# FORTUNES IN WASTE PRODUCTS

One of the most interesting phases of the world's development is the manner in which the people of civilized nations are utilizing so many things which were only recently considered as valueless—to be thrown away as worthless; while what we have thought was useless stuff merely fit to be trod under the feet as so much dirt, has been converted into a product of great value.

The increase in the population of various countries, and especially the increase in the number of inhabitants of great cities, has been one of the reasons why the genius of the inventor has contrived to make what we have called waste of worth to us by using it in various compounds and articles which have already become indispensable. The things that are thrown into the street, house yard, other receptacles for debris, can be used in so many ways, that scarcely anything can now be considered refuse.

BUTTONS FROM TIN CANS.

For instance, old tin cans are melted to be moulded into buttons, covers for luggage, and toys for children, which sell throughout the world at Christmas time. Discarded shoes and rubbers, also scraps of leather, have become of value in manufacturing various substances. Not a single bottle or other pieces of glass need be thrown away, for mixed with certain kinds of earth and sand, it makes an excellent artificial stone for buildings. Not so long ago dead animals were buried, as it was not known that their bones, hide, and even parts of the intestines were of use. Much of the inflammable composition in the lucifer match is now obtained from such bones. Even the sweepings of the street pavement, containing as they do particles of horseshoes and other metal, are worth gathering; while the bits which fall from the horse's hoof as it is being shod by the maker make a most valuable dye when mixed with certain chemicals and metal scraps.

USING THE SMOKE PALL.

Over nearly every large city, especially such centres as London, Birmingham, and seats of other great countries, are enormous clouds of smoke, which so frequently darken the atmosphere that even at noontime it is necessary to have lights in the buildings. Yet this smoke, if properly treated, can be actually dissolved into several most useful elements—and the inventor has designed apparatus by which these elements can be secured at a small cost. It is a fact that smoke can be weighed and measured like so much earth and sand. Experiments which have been made in the United States show that a cord of ordinary fuel wood in burning generates 28,000 cubic feet of smoke. If the smoke from 100 cords of wood is heated by this process, it will yield no less than six tons of the valuable chemical known as acetate of lime, besides 25 pounds of tar. But the smoke contains so much of the element of alcohol, that this quantity will produce no less than 200 gallons of spirit suitable for lighting, heating, or the operation of motors.

WASTE FRUIT PERFUMES.

Usually perfumes and other useful odors are considered as being obtained principally from flowers. The oils coming from waste fruit, such as decayed pears, grapes and peaches, however, can be substituted for some of the most costly floral odors after being treated with acids and other liquids which give them a remarkable fragrance. Perfume, soaps, even confectionery, are now manufactured, which are flavored with what is called the oil of bitter almonds, but which is extracted from the tar which is a refuse of gas-making plants such as are to be found in every large city.

The enormous production of iron and steel in various forms has caused great furnaces to be erected for smelting this metal in large quantities. Here again a study has been made of what can be done to use what was formerly waste. Even the gas which in the past has been allowed to escape in the air has been made prisoner, so to speak, and converted into a most valuable factor. The mixture left after the iron has been extracted from the ore—sometimes called slag—which represents the debris of the iron ore, is now one of the most valuable compounds coming from the blast-furnace, although but a few years ago it was thrown away. In fact, blast-furnaces have been built on the edge of swamps and bodies of water, so that the slag could be thrown into these places and used for filling them up. Very good glass is now made from this slag, as well as paving blocks and bricks, artificial porphyry, and a cement which is equal to the best. Ground with six per cent. of slaked lime, building mortar is also made from slag; and ornamental copings and mouldings window sills and chimney pieces are fashioned of it.

STRONG SLAG BRICKS.

Slag brick is stated to be quite as strong as ordinary bricks, and much less permeable to moisture. To make 1,000 bricks, 6,000 or 7,000 pounds of granulated slag, and from 500 to 700 pounds of burned lime, are consumed. Good bricks also can be made from granulated slag mixed with dust from slag, though the hardening process is rather slow. Slag is also used for steampipe and boiler wrappings, in which form it is called "silicate of cotton." Coal slag is a good structural material; mixed with slaked lime, it stiffens into a mass weighing from fifty to one hundred pounds per square inch. Basic slag is used in large quantities by manufacturers of fertilizers, instead of phosphate rock.

