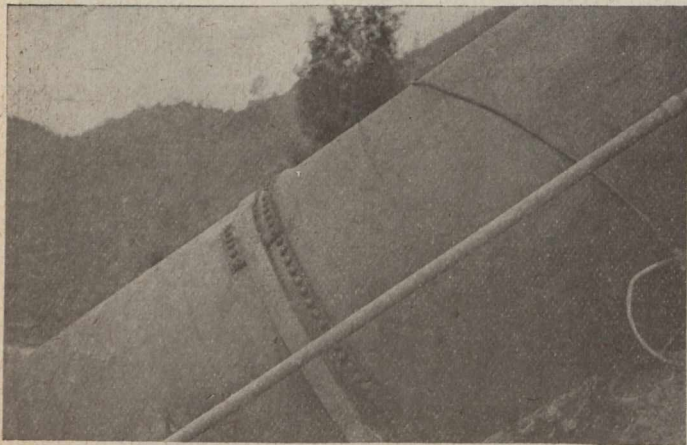


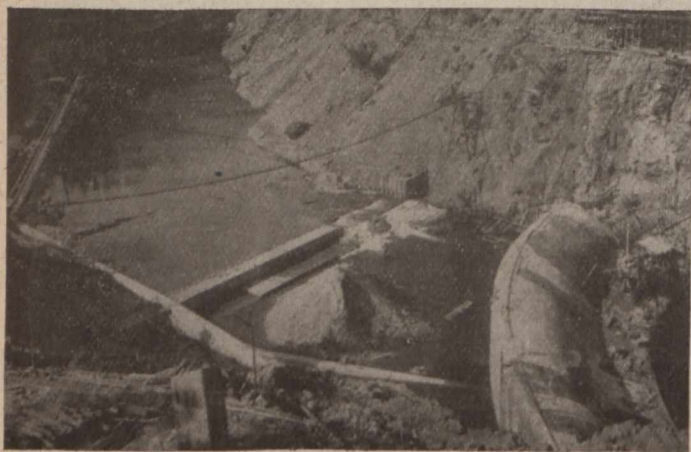
The responsibilities of the inspection engineer are many. It devolves upon him to detect errors in the work before it is too late to correct them. When I think of this branch of the work, there comes to mind the enthusiasm and energy of one canny Scotch Canadian whose sole object in life seemed to be the prevention of anyone "putting one over." He was a tireless worker, never missed a day, and on occasions stayed on the job 36 hours in order to watch a particular piece of night work. Nothing escaped his keen eye,



PATCH ON DEFECTIVE WELDED PIPE, GREAT WESTERN POWER CO.

and when he passed on the correctness of a form or the placing of reinforcing steel, one could feel assured that it was right. While he knew that he was responsible to his superiors, his interest was so great, his love for his work so intense, that he felt responsible to no one but himself. It was his job, his work, and he was thereby able to put in the long hours and do the hard work that he could not otherwise have done. Needless to say "Mac" was a success.

It was a large job, with much ground to cover and it kept him on the jump to check things without holding up the construction forces—an unpardonable sin. The first thing that he did in the morning before the concrete was

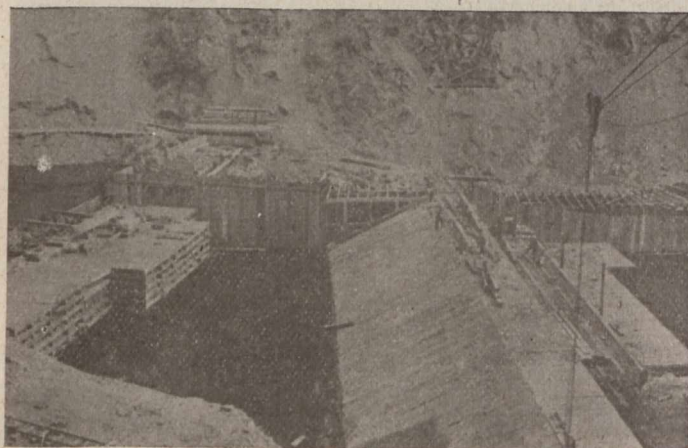


CONCRETE DAM UNDER CONSTRUCTION, GREAT WESTERN POWER CO.

started, was to see that the concrete of the previous day's run was thoroughly cleaned and all laitance removed. It had to be so clean that the stone showed before it was passed. He then saw that a wash of grout was spread over the old concrete before the fresh concrete was started. The measuring boxes were then checked to insure the right proportions. After concreting was under way he stayed around awhile to see if the mixture was of the right consistency and that the foreman understood his instructions. He would then go where the carpenters were constructing new forms, check

the measurements, see that boxes were left for anchor bolts, provision made for necessary openings, explain the drawings to the foreman, and in general follow the work to see that it was correct as it proceeded. He spent a good deal of time on the reinforcing steel, checking it for quantity and position, as well as giving information to the foreman.

The concrete slabs forming the superstructure were built at a distance from the powerhouse and these had occasionally to be inspected. Inspection was also necessary as they were erected, to ensure getting them in the correct position. The superstructure steel was looked over, rivets inspected, brickwork and other details gone over from time to time. He was on hand when the instrument men checked the draft tube forms for alignment, and saw that after they had been placed correctly, they were held so securely that they could not move. When he felt that he could be spared from the powerhouse, he went to the transformer station under construction and looked things over there. This did not require as much attention as the powerhouse, and it was entrusted more or less to one of his assistants. Still it took his time and attention. From the transformer house he probably went over to the stone crushing and mixing plant to see that the stone was clean before going into the hopper and that the correct mixtures of concrete were maintained with the right amount of cement and water. Here



TIMBER DAM UNDER CONSTRUCTION, GREAT WESTERN POWER CO.

also he had an assistant who did this work, but "Mac" had to satisfy himself occasionally to be sure that things were going to his liking. Many other details called for his inspection and he was never at a loss to fill in his time. In conjunction with his inspection work he kept records of concrete placed, cement used, reinforcing steel and superstructure steel placed, from which he made daily and monthly reports and plotted the graphic log.

On his way home at night he stopped at the mixing plant to see that the empty cement bags checked with the tally board, and if they did he called it a day.

I have not space to enter into a discussion of all types of hydro-electric developments which involve the use of long pipe lines with their surge tanks, but will illustrate a low head plant which is the usual type east of the Rockies.

It will be noticed in the pictures of the Appalachian Power Co.'s plants, which furnish power to the West Virginia coal mines, that the powerhouse substructure forms a part of the dam, and the penstocks and other appurtenances used on high head plants and moderate quantities of water, are eliminated. The physical size and methods of construction of the turbine, draft tubes and scroll cases differ radically from those of a high head plant, for with low heads large passageways and massive machinery are necessary to convert the large quantities of falling water into power.

During the past couple of years we have heard and read of the remarkable speed records which have been made in building ships, industrial plants, supply bases, cantonments, etc. In war time, economy of cost was disregarded; economy