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## Darwin's Voyage on Beagle Is Retraced by Five for Film

By WILLIAM K. STEVENS  
Special to The New York Times

CAMBRIDGE, Mass., Feb. 5 —In the closing weeks of 1831, Charles Darwin—a bright, restless, 22-year-old English college graduate of no special attainment, and with no special aim in life—signed on as ship's naturalist of H.M.S. Beagle for a five-year cruise that was to revolutionize both his future and mankind's view of itself.

Stimulated by what he saw and learned during his voyage around South America and its offshore islands, Darwin underwent a most remarkable intellectual transformation. By the time he got back to England he had ceased to believe the Genesis version of creation. He had become a questing scientist; and the theory of evolution of species by natural selection was rapidly forming in his mind.

One hundred and thirty-seven years after the voyage of the Beagle, five young Americans, about as old as Darwin was in 1831, set out to re-visit the high spots of his epic trip and recapture his intellectual adventure in a documentary film that is now nearing the final stages of production.

The five are Frank J. Sulloway, 22; Mark Adams, 24; Joseph S. Forte, 21; and C. Eric Lindborg, 20, all of Harvard University, and Robert Firger, a 21-year-old resident of Newton, Mass., who attends McGill University in Montreal.

### \$20,000 Fund To Start

They raised \$20,000 from assorted foundations, friends and university sources. Last June, with three professional movie photographers in tow, they embarked on a flying three-month odyssey as varied and as exciting as Darwin's sea voyage.

In Brazil, the five were as overcome as Darwin had been by the grandeur and richness of life in the tropical forest.

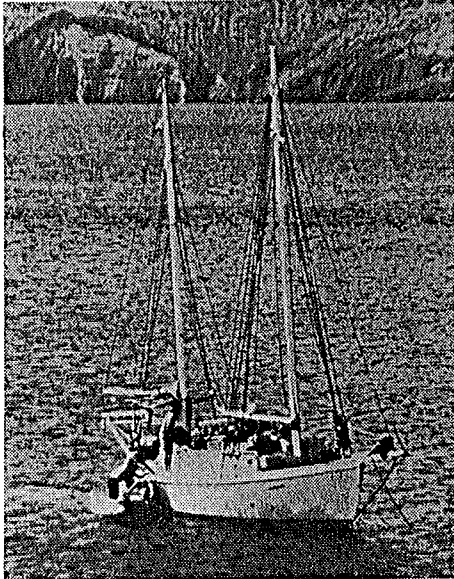
At that stage of his voyage Darwin was little more than an amateur collector of bugs and rocks. He was so overwhelmed by the beauty of the forest and its variety of animal species that for a long time he was unable to collect anything.

Like Darwin, Mr. Lindborg was struck by "the awyness, the isolation of the place."

"All this," Mr. Lindborg said in a recent interview, "was just there for me to take in and surround my soul with."

Where Darwin found slavery in Brazil, and was appalled by it, the American students found a bureaucracy, jealous of national filmmaking rights, that temporarily confiscated their movie equipment. They were appalled by that.

Where Darwin found 12-



American students toured Galapagos in 38-foot ketch owned by island resident. In background is James Island.

foot-high Brazilian "anthills," the students found one 25 feet high. Here they caught Darwin in an error. The "ants" were termites.

On the Argentine pampas, Darwin started to become a functioning scientist when he saw the fossil remains—rarely found in those days—of the million-year-old ancestors of modern armadillos, sloths and rhinoceroses.

This led him to perceive the relation of prehistoric animals to modern-day ones, to speculate on the nature of extinction, and to doubt the existence of the Great Flood of the Bible, which he had taken to be fact before the Beagle's voyage.

The American students saw and photographed the same fossils, but they found something in Argentina that Darwin did not: beautiful girls at high-class, urbane Buenos Aires receptions.

"Out in the field you see a lot of beauty," said Mr. Forte, "but it belongs to the earth. We all had a swell time, and those of us who spoke Spanish had an even sweller time." Mr. Forte was the group's Spanish expert.

### Well Adapted Indians

Darwin had noticed that the Indians of Tierra del Fuego, at the tip of South America, had adapted well to the harsh land there and that they wore few clothes in the coldest weather. He observed that "nature, by making habit omnipotent, and its effects hereditary, has fitted the Fuegians to the climate and the productions of his miserable country."

In Tierra del Fuego's Puerto Williams, the southernmost town in the world, the American college stu-

dents met, talked to and photographed an octogenarian called Tio (Uncle) Felipe, who is said to be the last living full-blooded Fuegian Indian.

The youths sailed Tierra del Fuego's rugged, wind-swept Beagle Channel, named for the Darwin ship, in a Chilean Navy supply vessel, and they marveled at the same spectacular mountains and sharp-edged bays that later led Darwin to postulate that the Andes had risen from the sea.

In Chile, Mr. Adams, leader of the student group, ran into a political problem that Darwin, under the wing of the Royal Navy, did not have to face: cross-examination by military officers suspicious of the students' motives for going to Tierra del Fuego.

Argentina and Chile are engaged in a bitter dispute over the ownership of a Fuegian island, and the Chileans apparently suspected that the Americans might be Argentine agents.

