

cade' by so correct an observer as the author of it, I was disposed to think that these might be scattered scales of *Glyptolepis* lying there. I have looked at them again, and now believe them to be in their original position, or at least slightly displaced. I am afraid that *Holoptychius*, unless the other points of difference hold, will have to go down before the kindred *Glyptolepis*; but without determining the issue, I have simply sought to place on record what I had observed in the slab dug some years ago from Dura Den. *Quantum valeat.*

Yours truly,

HUGH MITCHELL.

Craig, May 6th, 1863.

### *The Lincolnshire Flats.*

SIR,—A letter, headed "The Antiquity of Man," which appeared in the 'Times' newspaper of April 16, 1863, from Mr. J. A. Clarke, of Long Sutton, will, it is to be hoped, direct the attention of geologists to the marsh and fen countries in the east of England. As he happily expresses himself, "these districts interlace archæology with geology;" and in confirmation of this, I would offer to you a few remarks upon one small portion of the marsh, on the east coast of Lincolnshire: that portion lies in the parishes of Orby, Addlethorpe, Ingoldmells, Hoggsthorpe, Burgh, and Thorpe. I speak more particularly of the first three parishes, any few observations that I have myself made referring to them, and what I know of the others, being more from hearsay.

I was a frequent visitor to the seacoast of Lincolnshire in years past, and my attention was called to certain nodules of burnt clay, called by the country people "hand-bricks," because they almost all bear the impression of the human hand, as though they had been grasped by it. Many fanciful ideas have been attached to their origin and use; but very little examination is sufficient to determine that they are the refuse of some manufacture of pottery, and have been used as props to support earthenware, and give access and circulation to the flames in the kiln. The like pieces of clay have, as an antiquarian informed me, been found in some of the Channel Islands, and a paper upon them exists in some periodical or transactions of some society. The use of these "hand-bricks" being pretty clear, I paid no further attention to them, until the subject of the works of "man primæval" began to be mooted, when the age of these bricks became an interesting question. I thought it worth while to make a few excavations on spots where the bricks were known to exist, and to try what could be learnt further about them. In the autumn of 1861 I made some fourteen or fifteen diggings, commencing under the strongest impression that the nodules were of very remote antiquity. The first excavation confirmed the view I had taken of the use to which they had been applied; they were surrounded by the débris of pottery, lying in every position, as if they had been thrown aside as useless and done with. As I proceeded I found nothing that threw any light upon the age of the hand-bricks, until the workmen, in almost the very last spadeful of the last excavation, threw up the bottom part of a pot, which, much to my disappointment, bore the marks of the wheel, and was clearly a piece of Roman pottery. The use, then, of these bricks, which may have been settled perhaps without my knowing it, is apparent; but their age I never heard any one hint at. They are Roman, and of no greater antiquity than the time of the sojourn of the Romans in Britain.

The men who dug for me recognized, as they said, the same appearances

of "clay ashes" as are seen in the "staddles" or "straddles," where bricks are burnt in the present day in the marsh. I never myself, however, could discern a single piece of charred wood, however minute, or of coal, or any cinders, or any indication of vegetable matter acted upon by fire. I have an idea that the fuel used may have been straw or dried grass. Nothing was turned up of the nature of metal, coins, or tools; there were several drop-like pieces of a dark blue, almost black, glaze, transparent; the tooth of a horse; one of the tarsal bones of an ox or cow; two or three imperfect bones, probably of sheep; the remains of hazel-trees and willows, on the same level as the bricks: also, on the same level, cockle-shells, as though in their native bed; single oyster-shells; and, in one place, land-snail shells, as fresh and brilliant in colour as any now in a hedgerow.

In some few cases the hand-bricks are vitrified and hard; those that are not (constituting the great bulk of what I turned up) vary in colour from a light yellow-red to a dark black-red, and all seem more or less to have chopped grass or hay mixed with them. They vary in size; the smaller are near to Orby, the larger to the seacoast; the small ones are very friable and easily crumble. Flat pieces of pot-like floor-tiling exist, bearing the impress of grass on both sides, and seem to have formed a floor on which the props rested to support the pottery. Many of the bricks show a flat surface at one end, whilst the other end, that rested against the pot, is slightly hollow; there are other pieces of pot, of the use of which I could form no opinion. These relics of the Romans lie at very little more than a foot below the surface in Orby, at the point most distant from the sea; at other places they are three, four, five, six, and even close upon seven feet under the present marsh-level.

