TWO FARMERS' WIVES.

During a summer tour among the New England mountains, Col. Higginson came across two types of farmers' wives. The thought impressed by the meeting was that "home" meant much in their patient, silent lives, which are seldom broken by a holiday. He wrote to the *Woman's Journal* what he saw:

"Walking by a comfortable farm-house, the other day, I was attracted by a remarkably fine lily, of a species new to me, which grew in a wooden urn on the doorstep. On closer inspection it proved so beautiful that my companion and I made bold to ring at the door and ask for further information.

"We were at once cordially greeted by a cheery woman of middle age, who received with delight our praises of the lily, showed us a fuchsia and geranium which rivaled it in her affections, and insisted on our going into her old-fashioned parlor, where a magnificent ivy literally encircled the four sides of the room from a single root in the corner. She had come to us from the wash-tub, but she looked perfectly neat, and was ready to talk as we to listen.

"She had lived all her life in the house where we saw her; it had been occupied by three generations of her own family before her; relics of their old-fashioned furniture were there, stoutly retained against the blandishments of furniture hunters such as ourselves. Especially curious was a quaint old mirror, with heavy gilt frame, and an odd little clock at the top.

"Here our hostess had been married, here she had borne six children, several of whom had died; she had lived for a year or two in Boston, 'hub of the universe,' but she liked the old homestead better. She did all her own work, —the children at home being still young—and she apologized profusely for the untidy appearance of a room in which we could nowhere detect a speck of dust. In her manners and language she would have appeared to advantage anywhere. She lived, to be sure, near the village; but I am constantly receiving the same sort of impression from the women whom one meets at the doors of lonely houses far up on the mountain side.

"Driving a long distance, one day, in search of a lost spy-glass, I was directed at last up a by-road leading from a by-road, and ending at length in a solitary mountain gorge, where there was but a single house. I could not imagine what had brought a settler there, until I noted a fine 'sugar orchard' of maple trees, the finest to be seen in that whole region.

"On my knocking at the farm-house door, it was opened by an old lady—I use the term advisedly—so neat, so kind, so agreeable in expression and manners, that a city visitor would have felt justified in engaging a months' board at once, on the face of appearances alone. For 25 years she had lived up in that lonely glen, going out of it only to attend 'meeting' on Sunday, or to make rare purchases at the little village store.

"She did not seem so have thought of it as distant or solitary until all of her children had left the farm to seek their fortunes elsewhere; but now she confessed to a wish to leave it, not because it was in itself lonely, but because it was far from them. Consequently, she now hoped that 'he' would buy a farm nearer to other folds."

Industrial Indications.—The arrival of gold in the United States from Europe is as great in proportion as is the arrival of immigrants from the same quarter. The United States have such vast resources of production that we are fast draining Europe of her surplus gold and of her best blood and muscle. We have cotton, which must be used to clothe toiling millions, and of late years we have been supplying food in immense quantities from the Western States and from the Pacific coast. Every year now but makes more manifest the grand destiny which is in store for the inhabitants of the most favored people in the world.

STORING UP ELECTRICITY.

The principle adopted by M. Faure for storing electrical energy is founded upon an invention made some 20 years ago by M. Plante, which he called a secondary pile, and which of itself was also a means of storing electric energy to a certain extent. M. Faure's plan is described as follows: "It consists of two plates of lead immersed in water, acidulated by sulphuric acid. This pile is inert in itself, inasmuch as the two electrodes are identical; but if it be connected with an electric generator—as a voltaic battery or dynamo-electric machine—oxidation takes place on one of the lead plates, resulting in the formation of a thin coating of peroxide of lead, while the other plate remains as metallic lead. The pile is then detached from the charging battery, and the electricity remains stored up in it so long as the polarization of the plate continues. When the two electrodes are joined by a conductor, there is obtained an electric current, intense but of short duration; the pile is discharged and the plates assume their normal condition. With a Plante couple, having one-half square meter of surface, the current is sufficient to heat to redness for about ten minutes, a platinum wire one millimeter in diameter, and from 7 to 8 centimeters long.

M. Faure's invention consists of an improvement on Plante's pile, by which its capacity for storing electricity is greatly increased. This consists in furnishing the lead plates with a quantity of the oxide at the start. Each plate is covered with a layer of red oxide of lead, held in place by pieces of felt fastened to the plates by lead rivets. These are then rolled together in the shape of a spiral, and immersed in dilute acid. When connected with a battery or machine the oxide on the positive electrode is converted into the peroxide, while that of the negative is returned to the metallic state. In this way the electricity can be carried from place to place, the capacity of the battery depending, apparently, upon the amount of oxide with which the plates are supplied.

