

metal. The battery is practically unlimited as to life. As only the water in the potash solution evaporates, so only water need be added to keep the electrolyte in proper condition. There are no acid fumes to destroy the ironwork of a truck or wagon, as in the old-style batteries where sulphuric acid was used. The Edison battery weighs about half as much as a lead battery of the same potency, and in addition to this it will save about fifty per cent of its weight in the construction of the truck or wagon itself. The battery cannot be injured by overcharging, does not deteriorate when left discharged, offers accessibility to each cell, makes it possible for every cell to be removed, and gives nearly twice the output or mileage of a lead battery of the same weight. Edison is confident that it will revolutionize the traffic of the world, particularly in cities, and that it will rank among the greatest of his inventions.

Strangely enough, Edison does not seem to take much interest in aviation. At least he does not take sufficient interest in the subject to apply himself to the problem of a flying-machine. He believes that aviation is practicable; in fact, he predicts that within ten years the Government will be carrying the mails in flying-machines, but he does not believe that the aeroplane is the type that will last.

"My criticism of the aeroplane type of flying-machine is that it is a machine for sport," he says. "The flying problem now consists of 75 per cent machine and 25 per cent man. The commercially successful machine must be a device that any man of intelligence may learn to op-

erate within a reasonable time, and, having learned to operate it, the performance must be certain. Little or nothing must be left to the peculiar skill of the operator. And it must be a machine that can go out when the time-table says it should go, regardless of weather conditions. I don't believe that the aeroplane will ever measure up to these conditions. I think the principle on which it is built is wrong. Too much power is necessary to sustain it.

"The flying-machine that will carry the mails will be small, the smaller the better, because of the less resistance to the air, and it ought to travel at the rate of at least one hundred miles an hour. Eventually it will go a great deal faster. Traveling in the air is not like traveling on the earth. The air offers comparatively little resistance. Put the power into a machine, and you can get almost any speed you want. But while the flying-machine will be fast, it will never be a great weight carrier. It will be used for mails, but not for freight."

Edison will not say that he could construct a flying-machine to meet the requirements he has outlined, but any one of his associates in the laboratory at Orange believes that he could do that, or anything else he set out to do. However, he has never bragged about doing a thing beforehand, or boasted afterward. His biographers tell a characteristic story about him. After indulging in reminiscences of old times and early inventions a short time ago, Edison leaned back in his chair and said with a smile: "Say, I *have* been mixed up in a whole lot of things, haven't I?"

THE CHRIST CHILD

BY EMILY NILES HUYCK

Thank God for that sweet season when he lay
 A little happy child on Mary's breast,
 And knew, thus safely sheltered night and day,
 No weariness, who later knew not rest.
 No coming shadow fell upon that bliss,
 No cross between the Mother and the Boy;
 Companion of our tears and smiles in this—
 The "Man of Sorrows" was the Child of Joy.

Better Farming, Better Business Better Living

Two Practical Suggestions¹

By Sir Horace Plunkett

IF I have given the true explanation why the farmers of the United States are deplorably backward in the matter of business combination in comparison with all other American workers, those who take part in the movement which is to provide the remedy will have set themselves a task as hopeful as it is interesting. All Americans are addicted to associated action; their farmers have always had a will to organize, but they have missed the way. Granges, Institutes, Clubs, Leagues, Alliances, and a multitude of miscellaneous farmers' associations have been organized for social, religious, political, and economic objects. From my study of the work done by these bodies, the impression is left on my mind that almost everything that can be better done by working together than by working separately has been the subject of organized effort. But these manifestations of activity have been fitful and sporadic. The political influence of the farming community has, for this reason, never been commensurate with either the numerical strength of its members or the magnitude of the Nation's work which they do. The Federal Department of Agriculture, appropriations for agricultural colleges, some railway legislation, and other boons to farmers are to be attributed to the efforts of their organizations. But, as compared with the influence exercised upon national affairs by the farmers of, say, France and Denmark, the American farmer has but a small control of legislation and administration affecting his interests. If there is one demand of the Government upon which the entire farming community are agreed, it is the establishment of a parcels post. The reasons—express reasons—why this most legitimate desire is not sat-

isfied bear eloquent testimony to the truth of my main contention.

If better business be, as I have urged, the foundation of better farming, we shall expect to find the defective organization of farmers accompanied by a corresponding backwardness in agricultural practice. That this is the case is proved by the statistics of the comparative yield of the various crops, which are too well known to need repetition here. Things are improving, and the agricultural mind is slowly realizing the necessity for availing itself of the new educational facilities for applying the teachings of modern science to the conduct of farming. It is only during the last twenty years that the practical value of science in agriculture was recognized in the Middle and Far West. Until then there was general disbelief in the practical value of science. In cowboy terminology, all scientists used to be classified as "bug hunters." The Department of Agriculture was regarded as a source of jobs, "graft" being the nearest approach to any known agricultural operation.

All this is changing fast. The Federal Department of Agriculture is now the most popular and respected of the world's great administrative institutions. In the Middle West a newly awakened public opinion has set up an honorable rivalry between such States as Wisconsin, Iowa, Illinois, Nebraska, and Minnesota in developing the agricultural sides of their universities and colleges. But in spite of this, Mr. James J. Hill holds that not more than one per cent of the farmers of these regions are working in direct touch with any educational institution. I am firmly convinced that the chief remaining hindrance to better farming is that those who are engaged in the new educational work have not got associations, organized for business purposes, to assist them.

¹ The last of a series of five articles on "Conservation and Rural Life," the first of which appeared in The Outlook of January 29.—THE EDITORS.