### Peace on Galapagos

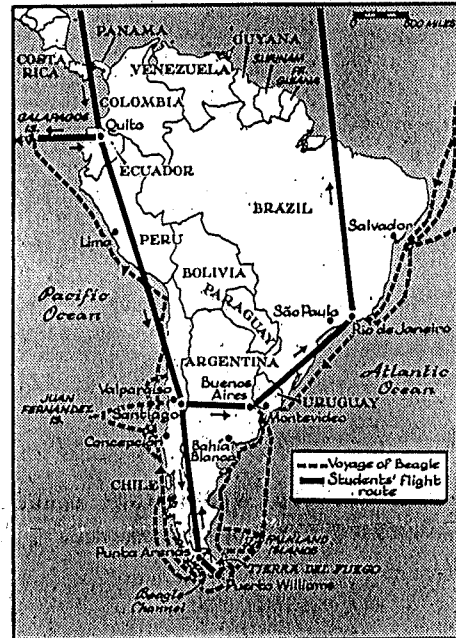
The Americans climbed the Andes as Darwin had. They photographed the Chilean marine shell deposits above sea level that, had reinforced Darwin's conviction that mountains had risen and the earth had evolved gradually over eons, not cataclysmically as many then believed.

It was the Galapagos Islands, 600 miles off Ecuador, that led Darwin to tie together all the geological evidence he had gained and all the facts about animal species he had noted up and down the continent.

The Galapagos' unusual species of tortoises, iguanas and finches were and are



Members of expedition shooting film on Cerro de la Campana (Bell Mountain) in Chilean coastal area Werner Bundschuh and Flynn Donovan, professional cameramen; and C. Eric Lindborg, Josep



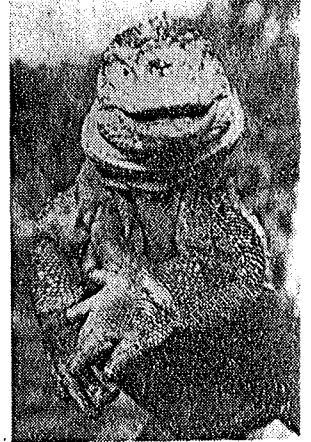
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Air route of American students (solid line) took them to high spots of Charles Darwin's voyage aboard the Beagle (Broken line). Approximate routes of both are indicated.

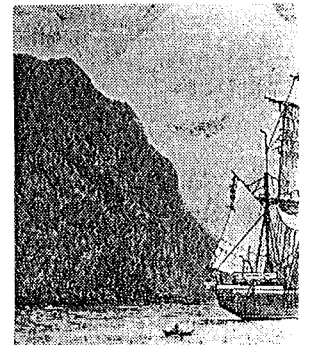
highly specialized as to form and function and the closely related species vary from island to island.

Because the species were so few and therefore easy to sort out, in contrast to the teeming life of the mainland,

they led Darwin ultimately to a key feature of his evolutionary theory: the ability of species to survive by gradually, over the millenniums, adapting their brains and



Land Iguana from Galapagos, one animals to influence Darwin's th



Drawing of the H.M.S. Beagle, on w

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## Darwin's Cruise on Beagle Retraced

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bodies to their environments.

The Galapagos, according to Mr. Firger, "are completely sterile."

"They're just black lava with only a few animals dropped on it," he explained. "Each stimulus, each sound, is beautiful because it's such an isolated place. Even an ugly bird, if it sings a single note, is beautiful. It is like visiting another planet. Psychologically, it washes you clean. You start all over again."

### Purpose of Trip

As explained by Mr. Adams, a mustachioed, long-haired graduate student of the history of science, the purpose of the project was:

"To learn about and film the development of the man; not to show the scientist as a queer duck, a distant special soul, puttering around in the lab and saying, 'Eureka!' like most films do, but to show how science is really done; to take the actual events and let people see them as Darwin saw them, and that way show the man's maturation."

The documentary, now being edited from 20,000 feet of raw 16-millimeter color film, will make use only of natural scenes and background noises, some museum prints, and the actual words of Darwin.

When he signed aboard the

Beagle, Darwin was like thousands of other English youths of his class—believing literally in the Biblical version of creation; fond of Shakespeare and Handel; unenthusiastic about the medical and ministerial careers urged on him by his elders.

### Last Comes First

At the end, Genesis was a myth; Shakespeare and Handel no longer mattered; testing his hypotheses about man's origin became a passion; and although "The Origin of Species" was not published until 1859, most of its features had been worked out in Darwin's mind within two years after the Beagle's return.

Because lighting conditions in the Galapagos vary with the weather and the seasons and are better in early summer the American students went there first and traced Darwin's expedition backwards.

Their mode of operation was to fly to a particular country, go to the American Embassy (which had been alerted), explain the project in detail and ask for help in getting to the filming sites.

"We had two problems," Mr. Sulloway, who originally conceived the project and carried it on his shoulders through the early stages. The problems, he said, were "overcoming the image of youthfulness and establishing the importance of our job."

"You got practically nowhere when you came on as adventurous students out for a pleasurable summer," added

Mr. Adams. "You had to come on with ties tied, very businesslike, selling this idea. The more you expected the cooperation, the more you got it."

### A \$2,000 'Bargain'

The group had not been able to arrange in advance for transportation from Ecuador to the Galapagos. They were waiting frustrated in Quito when a man they knew only as Major Pinargote, who said he was a retired military officer, offered to get them to the islands and back and support them while they were there—for \$5,000.

They talked him down to \$2,000, paid it, and were in the islands before they discovered at long last they could have cut the cost by \$1,000 by taking a regular weekly Ecuadorian Air Force flight. All Major Pinargote had done was get them aboard such a flight. He would not give back his \$1,000 profit.

The students agree that this encounter, along with a host of other irritations and frustrations such as airline mixups, would have been unendurable without the vision of Darwin before them.

If it weren't for the sense of mission he inspired, Mr. Adams says, the whole trip "would have been just another travelogue."

Darwin, who was seasick during much of the Beagle's voyage, must have felt somewhat the same way when he wrote in his journal that "I loathe, I abhor the sea and all the ships which sail on it."