

my own writings that I have chiefly borrowed from, the use of quotation marks is unnecessary, the more so as I have here gone freshly over the subject, digesting my previous observations and adding new ones before preparing the present chapter in a history of our North American Lepidoptera. Some of my views, as here stated, were put forth in a lecture I held in 1885, before the Bremen "Naturwissenschaftlichen Verein." I shall be glad if this paper adds to the interest naturally evoked by this field of study in Natural History.

It is a curious thought that our butterflies and moths have very probably remained unchanged, to any great extent, for real æons of time. These little fringes to the great web of animal life have withstood the tooth of time, while the pattern itself has been frayed out in places and replaced. It is not unlikely that our *Libythea Bachmanii** itself may have sported about the now long extinct Mastodon, alighting on the huge back of this great beast as it sunned itself by summer pools in the willow-hedged meadows and low lands. At the close of the Tertiary we have evidence that our butterflies and moths were much the same as they are to-day—not always the same species, nor the same genera, perhaps; and some of the kinds of these little fluffy ornaments may well have been worn away by the cold and storms of the slowly advancing Ice Period. But the pre-glacial ancestors of the present lepidopterous fauna of the Northern Hemisphere must have greatly resembled their descendants of to-day, while in the ranks of the larger animals great changes were to occur. While in size, structure and appearance these butterflies and moths of the Tertiary probably resembled those of the Quarternary, they were to undergo the vicissitudes of a general change in the climate under which we cannot believe but that they were forced to the South and the great separation of the faunas took place, their former Arctic sporting ground being converted into the frozen wilderness which it is yet so largely to-day. At the opening of the Quarternary the migration commenced to set back, but the conditions of climate under the Tertiary have never

* I chose this species not only on account of the fact that I believe it to be a very ancient form of butterfly, but because I found it very plentiful in Alabama about swampy places on the roadside, from whence the species flew up in numbers to play in the air, some settling on my horse in a particularly fearless manner, allowing me to catch one on the very reins I held in my hand. This species is rare and solitary in New York, and illustrates what I have to say here about the increase in *numbers* of certain species as we go southward.