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Book Reviews

Associate Editor Aristotel Pappelis

Lynne Cherry, 1990. *The Great Kapok Tree: A Tale of the Amazon Rain Forest*. Illustrated by Lynne Cherry; Harcourt Brace Jovanovich, Publishers (Gulliver Books), 111 Fifth Avenue, New York, NY 10003, ISBN 0-15-200520-X, 30 pp., \$ 14.95.

This book is 30 pages in length and, in the first reading, appears to be intended for children. But, it has an adult level that touches two significant problems: the conflicting environmental interests of mankind within differing cultures; and, the need to increase our children's awareness of these conflicts. Since the resolution of these human issues are primarily economic and political, we should expect to see this played out in some way in this book. But, we didn't see it. If you want it to be there, think of it as action that has occurred before the story begins; somebody, some company, some governing body has decided that they can harvest the rain forest. With that in mind, let's enter this strange and distant, but very important, environment.

Enroute to the story, we are attracted to the inside of the book cover. There, Lynne Cherry portrays the original and present-day extent of the rain forests in Central and South America, Africa, Asia, and Australia. The decline in the size of each of these rain forests is expected to continue. Because of our dramatic human population growth (biologists would say that we are in the exponential phase of our population growth), we are experiencing an ever increasing demand for natural resources. Someone is coveting the rain forest---both the land, for crop production, and the timber. Will there be another story someday about the rain forest and its water?

Let's read the story and look at the illustrations.

A foreman has directed a woodsman to chop down a kapok tree in the rain forest. As he does so, various members of the fauna observe and make sounds. We infer that the foreman left the area. The woodsman's attack on the tree trunk are described in words (sounds of the ax) and we see in the illustration the results of his actions. The task tires the woodsman and he sits down to rest. Sleep overtakes him (--- "the heat and hum of the forest had lulled him to sleep"). Can you name the five

species of animals that are watching him as he tires? (Use the inside of the covers for help. Forty-one species are portrayed there.) One by one the animals (so beautifully illustrated) whisper in the ear of the woodsman: “Do not chop it down.”

If you lived in that tree, would you be whispering? (Check-out some of the inhabitants! Which ones could solve their problem with a glance if you were the woodsman?) It is difficult to believe this story. But then, this is supposed to be a non-violent story for children! --- Come on. Is this the 1990s or what?

The boa constrictor “hissed” the message while the emerald tree boas looked on. One wonders how long it has been since the boa last ate. The bee (pollinator of flowers, along with the butterflies), monkeys (who see the disappearance of the forest due to woodsman followed by the appearance of a desert), birds (from the different levels of in the tree who have seen slash and burn projects elsewhere), self-interested tree frogs (fearing homelessness), a jaguar (that had been sleeping on a branch, now keen on hunting), porcupines (worried about photosynthesis!), anteaters and a three-toed sloth (interested in the beauty of the tree!), and a child from the Yanomamo tribe all ask for human insight in this problem. (Don’t hold your breath.)

The woodsman wakes up to see the child and wondrous animals. (Talk about wondrous. Its a wonder that he is still alive instead of being you know what inside of you know where!) He looks at the fauna dependent on the environment of the kapok tree, smells the flowers, feels the steamy mist (its always hot and steamy in the rain forest), and, gets ready to work again. He raises his ax to chop. He hesitates. --- I’ll be! --- He drops the ax and walks out of the rain forest. End of story.

It must be easy to replace this man. We all know that someone is going to be the villain. Someone, probably the foreman, is going to cut down that tree. No need for some administrator to fire the woodsman. He quit. But, the administrator will surely put the foreman on notice that he will be next to go if that is the best work he can get out of the help. That’s culture!

The story and the illustrations do give the readers a “glimpse of the awesome beauty of the rain forest and the marvelous creatures that inhabit it, and do remind them that it is being destroyed at an alarming rate.” The author has described one locale in the Amazon rain forest, the largest continuous rain forest in the world (in the Amazon basin, with extensions into coastal Brazil). More species of plants and animals live in the tropical rain forest than in all the rest of the biomes of the world combined. It is a great book, but---it needs to be helped. Can you place your faith in some elementary school teacher or busy parent to help a child become aware of the rain forest and human population crises? Many species become extinct each year. Yes. Humans do that. To say that there may have been 3 to 30 billion species on Earth and, of these, some 30 million still exist --- isn’t fair (unless you have had Biology 101). After all, to a scientist and to those who are literate in biology, evolution is a rational topic. This is an emotional story at one level, that of the listener, and rational at another (hopefully, the reader).

Piaget told us not to expect rational thoughts in children. Others have documented that 90% of the graduating seniors from our high schools are less than rational and remain that way in colleges and

universities unless intercepted and remediated. Is the child's teacher rational about biology? How about the child's parent(s)? When do people become rational?

