## 938 Is Littorina litorea Introduced or Indigenous? [November,

for believing the shell to have been recently and accidentally introduced, but it acquires additional force taken in connection with other facts which point to the same conclusion.

But granting for a moment that the shell did exist in Nova Scotia previous to this century-where it must have been confined if it was in America at all-what an anomalous condition of life we have. At present, as we follow its progress southward, we find it growing more and more abundant. The writer has very frequently noticed its distribution on the Southern New Brunswick coast, but it there occurs in nothing like the profusion in which he has seen it at Nahant, Mass., or Newport, R. I. In these two places, and they are like other localities in these two States in this respect, it literally covers the rocks, the native species becoming comparatively rare. What is the meaning of the fact that it becomes more abundant southward? Can it mean anything else than that (within certain limits) as it goes south it meets with a more and more congenial habitat? If this be so, and we can see no other conclusion, it shows that L. litorea thrives better in warmer water than that of the coasts of Nova Scotia and New Brunswick, and therefore that the natural home of the species, or the place where it originated was in warmer water than that of Acadia. This conclusion is strengthened by the fact of its non-occurrence in Greenland or Labrador, to both of which places it should have been carried by the same agencies which took L. palliaia there. The latter is certainly a more northern species than the former, and it may be that the conditions of life in these two places are altogether unsuited to the more southern L. litorea, in which case it could certainly not have been carried from one continent the other by way of Greenland. If then L. litorea existed upon the Nova Scotia coast as (in the sense in which we are using the word) an indigenous species, it was existing without spreading under comparatively unfavorable conditions of temperature, etc., while favorable conditions were waiting for it not far to the southward. Surely the agencies which took it from one continent to the other (if naturally introduced) could have carried it to the New England coast. Is it not more natural to suppose, what so many of the facts indicate, that the warmer waters in which it thrives the best are like those of its home, and that its home is in the waters of the English coast, which we know to be so much warmer than those of Nova Scotia?

th w st cc at sh lit N we wł ne is loc on Th ran La car in ent all 1

s

s

a

u

h

d

C

(i

it

p

m

n