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REVIEW OF “CUANDO LAS PRIMAVERAS COMENZARON A TENER FLORES” by Drs. Magdalena Llorens and Mariano Arami. 1st edition, 2022, 56 p. Asociación Paleontológica Argentina Publicaciones. ISBN 978-987-48261-1-4

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Entomological assemblages are analyzed in relation to the end-Permian mass extinction and the Carnian Pluvial episode.

QUATERNARY CLAMS AS TAPHONOMIC TARGETS

Due to its abundance and wide distribution, *Glycymeris longior* is a suitable target taxon for taphonomic and paleoecological studies.

BIOCHRONOLOGY OF NEOGENE PAMPEAN MAMMALIAN FAUNA

Faunal ordination and age obtained with regression analyses identify a succession of faunas/localities that cover the time range 8–5.33 Ma.

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I mostly review scientific papers and books, so reading a book targeted to a completely different audience: children and their parents, was a terrific pleasure.

The book starts with two introductions. The first, by the current president of the Asociación Paleontológica Argentina, tells the book's objective while explaining why the “flowering plants” are critical to understanding Earth's evolution. The second, by Dr. Llorens, narrates the origin and development of the book content.

The index indicates with simple titles the subject matter of each chapter. The first three chapters introduce the readers to the diversity (shapes, sizes, colors, and smells) of flowering plants and where they can be found. This is followed by an overview of the evolution of organisms using a year-time framework from the origin of Earth on January 1 to the appearance of human beings on December 31. This graphic is great for children to visualize time on their own terms—remember that when you are a child birthdays, holidays, and vacations never come. In the chapter on the “great plant family,” the authors present a “genealogic tree” representing all major plant groups and an overview of who studies plant fossils and what type of plant organs are found in the fossil record.

The next chapter focuses on the formation of oceans, the first organisms, and the critical process of photosynthesis (life on Earth, as we know it, would not be possible without photosynthesis!). This is followed by chapters in which the features of the first vascular plants are clearly explained, and the different groups of plants that reproduce via spores are presented. A brief description of primitive forests developed during the Carboniferous (around 350 my) composed of extinct taxa is beautifully illustrated with drawings of tree ferns, vast relatives of modern horsetails, and humongous lycopods.

The seed plants are introduced with an explanation of the seed and what are the plants to produce seeds as a means for reproduction. There are several groups of plants that produce seeds that are extinct, such as the seed ferns,

while others, for instance, the conifers, became the dominants in many environments until the flowering plants or angiosperms appeared. With the presence of these taxa, new forests and paleoenvironments were formed that were quite different from those of the Carboniferous.

Most impressive is the reconstruction of a “pond” with colorful flowers surrounded by conifers, which indicates the flowering plants' origin. The illustration of a transversal section of a typical flower is gorgeous, and the clarifications under each botanical term complement the scheme beautifully. The forest representing the dominance of the flowering plants includes multiple representatives of monocots and dicots and denotes the diversification of the angiosperms during the last 100 my of Earth's history.



Figure 1. Cover of the book “Cuando las primaveras comenzaron a tener flores” by Dr. Magdalena Llorens and Mariano Arami. Asociación Paleontológica Argentina Publicaciones.

The diagram showing the flowering plant reproduction is simple and pedagogical. This pattern is also distinct in the chapters on the associations between animals and plants, types of seed dispersion, and weird plants.

Along the book and on each page, a linear time scale is presented, and it is a perfect guide while reading the chapters to situate the reader in such an abstract concept as deep time and the major events that occurred and modified Earth, for example, the mass extinction events and the relationship between the paleoenvironment and the dinosaurs 225 mya.

This book is refreshing and a “must” have in all children’s libraries. For readers less than half a meter in height, it should be placed on the closest shelf to the floor so they can grab it and enjoy the spectacular drawings at their

leisure after their parents read it to them. For older children is an excellent tool for understanding the origin and evolution of plants on Earth. Finally, for this paleobotanist, it will have a special place among her scientific books to remind her that there is still much more to do to bring science to lay audience in a simple, exquisite, and lovely way as this book does.

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