from it yearly.—Daniel McAloney has here a flourishing young orchard of about forty trees set out by himself; they are now only beginning to be of some size and to bear, he gets from them now about ten bushels yearly. Mrs. Cyprian Davison and James McKay have, in this village, each a small orchard of old trees, from which they each gather ten bushels or more yearly.

(Conclusion in our next.)

BARON LIEBIG.

Since the much-lamented death of the celebrated German chemist, the details of his life have been treated in a great number of essays and articles published in the most influential organs of the press, both of Europe and America, by well-informed and competent authors. Therefore, a somewhat closer consideration of Liebig's influence on agriculture and physiology will perhaps command a larger and broader interest than the repetition of mere biographical notes. One point ought never to be forgotten, whenever Liebig's efforts and achievements are being judged—the difficulties he had to overcome, when preparing himself for his later brilliant career, were by far more serious than is now generally believed. Only in consequence of his patient and persevering investigations, and that of other distinguished scholars, the science of nature and the instruction therein have been raised to their present high standard, and made easily accessible; while forty or fifty years ago, young men of high genius and noble aspirations were literally depressed and crushed by the insufficiency of physical and chemical instruction. Liebig himself had to suffer greatly, and often spoke with bitterness of his youth and youthful shortcomings.

In the year 1840, Justus von Liebig first began to investigate the secrets of vegetable and animal life. Fortunately for the result of his researches, he had then already attained high fame as a scientific author and university teacher; nay, even at that time, as far as the science of chemistry is concerned, he already outshone all others, except the widely celebrated Berzelius.

The school for chemistry and the chemical laboratory founded by him in Giessen had carried his reputation to every civilized country, and eager pupils, among them a great many young Americans, were continually streaming to it from all parts of the globe. So his voice could not easily remain unheard, and the new doctrines concerning agricultural chemistry which he proclaimed, quickly spread throughout the learned world, as well as the public in general. The same discoveries made by a young and unknown professor, might perhaps, in spite of their intrinsic value, have been lost in oblivion, or at least have made their way more slowly, and thus been by far less beneficial to humanity.

The essence of Liebig's researches on vegetable life may be characterized in a few words: he was the first to discover the intrinsic connection between the plants and the mineral ingredients of the soil, and to work out this discovery into a clear and scientific system. It is true, many years before Liebig, even in very remote ages, certain minerals, as gypsum, calcined bones, etc., were employed for manures. But this was a more empirical operation, and no one ever thought of proclaiming the theoretical and scientific necessity of restoring the mineral ingredients carried off in the crops from the soil. The people merely placed gypsum, ashes, or bones on their fields because they had seen good results; but, as to the real cause of their favorable influences upon the fertility of the soil, this was a perfect mystery, and remained thus, so long as the chemists and physiologists of the period inclined to consider the minerals, and the small percentage of ashes contained in the majority of plants, as a fortuitous combination, and thought them the nearer to ideal perfection the smaller their percentage of ashes was found to be.

Previous to Liebig's discoveries, the word "ashes" designated a mere elementary conception; every thing which is left after the burning of wood, coals, or any vegetable matter, was called ashes, and any residue of the kind was considered to be alike in substance and composition.

That all these "ashes" are totally different from each other, and nearly as different as the plants themselves from which they are derived, was first discovered and proved by Justus von Liebig, and this discovery, to which he was led by a series of most ingenious, but also most laborious, experiments, became the chief source of his fame and glory.

Under Liebig's direction, a patient and vigorous staff of assistants made countless experiments in nearly every accessible part of the globe, and analyzed, with the utmost care, the ashes of many thousand different plants. The unanimous result of their investigations proved, to a certainty, the natural coherence between vegetable life and inorganic matter; they showed that every plant of the same kind, whatever may be the substance and the composition of its soil, receives the same mineral ingredients into its frame, and cannot live and grow in a place which is entirely devoid of the minerals necessary to its existence. To cite but one example, the tobacco plant chiefly withdraws lime from the earth, under every zone and in every climate; its cultivation, in a soil absolutely deprived of that mineral, is simply impossible, however liberally the other conditions of its existence may be provided for.

These results, plainly showing the error which former ages had committed when neglecting and denying the importance of mineral ingredients in vegetable substances, naturally led to a division of plants into several classes, each of which received the name of its principal mineral ingredient; regardless of botanical denominations, they were divided into a few simple classes, according to their predominant contents of lime, kali, silicious earth, etc.

Thus Liebig's doctrine concerning the influence of mineral matter upon vegetable life was firmly established, and nothing seemed easier than to carry it into practical execution. It was no longer unknown what mineral ingredients every plant draws from the soil; nothing else seemed necessary than to convey them in sufficient quantity to the fields, in order to obtain a boundless and never-ceasing fertility. Here we touch upon a fatal moment in the great chemist's life.

Perhaps it would have been better if Liebig simply had offered his priceless discovery to the practical agriculturists, and had allowed the farmers to put his theory into practice themselves, instead of devoting his own exertions to that task. Probably his doctrine would then have made its way sooner and more easily, and, at any rate, a long series of troubles, delusions, vexations, and hostile attacks of all kinds would have been spared to the discoverer.

But the vivacity of his genius allowed him not to restrain himself to mere theoretical investigations; on the contrary he devoted himself, with all the energy of his powerful mind, to the task of popularizing and of carrying them into practical execution.

The opposition and resistance he had to encounter were extraordinary.

It is no agreeable task to speak of the causes of this strange fact; for it must be confessed that both parties, the enthusiastic preachers of the new doctrine as well as agriculturists, had their parts in it. First of all, the deficient instruction of the latter, their ignorance and absolute want of any thing like physical or chemical science, were great obstacles; they did not, and could not understand the technical language in which the new doctrine was preached to them. And then, on the other side, the immoderate zeal of the innovators did much harm; their violent abuse of the farmers' and land-owners ignorance, narrow-mindedness, and obtuseness produced ill-feeling among the latter, and increased their prejudices. Liebig himself was less guilty than any other of such deplorable rashness, but his disciples often passed the proper limits in the excess of their benevolent zeal; the