

NOTHING IS WASTED:

VALUE OF CAST-OFF THINGS IN INDUSTRIAL WORLD.

The Means of Utilising Articles that Formerly Went to Waste, Provided by Science, Result in Great Profit—Some Things Worked Over.

Little is wasted in the industrial world. Men of science are ever at work tearing by-products and waste material to pieces, to regroup the elements into new material which has a commercial or industrial value.

Old iron is worked over into new iron. Linen rags are reincarnated and live as paper. Woollen rags are shredded and made into shoddy. Bones are made into bone black, to clarify sugar syrup. Old rubbers, bits of garden hose, exploded bicycle tires and any castoffs in which rubber is a part are made over into new rubber. Worn steel rails are rolled into lighter sections. Old rusty pipe is drawn down into bright new pipe. The tin cans which are gathered up in alleys and from garbage boxes are melted down and cast into window sash weights and counter weights for bridges.

Rags and old carpets are cut into strips and woven into handsome rugs. The list of old castoff things that are rescued from ash piles and garbage dumps to be born again can be extended for columns, and the list would never cease growing, for every day some new use for some wasted product is discovered.

There was a time when tons of blood, fresh from slaughtered cattle, flowed unheeded through the sewers under the stockyards in Chicago. To-day this blood is saved, put through several processes and comes out as a fertilizer or in the form of cakes, which are sent to sugar refineries to assist in clarifying the sweet liquor. Some of the handsome buttons worn on new dresses once ran as warm blood through the veins of fat steers.

Heat and hydraulic pressure are the agents which separate the water from the albumen in the red fluid, and prepare the dried blood for the pulverizing process which fits it for use as a fertilizer. After being boiled down, pressed, crushed and ground to a powder, the dried blood is mixed with potash and phosphoric acid and sent out as a complete fertilizer.

Shoddy is a useful product of waste material. It is never used alone, but in combination with new wools. The woolen rags from which shoddy is made are first thoroughly dusted by machinery before they are sorted. Any cotton which may be in the rags is got rid of by dipping the rags in a boiling mixture of sulphuric acid.

Long experience has demonstrated the exact proportion of the acid required to eat out the cotton fibers without destroying the wool. The effect of dipping the rags into the water and acid is to rot the cotton so that the woolen part of the fabric falls to pieces easily. After being dried the rags are run through a machine that removes every bit of dust, leaving the pure, clean wool. The woolen rags and cloth are dyed, and then run through a machine whose thousands of steel pins not only shred the rags, but split the threads so that the rags which enter the machine leave it in the form of wool fibers.

The wool is put through a carding machine, which thoroughly combs out the woolen particles, mixes them and turns them out in the form of long fluffy rolls, which are packed in bales ready to be shipped to the woolen mills, where the shoddy is mixed with new wool.

While woolen rags are sent to the shoddy mills, flannel rags naturally start from the ragman's store room to the paper mill, whence they issue as fine linen paper.

The "old iron" which forms half the burden of the ragman's song is the basis of a business whose output is valued annually in millions of dollars. Every piece of old iron, wrought or cast, rusty or clean, can be utilized. The old cast iron is sent to foundries and puddling furnaces, the old wrought iron, bars, sheets and plates, is sent to the rolling mills. Cast iron sent to foundries is remelted with pig iron, and begins a new life of usefulness under new forms and shapes. The wrought iron goes to the scrap piles in rolling mill yards.

A profitable business has been found in the re-drawing of old iron pipe and boiler tubes. Most of this waste material is thickly covered with rust when it arrives at the factory, and the rust is removed by the simple process of heating the old pipe to a cherry red and plunging it into water. The sudden contraction loosens the rust scales, and the pipe is sent to the heating furnace clean and bright. A good welding heat prepares the pipe for the re-drawing process. This consists in pulling the white hot pipe through a die, which not only reduces its diameter but makes it solid. It is heated again and drawn through a smaller die, and the process is continued until the pipe is down to the required diameter. Then the new pipe is straightened and is ready for the market.

It was not so many years ago that the coal tar which is produced in the manufacture of gas was regarded as a waste product, and something of a nuisance of that. But the chemists and experimenters got hold of the stuff, and their manipulation has made of it an exceedingly valuable by-product. This coal tar is a marvelous material. From it come beautiful dyes, soap, kerosene, benzene, naphthalene, creosote, and many other things.

"TREE OF THE DISMAL NIGHT."