The superincumbent warp forms the rich marsh-grazing district of Lincolnshire. When examined, it can be split up into flakes, indicative of its being a tidal deposit, exactly like the warp left by the Trent and Ouse (Yorkshire) in the present day. I did not see a single freshwater or marine shell in the *body* of the warp; but when it is pierced through, a well-defined surface is reached having sea-shells upon it, and this surface was doubtless the Roman level.

I do not possess sufficient geological lore to reason firmly on the fact I have next to state; but the professed geologist will perhaps at once explain my difficulty. The first digging I ever made was in a field in Orby, the property of Mr. Stainton, of Dolby, called "the far ten acre." At about four feet we reached the bed of hand-bricks and débris, which were found to rest on a fine blue, plastic, saponaceous-like *clay*, into which a pole was thrust for three or four feet with ease. This clay must certainly have been the level of the district in the time of the Romans, for the hand-bricks lie upon it; it must, therefore, have been deposited *before* the Romans came to England, at all events before they made pottery on its surface, and very possibly out of its substance. If this clay is a sea deposit, which I take it to be, how comes it that the sea deposited a *blue* clay *before* the Romans came to Lincolnshire; and *after* they had left this country, when the banks gave way and the sea again submerged the Roman level, a *yellow-brown* warp, a very widely different substance from the blue clay, was left behind by the very same sea? Can any supposition of the blue clay being a freshwater deposit clear this up? Any such supposition appears to me to militate against the received, and I think the true idea, that the sea (not fresh water) once covered the Roman level, and that it was the sea, and not fresh water, that was embanked out by the Romans.

A considerable portion of the existing sea-embankment at Ingoldmells and Addlethorpe is not Roman, but modern, requiring constant attention. One of the hand-brick beds passes under this sea-embankment, and crops out upon the shore near to a house (formerly a public-house) now occupied by Mr. Waller. This spot cannot always be found, owing to the sands moving about with the state of the weather and tides, being sometimes covered for weeks and months, and sometimes left bare and exposed for like periods. The marsh in the time of the Romans, or rather the Roman level, is thus proved to have extended out into the sea, or what is now sea. At this spot the submarine forest is visible at low water (spring tides), and cannot, I think, be more than from twelve to sixteen or twenty feet below the level on which the hand-bricks rest, and may be much less. At this part of the coast there is, as Mr. Clarke says, a complete interlacing of archæology and geology. At low water you have the marine forest, admitted on all hands to have undergone geological depression, standing, as I believe, on a blue clay. What intervenes between the forest and the level of the hand-bricks I cannot say, but I believe it also is blue clay; whatever it is, on it rest the hand-bricks; and finally, over them is deposited the sea-warp, forming the marsh-land of East Lincolnshire.

I fear I am trespassing too much on your columns. I will only add that the bricks picked up upon the seashore are indifferent specimens, having always suffered from the action of the sea; if more is required to be known about them than their use and date, which I think are clear, it must be obtained from diggings made between Orby and the sea.

In writing to you, my object is to support Mr. Clarke's views. I feel confident that whoever will make researches in the district of Orby, Ingoldmells and Addlethorpe, will find much that is curious, whether he is an antiquarian or a geologist, and very likely contribute his mite to the common fund of knowledge.

Yours obediently,  
G. S. D.

Lincoln, April 23rd, 1863.

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#### *New Species of Olenus.*

DEAR SIR,—I have much pleasure in informing your readers that a new species of *Olenus*, named *O. pecten* by Mr. J. W. Salter, has been found in the Black Shales (*Lingula* flags) of Malvern by a village schoolmaster, Mr. Turner, of Pauntley, near Newent. Mr. Turner was so good as to present me with his newly-discovered treasure, and I have given this beautiful little trilobite to the museum at Jermyn Street, and the cast to the museum at Worcester; so at either of these places the student of Silurian geology may see the specimen. I may also mention that I was presented last month with some well-preserved bones—the humeri, I imagine, of the *Labyrinthodon*—by Henry Brooks, shoemaker, of Ledbury. This specimen I have also sent to the Worcester Museum.

I mention these facts, as they are encouraging to those geologists and naturalists who are engaged in such constant occupations as day-school keeping and shoemaking, and who have little leisure or time at their disposal.

Yours very truly,  
W. S. SYMONDS.

Pendock Rectory, Tewkesbury, May 6, 1863.