EXCURSION TO THE CROYDON BOURNE.

MARCH 12TH, 1904.

Director: W. WHITAKER.*(Report by THE DIRECTOR.)*

THE party (of about eighty) went to Woldingham Station and thence walked northward, more than half a mile, to Bughall Farm, the highest spot at which the bourne had broken out.

Here a halt was made and remarks were made on the general characters of bourne outflows, with especial reference to the present case of these intermittent springs.

The inadequacy of the old idea of a syphon to explain them was noticed, it being hardly conceivable that such a thing could exist in a rock like the Chalk, whilst it was simply impossible to shift any such wildly improbable syphon up and down a valley, over a course of some miles, to suit the varying places of outburst.

Under ordinary circumstances there is no stream in this valley, it being one of the dry Chalk valleys, but after a very wet season, or a succession of moderately wet seasons, the level of the underground water in the Chalk rises, especially under the higher grounds, and after a time to so great an extent that it reaches the level of the valley-bottom, when of course the water begins to come out to the surface. The earliest rising-point of the stream is a little below the "Rose and Crown"; but a short way lower down the valley the water sinks in again to some extent, and the stream decreases. The rising-point gradually gets farther and farther up the valley as the underground water-level rises, until the greatest flow occurs, and then, as the flow decreases, the rise of the stream gets lower again with the decrease of the underground water-level, until at last the outflow ceases, and the valley returns to its usual dry state.

It was pointed out how, by fairly continuous measurements of the water-level in wells in and near the valley, the gradual rise of the underground water-level was recorded, and how, by this means, Mr. Baldwin Latham was able to predict when the outflow of this particular bourne was to be expected. As his predictions invariably came true, he would, in the good old times, have been duly burnt as a magician; now he was only regarded as a champion recorder of water-levels, a harmless and even beneficent character.

The walk was then continued along the bottom of the valley westward for rather more than another half mile, the great increase in the flow of the stream being noticed down to Wapses Lodge, where a slight accession came in from the branch of the valley to the south. Here, then, were large

ponds, the stream broadening and spreading out beyond its proper channel.

The walk was continued northward down the valley, here a populated tract, and the flooding of various gardens, etc., was noticed.

After passing Whiteleaf the party came to the chief flooded area, by the gasworks, where there was a small lake, in which a new gasholder was apparently taking a bath.

Below the gasworks the road was left, and tracks were made along the fields, in order to give members pedal demonstration of the flooding, and to show them the fullest part of the stream.

At Garston House, half a mile north-west, the road was again taken, and the precautions taken at the Kenley pumping station of the East Surrey Water Company to save their customers from an addition of bourne-water to their supply were noticed.

The course of the bourne is then chiefly in an artificial channel, partly a closed culvert (through Kenley).

About a quarter of a mile below Kenley Station a curious thing was seen. Here, close to the artificial channel of the bourne, was a small pit, in loamy soil and gravel to the depth of about seven feet below the water, and yet it was dry. A like thing, but to a less extent, was seen a little farther down, and it seemed as if the stream had fairly puddled its channel.

The course of the stream was seen, from the road, down to Purley, where, at the new works of the East Surrey Water Company, an old gravel pit was seen to be flooded, and there was a good deal of flooding by the houses just below. There has also been flooding a short way up the other branch of the valley, southward, along the Brighton Road, and at Stoa's Nest, still higher up.

From Purley to Croydon the bourne is largely in a culvert. In old times the lower part of Croydon used to suffer much from the bourne.

The last outflow was in 1897, when it reached up to Wapses Lodge in March and April. The greatest flow recorded this time was about twelve million gallons a day (February 16th), or more than enough for the supply of a large town like Croydon for three days.

NOTE.—Mr. Baldwin Latham is going to read a paper on the Bourne to the Croydon Natural History Society, and when this is printed we shall have a detailed account of great value.*

* Read on May 17th, 1904, and printed as a pamphlet entitled, "Croydon Bourne Flows."—[ED.]