

## **Biogeography**

Why would plants on islands be similar to those on the mainland? Charles Darwin asked this question while he was going around the world on the HMS Beagle. He was not satisfied by the explanation given by some naturalists of his day that organisms were specially created for their geographic location. So in the 1850s he started a series of experiments to test whether seeds could survive being soaked in salt water. If he were right, it would suggest that plants could get to an island from the mainland and continue to evolve. It would also explain why island species were similar to mainland species, even though the island environments were often quite different those found on the mainland.

### Letters on salt water experiments:

*Letter 1661—Charles Darwin to JD Hooker, 7 April 1855*

Darwin writes to his good friend, Joseph Dalton Hooker (botanist and soon to be assistant director of Kew Botanic Gardens) to tell Hooker that he has begun his seed-salting experiments. He asks Hooker to predict which seeds will be easily killed in saltwater.

*Letter 1669—Charles Darwin to JD Hooker, 19 April 1855*

Darwin rejects Hooker's suggestion that the seed-salting experiments should be conducted on a huge scale. Darwin is only interested in establishing the possibility that seeds could be dispersed by sea transport, he does not want to detail the particular make-up of a specific plant community.

*Letter 1680—Charles Darwin to JD Hooker, 11 May 1855*

Darwin congratulates Hooker on his upcoming appoint to Assistant Director at Kew. He ruminates on the most appropriate place to publish the results of his seed-salting experiment, but concludes that he should give first priority to the *Gardner's Chronicle*, since he sent the first notice of the experiment to that journal. Darwin contemplates whether the floating is more important in the seed experiment than the question of germination.

*Letter 1681—Charles Darwin to JD Hooker 15 May 1855*

Darwin is upset with the experiment because the seeds he used did not float. He is also frustrated because his attempt to get fish to swallow seeds (thus showing that seeds could be transported long distances inside animals such as fish and herons) did not go well. The fish spat out the seeds after a few minutes.