

the propagation of animals, and assisted the development of the civilization of man. In America we have evidence of the former existence of human societies along the Ohio River, and to whatever branch of historical studies we may betake ourselves, the topography of the country must supply the foundations and become fixed in our minds. It is the scaffolding upon which is displayed the picture of animated Nature. After the physical features, the prevailing winds, the amount of rainfall, the *average* warmth must be observed. Early in my studies I became interested in the migrations of the Lepidoptera in North America. A yearly zoological wave sets in from the tropics and carries upon its crest numbers of light-winged Moths, which eventually range up our entire coast, and are found in Maine in the autumn. The summer, that pulse of the year, the length of whose recurring beat is at once the measure of the time elapsed since the culmination of the last ice period, gives us a prevailing northward direction for the winds that sweep the North American continent. They offer aerial paths along which numbers of feathery winged moths are hurried. They distinctly aid the dispersal of the Cotton Moth, for instance, and on the coast of Georgia it comes earlier or later as the south wind has blown fitfully or steadily. We have wind visitors on our shores during the whole season, some of which become citizens for a time by breeding intermittently within our territory.

All natural barriers succeed to some extent in producing more or less local variation in flora and fauna, and local variation ends, in connection with the climate, in producing distinct species. The species of moths inhabiting islands, or confined between mountain chains, often show distinctive features in color, size and markings. From what I have seen I think that *Thyatira Pidens*,\* found on Anticosti, has become grayer, the pink spots less vivid than on the main land; the darkening by mixing of color, noticeable in Polar species, has here taken place. Many other instances occur to me in writing, but it is sufficient here to refer to local variation as affording an interesting part of the study of *Lepidoptera*. After a certain phase of variation has been attained it seems probable that interbreeding stops, and that, were the original form introduced, it would continue breeding side by side and without intermingling with the

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\* This variety is worthy of a distinct name, and in my second Check List of N. Am. Noct. (MSS.) I have called it *Anticostiensis*. The moth is grayer, more hoary, the pink color has faded. Mr. Wm. Couper has taken this form on the island.