

the advice, believing it to be a loss of precious time to withhold instruction a single week after the child is capable of receiving it. But the common idea, that if you can teach an infant to read with considerable ease and propriety in its third or fourth year, it is, as a matter of course, so much clear gain, is extremely fallacious. It is not at all certain that the boy will be more forward at twelve, than he would have been had you postponed teaching him the alphabet two years longer; or than another will be, who could not read a word at five. It will be found that, as a general rule, there is a freshness and a vigour in the minds of late-taught children, which you do not find after a precocious and hard-tasked infancy. Most certainly, where the child is uncommonly forward, inquisitive, and teachable, repression, rather than excitement, is called for; and even, where it is dull and backward, no time is lost in waiting patiently for the unfolding of its powers. The growth of some minds, like that of some plants, is very slow. Were I to find a child, of fair promise in other respects, disciplined to give its attention to the simplest rudiments of learning, even up to the age of six or seven, I should by no means despair of seeing him a fine scholar at twenty, and a distinguished professor at forty.

In fine, I am strongly impressed with the belief, that, if the experiment could be fairly tried upon a great scale, those infants that are rightly managed in other respects, but do not know a letter till they are five years old, would ultimately surpass, both in strength and acquirements, such as begin their studies two or three years earlier. I have no doubt that ten of the latter class are seriously injured, both in body and mind, by taxing the brain too early, where one of the former suffers in his education by not commencing early enough.

I agree, however, with the profound author of "Home Education," that the danger lies, not so much in the mental effort which it costs an infant of early promise to learn to read, as in the taste for reading, which is likely to be prematurely developed, and to be whetted into a morbid appetite. It is this eager poring over story books at so tender an age, that retards the growth, and robs the little cheek of its fulness and its colour. And who has not observed how difficult it is to restrain an infant, and keep it within the bounds of safety, when once its craving for intellectual stimulants has gained the ascendancy over its interest in the play and prattle to which nature prompts it? So much complacency are parents apt to feel in their darling little prodigies, and so flattering is it to have friends and strangers admire their skill and success in this hot-bed culture, that it requires more than an ordinary share of firmness and intelligence to resist the temptation of showing off a smart child of three or four years in his well-thumbed primer, and to hold him in check while other parents are urging on their nonpareils, to leave him entirely in the back ground. The less the pressure, however, at this tender age, the better and safer for the child.—*Humphrey's Domestic Education.*

AGRICULTURE.

We submit the following article from the *Agricultural Gazette* to our friends among the farmers, and would venture to recommend they should make the experiments therein suggested:—

In the present number of the *Quarterly Journal of Agriculture*, there is an interesting paper by Professor Johnston, on "the Manuring and Steeping of Seeds." The facts there recorded, and the manner in which they are shewn to be, what the known laws of Vegetable Chemistry and Physiology would lead us to expect, combine to render this a subject to which the experimental Agriculturist may usefully direct his attention.

The advantage of steeping seeds in certain chemical solutions seems to have been first pointed out by F. H. Bickes, of Castel, near Mayence. He announced his discovery in a lately published pamphlet, "on the Cultivation of Soil without Manure." Notwithstanding the extravagance indicated in its title, and which characterizes it throughout, this publication records some surprising facts and testimonials on this subject; and these have lately been corroborated by the experiments of Mr. Campbell of Dundee. A letter descriptive of the method of doctoring seeds adopted by the latter gentleman, and of their consequences as exhibited in the growing plants, has just been published in the *Transactions of the English and the Highland Agricultural Societies*—an extract from it will be found appended to this. Mr. Campbell's experiments

were performed upon seeds planted in the clay, taken from eight feet below the surface of the ground; and though under such unfavourable circumstances, the wheat plants from them tillered into five or eight stems, while those from unprepared seeds had only two or three stems apiece. That, however, which is broadly asserted in the German pamphlet is also hinted at by Mr. Campbell,—viz., that steeping seeds in suitable solutions, will render all future application of manure unnecessary. This is a statement which no practical farmer can for one moment entertain, and therefore, we are glad that it is not necessary to suppose it to be true, before we can believe that this process may sometimes be beneficially adopted.

It seems probable, that by some such means as those suggested by Messrs Campbell and Bickes, the period of germination, which is one full of danger to the young plant, may in many cases be shortened; and this is very desirable, for owing to the conversion of the starch of the seed into sugar, which is then proceeding, the plant is at that time liable to attacks from all sorts of vermin. In the case of the turnip, especially, any means which would hurry it through this period into the rough-leaved stage of its growth, would be most useful, as it is only when its leaves are sweet that it is liable to the attacks of the fly.

But from the results of some of Mr. Campbell's experiments, we may infer that the influence of his process extends into the future history of the plant, much beyond the period of its germination; and it is on this account that we would recommend it now, as a suitable subject of experiment for wheat growers. The mineral ingredients of wheat amount to about one-fiftieth of its weight; and, from the mere fact of their existence in the seed, it is probable that they exert an important influence over its germination and future growth. Any artificial addition to their quantity—and, by soaking wheat in certain solutions, we can double the natural quantity of its mineral constituents—will therefore increase that influence.

The following are the substances which, besides the four elements composing its organic structure, are to be found in wheat:—soda, potash, lime, magnesia, sulphuric acid, phosphoric acid, silica, alumina, and chlorine.

It would probably not be difficult to dissolve in water such matter in such quantities that the solution should contain in their natural proportions all these mineral substances; so that wheat, by being steeped in it, would merely increase the quantity of its mineral ingredients, without at all disturbing the balance among them which nature has assigned; and perhaps this would be the best way of proceeding; but as it is interesting to know the individual effects and relative value of different substances as manure, we intend to try a series of experiments on the subject, confining ourselves in each to the application of only one of the salts, in the form of which the above substances must be employed.

For those of our readers who may not yet have got in all their wheat, for we by no means wish that it should be a mere garden experiment, we shall first state the plan we propose to adopt, and should our example be followed by any one, we shall be happy to report next autumn the results of his experiments, along with those of our own.

It is intended to soak for 48 hours, previous to sowing, eight parcels of wheat—say one bushel apiece—each in a solution, to be obtained by dissolving 5lbs. of one of the following substances in such a quantity of water as may be necessary thoroughly to cover the seed.

The prices per lb., placed opposite these substances, are such as will be charged by any wholesale chemist, of whom they may be ordered.

Silicate of Soda,	0s 6d. per lb.
Nitrate,	0 3 "
Sulphate of Soda,	0 3 "
Phosphate,	1 6d "
Phosphate of Ammonia	2 6 "
Sulphate	0 3 "
Muriate	0 8 "
Nitrate of Potash	0 4 "

The wheat, after being thus treated, will be hoed in at the rate of two bushels of the dry seed per acre, in drills nine inches wide, and a ridge sown with wheat in the ordinary way will be left as a standard of comparison between each couple of adjacent plots. The extent of the experiment, for those who may not wish to hazard so extensive a trial, might be reduced one-half without, perhaps, much impairing the value of its results.