MULTIPLE PINE SEEDLINGS

THE occurrence of two well-developed seedlings from the same seed seems to be very rare in pines.[1, 2]

A list of instances of multiple seedlings among pines may be of interest to which similar observations may be added.

Observer	Species	Instance
Toumey[3] (1923)	*Pinus thunbergii*	1
Jacobs[4] (1925)	*P. lambertiana*	12
Clare[2] and Johnstone (1931)	*P. torreyana*	2
	P. sabiniana	2
	P. cembroides var. *monophylla*	2
Moskedal[5] and Johnstone (1936)	*P. coulteri*	1
	P. jeffreyi	6
	P. lambertiana	2
	P. monticola	3
	P. muricata	1

All the above observations have been made by the several observers incidental to seed germination tests.

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SCIENTIFIC BOOKS

THE NATURALISTS

Green Laurels. The Lives and Achievements of the Great Naturalists. By DONALD CULROSS PEATTIE. New York: Simon and Schuster, 1936; 368 pp., 32 illustrations.

FIVE or six years ago there was published a most interesting book by Bernard Jaffe, entitled "Crucibles." In the course of 378 pages it described, in the most lively fashion, the lives and labors of about sixteen of the greatest workers in chemistry and physics, beginning with Trevisan (1406–1490), and ending with modern workers, in some cases (as J. J. Thomson) still living. It was shown how the beginnings of chemistry were apparently sterile, devoted to efforts which wasted lives and money, and led to no tangible results. Yet out of all this there emerged, gradually, an understanding of natural laws, and through the efforts of keen minds, modern science took form and led to the amazing discoveries and inventions with which we are all familiar. Although the names selected represent only a very small percentage of the efficient workers, it is true that the great steps in advance were due to very few men, who often had to struggle for recognition. There was in fact a double struggle; first, that within the man, to develop his ideas and come to an understanding with himself, and then the difficult task of making others see with his vision. Such a book telling such a story represents the best type of historical writing, capable of inspiring respect for the achievements of the past and hope for those of the future.

This success having been attained, it must have occurred to many that other fields of intellectual effort were equally worthy of such elucidation. Peattie has chosen to take the naturalists, and a better choice could not have been made. Chemistry and physics are great, we feel for them the utmost respect, perhaps we should say reverence; but it is for living things that we have affection, life is above and beyond all the marvels of inanimate nature. The new book might have been about the people known as biologists; the wonders of embryology, physiology, genetics and all those things which belong to the laboratories and experimental gardens. There is plenty of material for such a work, and perhaps our author will undertake it at some later date. But we are now concerned with those who were intimate with nature in her own home, who visited her and took delight in the contemplation of her diversity and beauty. Their attitude was emotional as well as intellectual, calling forth the whole range of human faculties. Through an understanding of their work, we sense the richness of life on the globe, the pageant which is continually passing before our too unobserving eyes. Thus the book is at once a story of romance and an invitation to a feast. The events narrated run more or less parallel with those of chemistry. The early workers struggled with confused ideas, but nevertheless made progress. The great variety of living things came to be appreciated as the world was explored, and as the invention of the microscope revealed the thousands of minute creatures, invisible to the naked eye. The chapter "Science at Court" shows us the time of Louis XV in France, when Buffon and Réaumur were rivals, and tells how Réaumur died, leaving manuscripts which were declared by the great Cuvier to be worthless. They might have been lost forever, but for the fact that W. M. Wheeler, visiting Paris in 1925, had the curiosity to look them up. He found that they included many careful and accurate observations on ants, and three years later published a translation. There are two excellent chapters on Linnaeus, followed by a chapter on "Glories and Follies of the Linnaean Age." The seventh chapter deals with Lamarck, whom the author regards very highly, and then we come to a discussion of "Anatomist against Dreamer: Cuvier and Lamarck." It concludes thus:

"It would be a blow, too, for Cuvier if he could see where Lamarck stands to-day. Cuvier, who knew a thousand facts, was the author of the worst theory of the history of life that was ever suggested by a great scientist. The true explanation—or the most nearly

[1] Schnarf, "Handbuch der Pflanzenanatomie." Lief. 30 (Band X_2). S. 211. 1933.

[2] Clare and Johnstone, *Amer. Jour. Bot.* 18: 674–83, 1931.

[3] Toumey, *Bot. Gaz.*, 76: 426, 1923.

[4] Jacobs, *Jour. Forestry*, 22: 573–574, 1925.

[5] Moskedal and Johnstone. To be published.