

its egg; but, from some experiments made here, it is most probable the egg is laid in the grain, as seed wheat steeped in a preparation of elder juice effectually secures the crop; from whence it is but reasonable to conclude, that this process destroys the egg in the grain.

Though it is not probable the wheat of this country will be used as seed grain in England, the introduction of American wheat may be the means of communicating the insect to other grain, afterwards used as seed, and the consequences to the agriculture of the kingdom be as fatal as they have proved to many farmers in the middle states of America.

*I have the Honour &c.*

P. BOND.

*Right Honourable Marquis of Carmarthen.*

No. 2. LETTER from Sir JOSEPH BANKS, Baronet, President of the Royal Society, to the Marquis of CARMARTHEN, 4th June 1783.

*Soho Square, June 4th, 1783.*

MY LORD,

IN order to enable myself to answer the question contained in your Lordship's letter of May 30th, I have made diligent search, both by reading and enquiry; the result of which is as follows.

The Hessian Fly, or, as it is more generally called, the Flying Wevil, was first observed in the Southern Provinces about 50 years ago, and since that time has regularly extended itself to the Northward, without quitting any place where it has once got possession.<sup>a</sup> In the American philosophical transactions, published at Philadelphia in 1771, we are informed, that in 1761 it had not arrived in the lower counties on the Delaware, and in 1768 it had not crossed that river; how far to the northward it has now proceeded, I cannot with certainty learn; but from Mr. Bond's letter no doubt can remain that it is abundant in the province of Pennsylvania, and probably throughout the whole extent of the middle colonies.<sup>b</sup>

The notes subjoined to Sir Joseph Banks's letter, are remarks made by Colonel Morgan, of New Jersey.

<sup>a</sup> The Husbandry Committee say they are very distant from places infested by the fly, and therefore reason from conjecture only—or words to this purpose.

<sup>b</sup> If I do not mistake, the transactions of the A. P. Society here alluded to, will show that the fly was never in Pennsylvania.

The animal when compleat, is a minute Moth, resembling somewhat that which breed, in and destroys woollen cloth; its eggs are laid upon the grains of wheat, and produce a diminutive caterpillar, which penetrates the skin, and lodging itself in the grain, consumes the flour, leaving only an empty husk, in the same manner as the wevil of Europe; from which it differs however in confining itself to wheat, and as some say to white wheat, while the European wevil attacks equally all sorts of grain.<sup>c</sup>

There is much difference in opinion concerning the time when these eggs are laid, some asserting it to be done while the wheat is in the ear and still soft, while others declare, that between the harvest and the setting in of the frost in October, four generations of the moths have in an experiment been produced, which implies a power of penetrating the grain even in its hardest state; all agree, however, that the first attack is made in the field before reaping, the principal mischief done in the rick, and that the intense cold of the climate, tho' it destroys some of the caterpillars, and renders the rest torpid, does not prevent them from reviving when heat returns, and furnishing a plentiful supply of moths ready to lay their eggs at the time of the ensuing harvest.<sup>d</sup>

From these premises, my Lord, I think it may be fairly deduced, that, as our corn in England has at present no enemy to fear after it is ripe, but the common wevil (a dull slow animal that never appears in the field, and seldom in the rick, and being unprovided with wings, is unable to convey itself from one granary to another) the introduction of this new one, which, as it is furnished with wings and makes its attack in the field, it is all but impossi-

*The arguments of their Husbandry Committee proceeded from confused facts, relating to different insects in Europe, and misinformation respecting the Virginia wheat fly.*

*The Virginia wheat fly is not known, nor has it ever made its appearance in Pennsylvania.*

<sup>c</sup> This is the French wheat fly, and breeds among wheat ill kept too long in granaries.—It differs widely from all the Virginia wheat fly, the chirtz bug fly, as well as from the Hessian fly.—It is described by Dubammel and Lisle.—So does the true weevil of America, when the grain is too long and ill kept; but this true weevil proceeds only from too long and bad keeping of grain.

<sup>d</sup> These people confound the Virginia wheat fly with the Hessian fly, which are as different as a toad from a snake.—But to neither does the weevil of this description apply.