

REPORT ON
WATER SEEPAGES AT THE GAOL

On the road in Campbell Street and in the yards of the gaol inside the entrance, water is seeping through the asphalt and trickling along the surface.

At the points of seepage with the gaol numerous holes have been sunk for the purpose of examining water pipes etc. to see whether any leaks occur in these which might form the source of the water. Practically all the known pipes within the immediate vicinity have been examined without result.

By means of holes made with crowbars the water has been traced southwards towards the buildings. After bailing out the lower holes and lowering the surface of the water in the more southerly ones, water enters the latter from the south and it would appear that some at least of the water is coming from that direction.

All the ground in the vicinity of the holes has been filled in by stones, soil etc. This has formed a porous bed which is now filled with water. A small hole in the garden west of the asphalt bottomed on diabase at one foot. The crowbar holes are up to 3 feet deep and some appear to bottom on the diabase.

These conditions represent one side of a depression in the diabase bottom, but no evidence could be seen of the other side. The filling of this depression with the rocks etc. has proved the necessary conditions for the formation of the spring at that place.

The source of the water cannot be definitely determined. The possibility of leaking pipes etc. seems to be eliminated and it would therefore appear that the source is a natural one, that is, it represents the portion of the rainfall which soaks underground.

The general geological features rather support the natural origin of the water. Between Elizabeth Street and Argyle Street, a narrow body of diabase (probably a dyke) has a general north-westerly course. Between this dyke and Argyle Street, felspathic sandstones and mudstones occur. The diabase at the gaol is possibly a sill underlying these rocks.

The diabase dyke would tend to confine the percolation of the water in the sandstones and mudstones to southern and eastern directions. The sill would limit the downward percolation and tend to cause it to flow in the same direction. There is thus a favourable geological structure for the existence of springs along the slopes towards Campbell Street.

The made ground at the seat of the trouble with the overlying asphalt has become part of the underground structure and made the conditions more or less ideal for the occurrence of seepages at that point.

If the source of the water is natural as outlined above, it would be impossible to prevent the springs seeping out at the surface. The only procedure to adopt is to control them as far as possible. This could be best done by utilising the good gathering ground provided by the made ground and construct

an underground drain from it to the gutter in Campbell Street. The drain should have perforated or porous walls to admit water along its course.

A sample of the water which is being analysed may give further evidence as to the artificial or natural origin of it.

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