

St. Cassian and Hallstatt beds are believed by Hauer and Suess to represent the same strata; that is to say, they are *the ocean representatives* of the red marls of England and other parts of Europe, which I described as having been deposited *in large inland salt lakes*. The *Rhætic beds* of England, which merely represent the very topmost part of the Italian series, seem to have been deposited in shallow seas and estuaries, or in lagoons or occasional salt lakes of small size, now and then separated from the sea by minor accidental changes in physical geography.

On the north shore of the estuary of the Severn, at Penarth, near Cardiff,<sup>1</sup> and elsewhere in England, there is a perfect physical gradation between the New Red Marl and the Rhætic Beds, shown by interstratifications of red, green, and grey marls, which, varying in different areas, pass upward by degrees into limestones, sandstones, and black shales. It is, therefore, impossible always to determine in this series precisely where the New Red Marl ends and the Rhætic Beds begin; and, indeed, all through the Red Marl, from bottom to top, there is a tendency to a recurrence of interstratified deposits that, lithologically, closely resemble the lower parts of the Rhætic beds, as, for example, at Penarth, near Cardiff. The 'White Lias' of Lyme Regis is now classed with this subformation.

All over England, wherever the base of the Lower Lias is well seen, the Rhætic beds, rarely more than 50 or 100 feet thick, are found to lie between the Lias and the New Red Marl. As a general rule they are seen to pass conformably and by easy gradations into each other, and they were, indeed, always classed with the Lias, till separated from these strata by Oppel.

<sup>1</sup> The Rhætic strata are sometimes called the Penarth Beds.