to clear the top soil and set it aside. Later, when the spoil from over the covered way has been deposited and levelled on two tips, the soil will be spread over it and sown with grass seed. The topsoil from over the covered way was removed during daytime by a dragline standing clear of the structure, and casting the material aside for conveying to the tips.

To avoid risk of accident arising from damage to the girders or jack arches, the chalk filling over the structure was excavated by the dragline at night during track possessions. The machine deposited the material in heaps, and was used during the daytime to load it into lorries and dumpers for conveyance to the tips. The last of the filling over the jack arches had to be cleared by manual labour as the projecting flanges of the girders restricted the use of the machine.

Demolition of the arches and removal of the girders followed the clearing away of the top soil and chalk filling. Possessions for the work were granted every night and throughout Sundays, except on a few occasions when the lines had to be kept open to permit the temporary closure of the alternative route *via* Redhill (the original main line) for other engineering work to be undertaken. Generally the possessions were for 29½ hr. at weekends (Saturday night to Sunday night inclusive), and 6 hr. on weeknights.

The demolition was begun about half-way along the structure so that preparations for constructing the accommodation bridge at that point could proceed as quickly as possible. Several arches were demolished simultaneously; two or more pneumatic drills were used on each to

break the concrete and brickwork into fragments which were allowed to fall on to specially constructed stages. To prevent spreading of the arches next to those being demolished, the girders adjacent to them were tied by steel tie-bars with hooked ends fitting over the upper and lower flanges of the girders.

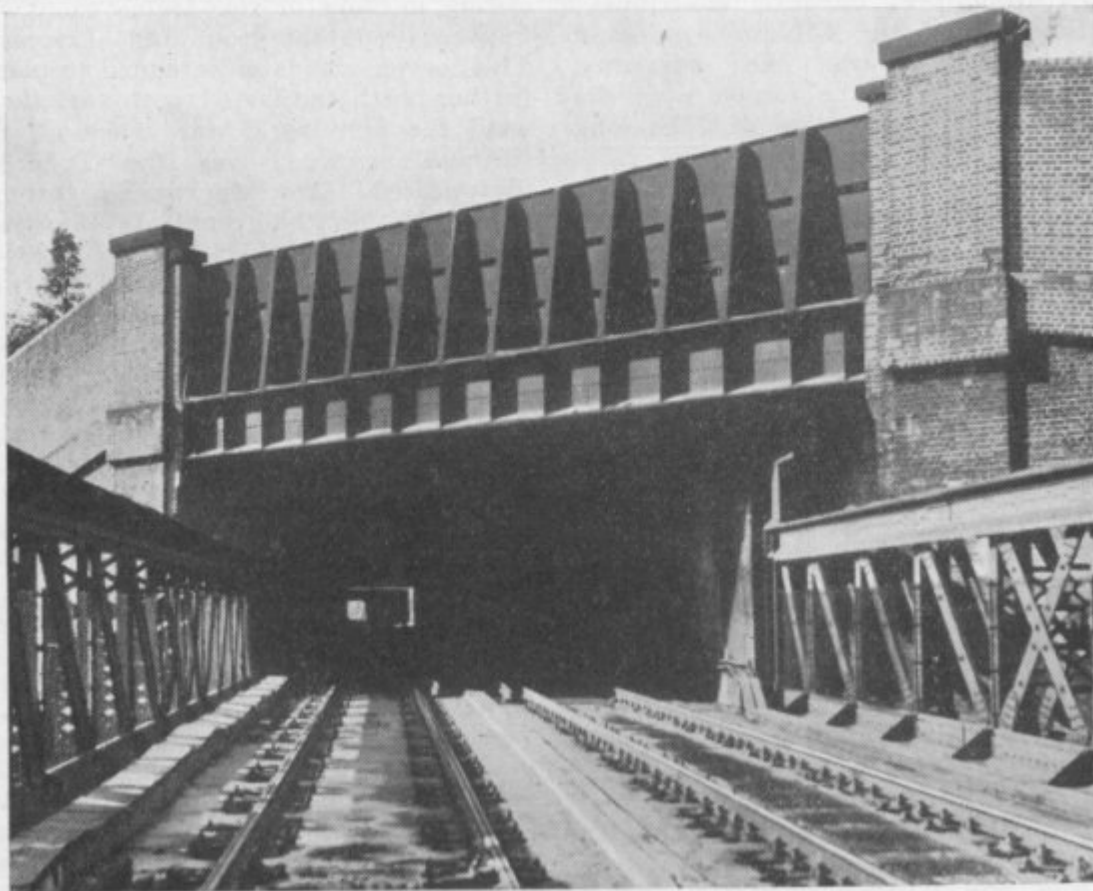
A stage was placed under each of the arches being demolished so that the two stages stood end to end on one of the tracks. Each consisted of a framework of tubular steel scaffolding resting on two platelayers' trolleys when it was being moved from place to place. The upright members of the frame hung over the sides of the trolleys, and when demolition was proceeding they were supported on timber blocks placed on the formation and packed tightly so that the weight was not borne by the trolleys.

Timber decking was provided at a level slightly higher than the tops of open goods wagons, and extending over the adjacent cess and over the 6 ft. way. It was sloped downwards towards the

other line so that the rubble falling on to the decking could be shovelled easily into the wagons of a material train standing on that line.

This procedure reduced the risk of damage to wagons by debris falling directly into them from the arches. It also saved the time and labour required to protect the electrified tracks and to cast up the rubble from track to wagon if the arches had been felled directly on to the formation. When first used the stages were conveyed into the tunnel on the trolleys, but after the first few arches had been demolished, they were lowered into position and lifted out through the opening by the drag line used as a crane.

The drag line was also used to lift off the girders when they had been freed by the removal of the adjacent jack arches. The cast-iron girders were broken up, and disposed of by the contractors, but the wrought iron and steel girders (which had replaced fractured cast-iron girders), and the steel parapet girders at



The covered way viewed from the north (Coulson) end ; the light shaft indicates the position of the first arches demolished

the ends of the structure, were serviceable, and were retained.

The final stages of the work include the lowering of the brick piers and parapet walls by about 5 ft., the laying of precast concrete slabs along the front edges of the abutment walls, and the trimming of the earth slopes. As the farmland on the west side of the railway

falls towards the cutting, a concrete channel drain is to be laid just inside the new boundary fence to intercept surface water. The new permanent fences are similar to those used elsewhere on the Southern Region, but in view of the special circumstances, they are higher, and have three strands of barbed wire attached to cranked brackets.