When they had shot up to about a foot or a foot and a half in height he cut them down. Fresh tillers sprung from the roots, and were *again* cut down when they had reached the same height. Other tillers again sprang up rapidly, and the cutting down was repeated a *third time;* after which, although a new set of tillers formed, it was too late in the season to be again cut, and they were allowed to take their chance for the winter. Some of the plants died, but enough of them survived to test the experiment. They shot up into ear at an early period; but to the surprise of the farmer, instead of rye, the produce was perfect barley—rather thin, but by no means of a bad type. This was sown the following spring, and yielded a good return, of a quality much better than the seed. So much indeed is the barley approved by both the farmers and the malsters, that the experimenter has been able to sell all he grows, for seed corn. We have now a sample of it before us, which we have shown to merchants and malsters in Mark lane, all of whom pronounce it to be an excellent malting kind. So much for the experiment, the truth of which the character of the gentleman concerned stands too high to admit of any doubt. We will now endeavor to explain the rationale of the case, and shall first show the cause of the oats remaining alive through the winter; and, secondly, *endeavor* to account for the change or transmutation it undergoes in such circumstances.

First, all the cereal grasses are what are called *annuals*—that is, they occupy an agricultural year only in arriving at perfection. But as it is the nature of all plants to strive, we may say, to accomplish their fructification, if they are prevented from doing so by being cut down, the stem that is thus cut *will die*, but the root will make a fresh effort, *by throwing out fresh tillers*, to accomplish its mission; and as often as the cutting down is repeated, the same process takes place, till it is too late for the plant to produce an ear, when its powers will lie dormant through the winter. Had the plants of oats sown in June by the experimenter in Huntingdonshire been allowed to ear the same year, which they would have done if not cut down, they would of course have died. But not being allowed to fulfil their mission in that season, they kept on making fresh efforts, by tillering, to do so until the winter stopped the process of vegetation. It ought to be stated that every tiller thrown out after the cutting down was a new plant, under similar conditions to those from a *fresh grain* of oats; and this was the case with those after the third cutting. If they had been taken off from the parent root and planted, they would equally have grown, and perhaps more vigorously than when still attached to it; but this is a conjecture drawn from analogy, having never been tried in the case of oats, that we are aware of.

Secondly, with regard to the transmutation of the oats into barley or rye, we have said we will *endeavor* to explain the cause, there being no certain data upon which to base an absolute theory. We are but little acquainted with the relationship of the cereal grasses to each other; we have reason to believe, from historical records, that both wheat, barley, and rye are original plants; that is, being able to trace the history of the two first at least nearly four thousand years backward, we may conclude that they were originally created in the form we see them, adapted at once to the wants of man. But of oats we have no such record in history and their origin is a complete mystery, nor have we any account of their first introduction into this country, or of their being first used as food either for man or beast in other lands. The transmutation referred to, however, seems to throw light upon the subject, and to point out the origin of oats to have been a sport from other grain; and there is a passage in old Gerard's "Herbal" on the subject, which seems to justify this supposition. It is to the following effect: "I think it a very fit thing to add in this place, a rare observation of the transmutation of one species into another in plants, yet none that I have read have observed it. *Several grains of oats did grow in one ear of white wheat*, the which I saw this year 1632, which was found by my very good friend Master John Goodyer, a man second to none in industry in searching of plants, nor in judgment and knowledge of them. This ear of wheat was as large and fair as most are, and about the middle thereof *grew three or four perfect oats*, in all respects, which being hard to be found, I held worthy of setting down for some reasons not to be insisted upon in this place."

The above is, we believe, the first instance of the kind recorded in any work of natural history, and it is rather remarkable that botanists and other naturalists have not noticed it. But the fact is, nearly all of them have not only thrown doubts upon the facts that are from time to time brought forward, but some of the most eminent men in natural history have positively denied the possibility of such transmutations, and have imputed the cases adduced to mistakes of the parties asserting them. It was this incredulity of the *savans* of France and Germany that induced the Royal Agricultural Society of Bavaria to institute a series of experiments in order to ascertain the truth, and the result was a collection of facts that forced conviction upon the minds of all who read them, not only of the possibility, but of the certainty of such transmutations. It is said that the change of oats into barley is a circumstance of frequent occurrence in Norway and Sweden. If such be the case, it would be right for our naturalists to ascertain the truth of it, and to study well the conditions under which they occur; while it is quite possible other principles might be elicited on the subject of the relationships existing between plants of the same *family*, that the learned with all their philosophy have never dreamed of.