The greatest metal industry in the world, which is now being built in Indiana, forming an entire city in itself, is provided with iron smelters from which the gas as it rises will be returned to the fires beneath the ore and used for heat. By this system the cost of coal to smelt the ore will be about one-half the expense if the gas were not secured as stated. Waste gas has been utilized by inventors for the direct operation of engines so large that they have a force equal to the power of a thousand horses. As it issues from the smelter, the gas enters a large cover, as it might be termed, placed above the furnace. In the centre of the cover is a pipe. From this it is forced directly into the engine, and ignited by an electric spark. This causes it to explode, and the force of the explosion drives the engines and the other machinery.

VALUE OF SAWDUST.

One of the most important discoveries which has been made in connection with what we have called waste products is the value of swadust. Usually sawmills produce such large quantities of the material, that it cannot be burned to advantage. It is then thrown away, so to speak, sometimes being piled in great heaps and left to slowly consume. A very good quality of alcohol, however, can be distilled from ordinary sawdust by an inexpensive process, in such quantity that two gallons of the liquid can be obtained from 220 pounds of dust. The sawdust from birch and some other species of forest trees will also yield a palatable sugar after it has been treated with certain chemicals. In America and Europe an enormous quantity of the dust is sold being vended about in wagons and in sacks carried on the backs of the vendors. It is bought to sprinkle on the floors of cafes, butchers' shops, and other places where it will prevent dirt from sticking to the floors. In recent years so many dolls and other "stuffed" toys have been made, that the sawdust is used very extensively for this purpose also. It is a fact that there are five hundred sawdust merchants in the city of New York alone, and that they sell what is generally called waste to the value of $2,000,000 in a single year.

FOU RHUNDRED ARTICLES.

Since the slaughter of cattle, sheep, and other animals on a large scale was begun at the abattoirs in America, France and other countries, the valuable articles and compounds which have been made from dead animals is really amazing. In some of the American abattoirs the carcass of a single beast may enter into no less than four hundred different articles, ranging from the beefsteak for the family table to the buttons sewed on the family clothing. Parts of the animals formerly discarded go into medicines, oils, soaps, brushes, and combs, mirrors, household necessaries, such as handles for tools, leather for harnes and luggage covers. Even the teeth are fashioned into studs and buttons. A list of the slaughter-house by-products which are now utilized for commercial purposes, includes hair, bristles, blood, bones, horns, hoofs, glands, and membranes—from which are obtained pepsin, thymus, thyroids, pancreatin, parotid substances and suprarenal capsules—gelatine, glue, fertilizers, hides, skins, wool, intestines, neats' foot oil, soap stock, glycerine from tallow, brewer's isinglass, and albumen. Albumen is obtained from the blood of slaughtered animals and is used by calico printers, tanners, sugar refiners and others. The bones coming from cooked meat are boiled, and the fat and gelatine which result are used, the former to make soap, the latter for transparent coverings for chemical preparations, and for other purposes. The uncooked bones are used in a variety of ways. From the bones of the feet of cattle are made the handles of tooth brushes and knives, chessmen, and nearly every article for which ivory is suitable. Combs, the backs of brushes and large buttons are made from horns, which are split and rolled flat by heat and pressure.

"JAPANESE ART OBJECTS."

Hoofs are utilized according to their color. White hoofs are exported largely to Japan, to be made into various ornaments and imported back as "Japanese art objects." From striped hoofs buttons and horn ornaments are made; while black hoofs find service in the manufacture of cyanide of potassium for the extraction of gold, and are also ground up as fertilizer. From the feet neat's foot oil is extracted, and from various other portions of the body various other oils, all of which are valuable. Substitutes for butter, such as butterine and oleomargarine, are made by utilizing the fat of beefs and hogs.