Since we don't know who will be reading this book to children, we tried to be emotional as we read this book. It works. This is the kind of story that is good to read together again and again. If we keep the book handy, who knows --- when the children become young adults, they might read it without our input. We are suggesting that even if we use this book to teach ecology in the middle-school general science classes, it may be better understood by most youngsters later in life. Lets hope that the illustrations will attract them to the book again.

It is important to remember that humans follow the same patterns of population growth and are acted upon by the same kinds of limiting factors as are the populations of other organisms. In the book, what ever the fauna whispers into the ear of the woodsman is meant for us all to hear. Though it appears in the story that the environmental conditions are still favorable for human population growth (clear the rain forest and make room for more human activities), it isn't stated that the population cannot continue to increase indefinitely. The results will be of the "Easter Island" magnitude. Consumption will outpace replacement. Cultural evolution should be expected --- and not necessarily in a positive direction.

In the past, when native populations of the South American rain forest increased, the elders sent the youth out into the wilderness to make new villages that would not impact on the place where they were born. The population continued to increase. Regardless. These youngsters were forbidden to return to their place of birth. As a result, the natives of the rain forest eventually reached the ocean and some, in order to survive, set sail for coastal islands that had little resemblances to their rain forest homes. Of course, they did evolve (gene frequency changes). By the time that Columbus discovered the Caribbean islands, the populations of the rain forest and the islands (the Carribs, once a mainland group) were estimated to be one million people. Within 50 years, they were descimated. So, it should be clear. It isn't only the trees of the rain forests that are endangered.

Surely, our species will soon reach the "equilibrium" or "death phase" in our world-population growth curve. We probably have reached it in the rain forests. Limiting factors [availability of raw materials (water, fertilizers, building supplies), availability of energy (food, fuels, electrical power), production and disposal of waste products (toxic pollution), and interaction with other organisms (parasitism, predation, competition, mutualism)] prevent unlimited human population increases. We are displacing other species as we increase our technology and occupy new locales. We overcome our diseases, increase field crop and orchard production, learn to use scrub trees, and increase fish production in artificial ponds. Though we do not intend to do so, the nature of the population growth pattern also increases the number of poverty-stricken people in search of food. The book does hint that we are destroying the natural ecosystem as we struggle to improve our artificial agricultural ecosystems.

When we read this story, we all are being asked to help solve this storybook problem. Can scientists and technologists solve the problems made by a woodsman? Can economists and politicians solve this biological problem? It is difficult to admit that "some things" and "some humans" will be lost before

long! It looks like the “some things” are species of plants, animals, and those in other kingdoms, and that the “some ones” are humans called “have nots.” Our world population must begin to decline in a controlled manner or it will decline in an out-of control manner like that experienced by the rain forest native population some 450 years ago.

To look beyond the five layers of vegetation in the rain forest in which various animal species live, read *The Shaman’s Apprentice* written by Mark Plotkin and illustrated by Lynne Cherry. What will happen if the tree is cut down? How many trees need to be removed before a significant ecological change will occur?

Under normal conditions, the tropical rain forest is a mosaic of rapidly changing vegetation. Death of tall trees is induced by programmed senescence, lightning, wind storms, diseases, defoliation by insects, and other causes. Gaps in the canopy are created and these quickly become filled by shade intolerant species. These trees are eventually replaced by more shade tolerant species. Sympodial-types (branched crowns of mature trees induced by cessation of apical bud growth and induction of lateral bud growth) are seen above monopodial-types (immature trees with one stem that is increasing its height). The growth pattern called crown shyness becomes apparent. This is the kapok tree’s environment.

As we convert marginal land to agriculture and building sites, many organisms will be displaced. This will be especially noticeable in the rain forests. In some cases, displaced species will become extinct. Competition among humans has increased in those regions. Will some tribes become extinct?

In the age of science and technology, we have learned how to control the population of humans in industrialized countries at the same time as we improved our health, food supply, and life-style. It may appear that “learning how” has been of little help since the population in these countries continues to grow. Needless to say, many wish to become members of such countries. As the populations of the villages and cities around the world increase, more farmable land is used for housing and industries; and, more natural resources are sought and consumed. Humans all over the world will suffer as we stress our various environments. Can we make a rational decisions based on historical data nested in social pressures, cultural expectations, ethical and religious beliefs, and personal considerations? Will sufficient numbers of humans (regardless of socio-economic status, race, country of origin, or creed) act to limit our world population and environmental degradation for the good of us all? Who writes for the whole world?

This review was prepared by Aristotel Pappelis (Professor, Department of Plant Biology, Southern Illinois University, Carbondale, Illinois 62901), Mark Franklin (Student, Sixth Grade, Ball-Chatham Elementary School District, Chatham, Illinois 62629), and Donald Ugent (Professor, Department of Plant Biology, Southern Illinois University, Carbondale, Illinois 62901).

A. J. P.

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