The Saline Spring at Marcham.

G. Claridge Druce.

A distinctly saline spring occurs in a meadow near Marcham, Berkshire. I alluded to it in *Flora of Berkshire*, p. 103, 1897, as follows :—

This ' is a flat marshy meadow on the Kimmeridge clay, on the northern side of which a small spring is thrown out at the juncture of the Coralline Oolite with the clay, and supplies water sufficiently laden with saline matter to be perceptibly salt to the taste. On the margins of this stream, which passes in a ditch through the meadow, and especially when they are bare of grass, *Buda marina* [*Spergularia media*], a maritime plant, occurs in considerable abundance. *Apium graveolens* [the Celery] is the most conspicuous plant by the stream, and marks its course through the field. *Ranunculus sceleratus* and a thick fleshy-leaved form of *Atriplex* are also found, and the stream itself contains *Zannichellia pedunculata* [*Z. maritima* and also *Z. gibberosa*], a form of *Ranunculus trichophyllus* and *Tolypella glomerata*. Among other plants in this meadow may be mentioned *Oenanthe Lachenalii*, *Carex distans*, *Juncus Gerardi*, *Sagina nodosa*, and *Scirpus caricis* [*compressus*]. In the deep ditch into which the saline spring drains there is a plentiful growth of *Scirpus maritimus*. The general aspect of the field rather recalls one of the meadows in the vicinity of the sea, which are to be seen on the eastern coast. The question arises as to *Buda marina* being a native plant of Berkshire. It has been suggested that this saline and maritime vegetation may be relics of a time when this part of the Thames Valley was tidal, and that these species may be descendants of a natural marine flora. My own view is that the maritime species have been conveyed to the meadow by birds, and that their continued existence there is due to its saline nature. The forms of *Atriplex* and of *Polygonum aviculare*, which resemble plants from maritime localities, have been probably evolved from ordinary inland forms.'

My views on the subject remain the same. I suspect it is from the washing out of the salt from the great coral reef which stretches from Hinksey nearly to Faringdon that this saline spring originates. One may add that, in addition to the plants mentioned above, the Alga *Vaucheria dichotoma* var. *submarina* has also been found, as well as intermediate plants between *Juncus Gerardi* and *compressus*.

Mr. W. W. Fisher, M.A., accompanied me on June 28th, 1914, to the field, and took a sample of the water, which, as the following analysis shows, is remarkably saline. The weather was then somewhat abnormally dry, and the water was much polluted by cattle.

	Grammes.
Sodium Chloride (with a little Potassium Chloride)	276·70
Sodium Sulphate	22·18
Sodium Carbonate	8·37
Calcium Carbonate	15·12
Magnesium Carbonate	6·89
Silica	·84
Total per gallon	330·10

Mr. W. W. Fisher, who is an acknowledged expert on the water supply of our area, in answer to my query, writes as follows :—

'Dear Mr. Druce, '*5th January*, 1915.

'*Marcham Saline Spring.*

'This saline water comes, I think, from the Corallian Oolite below the Kimmeridge clay. This formation yields saline waters when artesian borings are made through the overlying clay, as at Burcot, Culham, Sutton Courtney, Denchworth, and even as far west as Swindon. The dip of the Corallian beds is generally southwards, and they are brim-full of water, which in some places rises above the ground level, approximately to a height of 190 feet above Ordnance Datum. As nearly as I can judge from the maps, the surface level of this spring is 190 feet O.D., and it is along the lowest edge or rim of the Kimmeridge clay, at the junction with the Corallians. About four miles N.E., at Sunningwell, Berks, the junction is at 263 feet O.D., while the western edge along the Ock Valley gradually rises from 200 feet O.D. near Lyford, to 260 feet near Shellingford. Marcham is thus situated along the lowest part of the clay rim, and here naturally the underground waters from N.E. find an outlet or overflow, no passage southward being possible, as the underlying beds are charged with water already.

'The Corallian Oolites are of marine origin, and have never been washed out exhaustively by percolation, and the salt they still contain has, in my opinion, been there from the time of their formation in ages long, long past.

'Yours very faithfully,

'W. W. Fisher.'