In the textile industry the making of value out of waste has been truly remarkable. In the modern woollen factory no fewer than five products are obtained by methods now in vogue, from the greasy excretions which, after circulating through the animal's system, attach to the wool of a sheep. These products are used as a base for ointments and toilet preparations, for dressings for leather, as a lubricant for wool and other animal fibres, and in conjunction with certain lubricating oils. At one large plant more than 200,000 pounds of wool are "degreased" every ten hours. From two millions to three million dollars' worth of wool fat and potash are estimated to have been wasted during a year in the United States before the solvent process of extraction came into general use.

NO WASTE ALLOWED.

In the industries of cotton manufacturing and cottonseed oil making, scarcely anything is allowed to go to waste. For many years the seed of the cotton plant was regarded as without value; now the cotton-seed crop of the United States is worth about one-fifth of the total cotton crop of the country. Among the principal uses of cotton-seed oil are its part in making lard compound and white cottolene, both valuable food products. Cotton-seed oil is also used as a substitute for olive oil, by soapmakers in the making of soap, by bakers and also in the manufacture of washing powders.

The leather industry is equally saving in the matter of wastes. In the tanning of leather, there are developed as side products scrap and skin, from which glue is made; hair, from which cheap blankets and cloths are manufactured, and waste liquors containing lime salts. By means of a special apparatus, scraps of leather are converted into boot and shoe heels, inner soles, etc. What is called "shoddy" leather is made by grinding the bits of leather to a pulp, and then by maceration and pressure forming them into solid strips.

CONCRETE FROM DIRT.

But perhaps the most wonderful way in which what we have called ordinary dirt has been made a most valuable agent is in the making of concrete.

It is needless to say that what is really concrete all comes from the ground. Even the cement lies in deposits here and there in the earth and is made ready for use by a very simple process. Mixed with sand which is to be found so abundantly, then combined with crushed stone or gravel, it is only necessary to pour a little water over the compound to create the liquid stone with which the builders are performing such marvellous exploits. Concrete is not only being fashioned into great bridges and monuments, but is being moulded into enormous hotel and other buildings. It forms the linings of huge tunnels and sewers, it is so massive and solid that it is used for great foundation blocks, yet in every case it is a mixture of four of the most common elements known to us—sand, cement, stone, and water.

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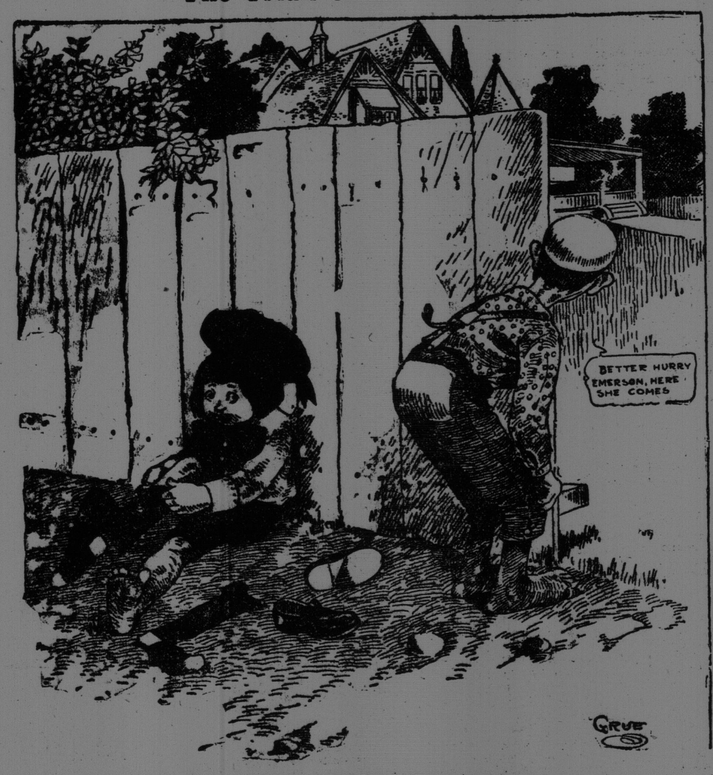
HALIFAX, N.S., May 31.—The death of Rev. John Chisholm, one of the most widely known and highly esteemed priests of the diocese of Antigonish, occurred at the Cottage Hospital. His death was not unexpected as the fatal nature of his malady was known for some time. Father Chisholm, who was in his seventieth year, was a native of Antigonish.



