

Name \_\_\_\_\_ S.N. \_\_\_\_\_

Date \_\_\_\_\_ Per. \_\_\_\_\_

VIDEO NOTES: "What Darwin Never Saw" (The New Explorers series, w/ Bill Kurtis)

1. In the first few minutes of the film, the narrator, Bill Kurtis, uses two phrases which are technically incorrect in their biological context, and you should recognize this from our course so far. How should they have been worded to be more accurate?:

A: He said: "...the finches held the secret to the origin of life." He should have said:

"...the finches held the secret to the origin of \_\_\_\_\_"

B: He said: "...but it was only a theory." He should have said: "...but it was.. \_\_\_\_\_"

2. What did the Grants do when they went ashore on the island to be sure nothing was brought onto the island from the "outside world" (no insects or other creatures which might disrupt the natural habitat on this isolated island)?

3. What is the main enemy of the of the finches on Daphne Major Island? \_\_\_\_\_

4. What is the finch on Daphne which digs into cactus blossoms? \_\_\_\_\_ finch

5. What major biological process have the Grants seen TWICE during their 22 years of studying the islands?

6. In what year did the Grants first come to the island? \_\_\_\_\_

7. The three questions they were trying to answer by studying the finches were:

a. Do species compete?

b. Why are some populations so variable?

c. \_\_\_\_\_

8. Why was Daphne Island chosen? \_\_\_\_\_

9. One species of finch was *G. scandens* (Cactus Finch). The other species was *G. fortis*. What is its common name:

10 How many finches did they find and band on the island? \_\_\_\_\_

11. When binoculars are reversed, what can they be used for? \_\_\_\_\_

12. Your choice: some interesting facts given about Darwin in his experiences on the Beagle, tortoises, etc:

13. What did the Grants find when it didn't rain for 18 months? \_\_\_\_\_

14. They found that natural selection operates under..\_\_\_\_\_ conditions.

15. Birds with \_\_\_\_\_ beaks tended to survive the drought best. Why?

16. All but about \_\_\_\_\_% of all species which have ever existed are extinct now, [so what % are extinct?\_\_\_\_]

17. The Grants measured the beaks of the next-generation birds (from those which survived the drought). What was the size of those beaks (compared to the average size before)?

18. What surprising conclusion did this observation provide good evidence for?

19. Which finches survived best after it rained so heavily (for 8 months)?\_\_\_\_\_ Why?

## KEY

1. A) "...species"; B) "...a possible hypothesis"
2. rinsed everything in seawater
3. weather (not owls)
4. Cactus
5. natural selection (or evolution???)
6. 1973
7. c) How are species formed?
8. simple, small (100 acres)
9. Medium Ground Finch (*Geospiza fortis*) [see The American Biology Teacher, April, 1993, p.243 presenting this and other examples of natural selection]
10. about 1000 finches
11. microscope
12. [open] [show some Wedgewood pottery, if you can]
13. 400-500 dead finches found (mostly *G. fortis*)
14. stressful (specifically draught conditions in this case)
15. large; They can break into large seeds that smaller-beaked finches can't open.
16. 1% [so 99% extinct!]
17. larger (3-4% deeper)
18. Evolution proceeds much more rapidly than Darwin suspected.
19. smaller finches

This is an outstanding film of a very recent 22-year detailed field study of natural selection, showing reproductive response to environmental stresses in the real world, not a contrived situation in a laboratory. Includes some poignant vignettes of Darwin's life, his voyage on the Beagle, the Grant family (including 2 teenage daughters) living on the island, the problem of tortoise extinction in the Galapagos today, and the work to reverse it. This is a film you will definitely treasure, and will use every year.

This program aired on Public Television, October, 1995. Call 1-312-951-5700 (Kurtis Productions) to order the video (\$20); ask for Rebecca Kelly. Or, write to Kurtis Productions (attention Rebecca), 400 W. Erie Street, Suite 500, Chicago, IL, 60610. Send check for \$20 payable to Kurtis Productions.

Read the book "The Beak of the Finch" by Jonathan Weiner (Knopf, 1994, \$25), a Pulitzer Prize winning book about Grants and their work with the finches, as featured in the video.