EXCURSION TO TUNBRIDGE WELLS.

SATURDAY, MAY 8TH, 1897.

Director : GEORGE ABBOTT, M.R.C.S.*Excursion Secretary* : A. C. YOUNG, F.C.S.*(Report by THE DIRECTOR.)*

THE excursion commenced by a visit to High Brooms Brickyard, close to Southborough Station, where Wadhurst Clay (100 feet) capped with lower beds of Tunbridge Wells Sands (20 feet) are worked together for brick-making. The members soon found specimens of *Cyrena media*, *Cypris valdensis*, *Equisetites lyelli*, and a tooth of *Lepidotus*. The blue clay contains only a few calcareous septarian nodules, which generally show more or less trace of fossils. The lower beds, owing to the presence of veins of calcite, are not worked, but are exposed in drainage channels.

A short walk to Shatters Wood Road, and a section of Tunbridge Wells Sands (top beds) was seen. The beds here, owing to the removal of iron, are soft and easily crushed into building sand.

The party next made its way to the boring for water on Southborough Common. This boring has reached a depth of 296 feet. Specimens of beds passed through were shown by Messrs. Islers' engineer (Mr. Shreeve), to Mr. W. Whitaker, F.R.S., who considered that the fine white sands now being brought up must be from the Ashdown beds.

After a pleasant walk of about a mile, Strange's Quarry, near Broomhill, was reached, where the upper beds of the Tunbridge Wells Sands are worked and used for Building Stone. The sandstone here is covered by an outlier of Weald Clay. At the bottom of the clay are three or four hard layers, hardened probably by a re-deposition of carbonate of lime, while the upper portion is worked for brick-making. Mr. Abbott pointed out that the Weald Clay at this spot differs from that at Mount Ephraim, which is quite free from these hard beds. The stone in this quarry contains plenty of iron, and but little, if any, bleaching has gone on. Possibly this may be due to the thick protecting cap of Weald Clay. *Cyrena media*, *Unio antiquus*, *Cypris tuberculata*, and *Cypris spinigera* were found in abundance near the floor of the quarry, some 10 feet to 15 feet below the top of the Tunbridge Wells bed.

A picturesque, water-worn valley on Culverden Down was next visited. On either side the Tunbridge Wells Sands showed much weathering (honeycombing). On the higher level or "down" the growth of rushes was pointed out, demonstrating
JULY, 1897.]

the difficulty which rain-water finds in passing through such fine-grained sandstone—a great proportion finds it easier to run off the ground, forming side valleys, than to go through the rocks.

The description of what was next seen in Boyne Park need not be repeated, as it was reported in last year's PROCEEDINGS, vol. xiv, p. 198.

Mr. Stocks having since then examined the "black band," his report is appended.

At 4.30 an adjournment to Nye's on Mount Ephraim for tea gave a welcome opportunity for a rest.

Afterwards the party divided; the larger portion saw the exposed "Rocks" on Tunbridge Wells and Rusthall Commons. Much interest was taken in the horizontal rows of holes occurring along the planes of bedding in some of these rocks; apparently due to percolating water assisted, possibly, by the action of frost.

A short visit was paid to the "High Rocks," where similar holes were seen, and a discussion took place on the origin of the remarkable perpendicular jointing of these Rocks. A brief inspection, in a new road near Cumberland Walk, of a section of Clay (? East Grinstead Clay) in which large angular fragments of sandstone lie in most irregular order, brought the excursion to an end.

NOTE ON A DARK COLOURED BAND IN THE TUNBRIDGE WELLS,
SAND AT BOYNE PARK.

By H. B. STOCKS.

ON testing a portion of the dark-brown and black sand from Boyne Park it was found that the colouring matter is not extracted by hydrochloric acid, but is quite soluble in caustic soda, yielding a dark-brown solution, from which hydrochloric acid precipitates a brown flocculent substance.

On igniting the sand the black colour disappears with incandescence, and carbonic acid is formed; therefore the colouring matter is organic, the ignited sand has only a pale reddish-yellow colour. Iron is present only in small quantity, and manganese is absent.

Taking these facts into consideration, it appears that the material colouring the sand is organic matter and of the nature of "humic" acid.

This humic acid is probably derived, by solution in rain water, from the humic acid in the overlying soil and the redeposition of it in certain lines in the strata below. In order to explain the causes for the redeposition of the humic acid, further examination will, however, be required.