## The Trials of the Rich Kid.




CAN'T NEVER GO BAREFOOT NOR NUTHIN'.

# CASE AGAINST BAYNE COMES UP THIS WEEK

TRURO, N. S., May 31.—The supreme court with Chief Justice Townshend on the bench will commence here tomorrow. One of the cases to be brought before the grand jury is that of the King against A. R. Bayne, the notorious election case in which choice tomatoes were a leading feature.

The suspects arrested in connection with the Canadian express office holdup have been remanded till Wednesday afternoon at five o'clock. The closest surveillance is now kept over the men, and no one is permitted to see or talk to them except their counsel.

# FOUR TOSSED INTO THE SEA

REXTON, N. B., May 31.—Capt. George Orr of Jardineville and his brother-in-law Stephen Alexander, who sail the schooner Champion, had a remarkable experience in going from here to Charlottetown, P. E. I., on Sunday last. When passing Indian Point they noticed a small boat containing four men capsize and throw its occupants into the water. Capt. Orr at once hove his vessel to and with great difficulty managed to keep her under command while his comrade bravely lowered a boat and went to the rescue of the drowning men.

The wind was blowing strong at the time, and Mr. Alexander reached the men with no little difficulty. The boat which capsized was a small, round-bottom punt belonging to a barkentine which was loading at Summerside, and all four men were supposed to be sailors. When the boat reached them they all grabbed for it and almost upset it also, but finally they were gotten on board and transferred to the schooner.

Captain Orr is 60 years of age and a native of Jardineville. He has followed the sea for 42 years, and in that time has had many remarkable experiences. Mr. Alexander is a native of Liverpool, England. Both certainly deserve great credit for their bravery.

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ST. JOHN'S, Nfld, May 31.—The British warship Brilliant and steamers Bonavista, Wasis, Almeriana and Bratsburg are held at Bay of Bulls by the ice blockade off Cape Race. Conditions to th nortward are equally unfavorable, ice floes blockading the entire eastern coast.





# "EARL GREY A GREAT RULER."

Under the title "A Great Ruler," Thorpe Lee writes as follows of Earl Grey in the London Daily Mail of May 6th:—

An old politician who had lived his life in close touch with great events, and thereby gained wide and deep experience as a student of mankind, was once asked what quality seemed to him to be most necessary to a great man.

He closed his wise old eyes for a few moments and thought. Then he opened them and said: "Faith." The answer surprised several of the little knot of listeners grouped around him, but no one who had examined the characters of great men can doubt that it was profoundly true. All who have left their mark upon the world's history have had implicit, unquestioning faith. Some believed in God, some in a cause, some in a country, some in themselves. But all believed with a fervent certainly in something. "Without faith ye can do nothing." That explains why our modern politicians get so little done. To the great man, however, another quality is indispensible besides faith. That quality is enthusiasm. It is no use believing unless there is behind belief a force which drives the believer on to translate his ideals into realities. No man was ever great who hid his faith under a bushel. The "vision splendid" would be wasted upon a dreamer who made no effort to bring down something of its rare and stimulating beauty into everyday life.

FAITH AND ENTHUSIASM.

In how few men are these qualities of faith and enthusiasm united! How timid our politicians are for the most part; with what hesitating voice do they speak — hedging, qualifying, always leaving a loophole for escape! Besides these a man like Earl Grey stands out a heroic figure, a giant, a real man among a collection of waxworm figures. He has faith and he has enthusiasm. He believes in the British Empire.

In England, before he went to Canada five years ago, there were some who estimated Lord Grey at his true worth. They saw what he had done for such causes as co-operation, garden cities, and public-house reform. They had heard of his unconventional rule in Rhodesia, where, as Administrator, he was ready either to listen or to talk to all comers, and received them usually in an airy costume consisting of flannel shirt and trousers with a slouch hat. They knew he was a strong Imperialist and at the same time a convinced Social Reformer, a combination equally desirable and rare. But it was left to Canada to bring out the greatness of the man who went in 1904 to be the Dominion's Governor-General; and it is Canada which has taught us over here in England to appreciate one of the finest Englishmen of our time.