Whether this method of conveying electric currents will prove more economical than by metallic conductors remains to be seen, but at present it looks rather doubtful. The May number of the *Journal des Usines a Gaz* is largely devoted to a discussion of this discovery, and from it we learn that M. Reynier claims that the Faure battery will give out 80% of the power used in charging it. This statement is supported by M. Dumas, who places the loss at 20%. M. Hospitallier, in *L'Electricien*, criticises these statements, and claims that, taking into consideratien the losses sustained in the transformation from mechanical to electrical energy, by the dynamo-electric machine, as well as that in converting the electrical power of the battery into mechanical force, the most that can be obtained from Faure's battery is 52.5% of the energy necessary to charge it. The ordinary method of transmission by metallic conductors easily yields 60%.

As might have been expected, the discovery of M. Faure has passed into the hands of speculators, who are making fortunes for themselves at the expense of those unfortunate persons who possess more money than foresight.

An Improved Mortar.—Some time since the use of sawdust in mortar was recommended as superior even to hair for the prevention of cracking and subsequent peeling off of rough casing under the action of storms and frost. Someone by the name of Siehr says that his own house, exposed to prolonged storms on the seacoast, had pieces of mortar to be renewed each spring; and after trying, without effect, a number of substances to prevent it, he found sawdust perfectly satisfactory. It was first thoroughly dried and sifted through an ordinary grain sieve, to remove the larger particles. The mortar was made by mixing one part of cement, two of lime, two of sawdust, and five of sharp sand, the sawdust being first well mixed dry with the cement and sand.

THE ADVANTAGE OF PERSEVERANCE.

As we have just passed the centennary of the eminent engineer, George Stephenson—June 9, 1781—it is not out of place to remind struggling young mechanics or engineers that this great man did not achieve his distinction and fame without hard work, and that it was not his genius alone that saved him and made him what he was, but more his perseverance, energy and determination to succeed. It will not do for a young man, because he supposes he has genius or his friends suppose he has, to sit down and wait for opportunity to come to him. He must manfully sail forward and put aside the obstacles which impede his path, must persevere in his endeavors to perfect his knowledge and skill, and make the opportunities to use them. Samuel Smiles, who has written a life of George Stephenson, says of him that for the first 50 years of his life, he had everything against him. He owed nothing to luck, to patronage, to the advantages of education. He owed everything to bravery, intense conviction, and prolonged perseverance. He had to teach himself everything from the A B C to the principles of mechanics. He had to conquer every inch of the ground on which he stood. His conquests were not easy, for arrayed against him were, first, his own ignorance which had to be subdued by silent, persistent endeavor; and second, the opposition of men of knowledge and science, who stood united to oppose him and could only be silenced by success. At first, Stephenson stood almost alone in his belief in the powers of the locomotive engine. His experiments were carried on in silence and obscurity. They were quite unknown to the journalists, historians, and writers of the day. The great work was done without any help from authors and orators. He never contented himself with dwelling in the regions of speculation and abstraction. He worked energetically in giving life to a dormant principle, and practical realization to an abstract proposition. Yet the facts which he developed by experience were laughed at as "moonshine."

There is something tragic in witnessing the determined hostility which obstructed his efforts. The whole prejudice of the scientific world opposed him. When he invented the safety lamp he was "pooh-poohed," and regarded as an interloper. The civil engineers opposed him to a man. He was not "one of us," he had never received an engineer's education. They would not admit his facts. They would not even inquire into his experiments. Everything that he proposed to do was demonstrated to be *impossible*. The civil engineers declared that it was impossible to drive a locomotive at the rate of 12 miles an hour. The engine would be driven back by the wind. If it traveled it would be beaten by the canal boats. But it could never go at all. The smooth wheels could never "bite" upon smooth rails. The wheels would merely turn round and round, and the whole machine would stand still. It was also declared to be *impossible* to make a railroad over Chat Moss without stopping short of the bottom. "No engineer *in his senses*," said a distinguished civil engineer, "would go through Chat Moss if he wanted to make a railroad from Liverpool to Manchester." The whole thing was declared to be "impossible." And yet the impossible things were done. What George Stephenson proposed to do, he did. The impossible locomotive was run, not only at 12 but at 50 miles an hour; and the impossible railroad was made from Liverpool to Manchester over the center of Chat Moss.

Altogether the life of this distinguished man affords an example of what one may do by persistent efforts, and unsubdued energy. The moral teaching of such a life is great, and the young men of the day will find that as far as the means of personal progress are concerned, the means have not changed since George Stephenson's time.

We hear of a man who has made a fortune by attending to his own business. This is authentic. But then he had few competitors.