MOST POPULAR GOVERNOR-GENERAL.

Never has the Sovereign's representative in the Dominion been more universally popular. He is liked because he "puts on no side." He is respected because he is a man of business with actual experience of affairs, and can meet Canadian business men upon their own ground. He is trusted and admired by reason of his sympathy (not mere lip sympathy) with every good work. He is held in the highest honor because he understands the Canadian attitude, and because he expresses, in words which thrill and burn with passionate sincerity, the ideal of a British world-State in which Canada shall play a leading, if not the leading part.

"I regard the British Empire," he said at Winnipeg recently, "as the most potent instrument that has ever been fashioned or conceived by man for spreading the blessings of equal rights and impartial justice, of Christian service and true chivalry all over the earth." We in our sneering, cynical way, may smile at such enthusiasm. But the Canadians are a young and a healthier race. They recognize in Lord Grey the faith that can move mountains, as well as the simple honor and straightness which made the Archbishop of Quebec say of him that "no one could have set a finer example in the performance of Christian duty, both in public and in private life."

And when Lord Grey looks forward to the day when Canada shall have her proper representations in an Imperial Council, when he speaks of the approaching establishment of a system "under which the self-governing units of the world-embracing British Empire will have the attributes and privileges of a full and equal citizenship," then Canadians feel that at last they have among them a statesman indeed.

A STUDENT OF SOCIAL PROBLEM.

Curious to look back now and recall Albert Grey's first appearance in politics as a Liberal. It was in 1878 that he entered the House of Commons, but only to remain in it for a few minutes. He and his Conservative opponent polled the same number of votes. As the returning officer refused to give a casting vote, they both presented themselves at the table in the House and demanded to be sworn in as M. P. However, a scrutiny was ordered, and the seat went to the Conservative. Two years later Mr. Grey was elected without any doubt. Then he was twenty-nine, a young man who had done well as Oxford; who had married the great heiress, Miss Holford; who was heir to his uncle's peerage; who had the world most comfortably warmed for him without any effort of his own.

But warmth and comfort were not what he wanted. His energy demanded work, adventure, experience. At first he plunged into social questions at home. Now he would be presiding at a co-operative congress; now pushing a plan to beautify railway embankments; now lending his support to one of General Booth's schemes. One day he was granted a license for a public-house on his estate. Next day he found he could sell the property, if he chose, for £10,000. The monstrous absurdity of it struck him. He became the untiring advocate of public house trusts. For a time this occupied him; then he began to pine for a wider field. He found it through the agency of Cecil Rhodes. Rhodes wanted someone to help him in obtaining a charter for Rhodesia. Lord Grey (he had succeeded to the title in 1894) was just the man. Afterwards he became administrator and a trustee under Rhodes' will.

When the governor generalship of Canada was offered to him he was not particularly anxious to go, but it was a great opportunity; and as soon as he had accepted it he began to see what work for the empire he could do. The speech he made at a dinner given to celebrate his appointment simply sparkled with ideas. There was in it none of the solemn portentousness which is usual in pro-Consular utterances. The Canadians very soon took to this modern Don Quixote, this unusual Englishman with the Irish eyes and none of the English stiffness. In five years he has made himself a great name. And now he is to retain his office for a further year instead of returning to England at the end of the present one.

His faith and his enthusiasm have carried him far. Will they carry him further still? Perhaps. His grandfather eighty years ago led in the fight for democratic reform. What a leader he would be for the party which is slowly forming, to sweep away political shams and abuses, to make the empire a reality, to combine imperial unity with social reform!

FROM MARY'S COOK BOOK.

To keep milk toast from becoming soggy serve the boiling buttered milk in a covered pitcher, so that each one may pour it himself over his toast.

To make delicious bread muffins—Soak one pint broken bread in a pint of milk for half an hour. Add a tablespoonful of melted butter, the yokes of two eggs beaten light, a teaspoonful of salt, and a cup and a half of flour sifted with a tablespoonful of baking powder. Lastly fold in the whites of eggs, well beaten, and bake in small rings or pans in a hot oven.