On June 30, 1520, Hernandez Cortes, fleeing with his troops from the City of Mexico along the old Aztec causeway of Tlacopan, passing the spot known to this day as "The Loop of Alvarado," (Pedro Alvarado, one of Cortes' captains having there saved his life by his agility, crossing numerous waterways, losing in his mad flight the priceless jewels and treasures of gold and silver confiscated from the natives, arrived about midnight at the village of Popoda, situated seven miles northwest of Mexico, where he hid at the foot of the giant cypress, the "Arbol de la Noche Triste" (tree of the dismal night), passing the hours in weeping. This tree is unquestionably the oldest living historical landmark on the American continent. Notwithstanding the march of civilization has changed materially all ancient conditions about the "Noche Triste," nearly 400 years having elapsed since that memorable night, we hear to-day the same tongue spoken, see the descendants of the same people passing to and fro in their picturesque garb or resting beneath the shade of its spreading branches, as did the great conqueror in those early days of conquest. Standing, grand, sublime, in its garbled strength, the "Noche Triste" is an imposing historical object. Who can foretell the future races destined to avail themselves of its protecting arms, who write the history of their achievements on life's immortal scroll?

stryers, and saccharin, the sweetest substance known.

The scores of chemicals obtained from coal tar are produced through a process of distillation which is almost perfection. For instance, when the tar, after the tar water—strong in ammonia—has been drained off, is heated in a tank that serves as a still to a moderate temperature, say 105 degrees, benzene is produced. When 100 more degrees of temperature have been added, other light oils appear, and then comes the carbolic oil from which carbolic acid is made. Cresosote is given off at a little higher temperature, and then comes anthracene oil, the "raw material" of many products.

Some of the well known drugs which are secured from the several distillations of coal tar are antipyrine, phenacetine, sulphonal, antifebrin and acetanilid. Saccharin, which is almost 300 times sweeter than cane sugar, is a tar product.

Colors and dyes of every tint and hue are made from this one-time waste product. Aniline, one of the best known of the tar products, was discovered as far back as 1858, and when it was learned that from aniline beautiful colors could be made a new world of investigation was opened to chemists, and since then every color that can be produced by vegetable or animal matter has been made from coal tar.

TOURING BY LABELS.

Enterprising Philadelphia Covers "Luggage" with Proper Tags.

In Philadelphia an enterprising individual finds a brick trade in furnishing labels for travelers' trunks and valises, so that when a piece of baggage is finally turned out of his shop its owner has apperdy indisputable documentary evidence that he has toured the world or such part of it as may have seemed fit. The convenience of this method of travel, it will be seen at a glance, fits in very well with the American idea of saving time, while as for money it of course saves large lumps. Thus you can go out and hide in the country somewhere at \$5 a week until the proper time and then reach town in travel-stained clothes, coincident with the arrival of some steamship, with a trunk packed all over with labels showing where you have been.

The trunks will be marked "Hotel" and the smaller pieces of baggage—by this time you will be calling it "luggage"—will be marked "Cabin." And as you gaze on these labels you will of course become reminiscent of the little Swiss hotel (see that label down in the corner) where you met the Prince So-and-So; the P. and O. steamer, where you encountered the British nobleman who turned out to be a distant connection; the hotel in Egypt—see any guide-book—where you met the swell American girl from Oshkosh, Wis., and so forth and so forth ad libitum, according to your imagination.

While cheap enough, however, this method of travel is not without some slight expense. The labels must be well paid for, because the laborer will tell you that all his wares are genuine and it is no easy thing to get such little pieces of printing from far-away hotels, railroad stations and steamboat offices, and you see at once that he is right.

Indeed, if you have any of the sophistication that travel ought to give you, you will suspect that many of the labels offered you are made on the spot and you have an uncomfortable feeling in being pasted for an entire route that some of the hotels named on the labels do not exist or that their locations may have got mixed in a way to confound you some time when you may be at the very best point in your reminiscences. This suspicion is rather increased, says the Philadelphia Times, by the curious fact that a tour of Cuba cost more than a less popular tour of the same extent in Europe, and you wonder if it is not because the Cuban labels are too well-known to be bogus.

MEAT AND VEGETABLES.

Men Should Eat Greater Variety of Food.

Let it not be assumed that the shortness of the meat supply and the high price of steak is an unmitigated evil. On the contrary, it is a probable blessing. If meat could be raised to a price that would make it prohibitory it might still be of good result, because it would reach those who depend entirely upon it to widen their dietary and learn to enjoy many good things of which they are now ignorant.

To many, especially in the cities, there are only three foods—meat, potatoes and bread. The weary monotony of this program, the unsatisfied longings for a widening of it, affect the appetite and surely affect spirits and temper. The laborer goes to his work filled with meat, potatoes and bread. At noon he finds cold meat and bread in his dinner pail and at night he is confronted by meat and potatoes, sometimes separate, sometimes combined into a greasy stew, sometimes chopped into hash. This kind of thing fills him, but in a finer sense it can hardly be said to feed him. Physicians have discovered that a limited and unchanging diet lowers vitality and health.

At such a time as this, there is a chance to find what things the world contains which are at least as digestible as beef. There is a wide range of sea food, farinaceous products can be served in a hundred forms, as well as bread, and as to vegetables, how seldom does the housekeeper give a trial to them.

A hearty and sustaining meal can be made from a vegetable soup, followed by potatoes, onions, turnips, parsnips, egg plant, with two or three kinds of bread; then by asparagus, spinach or dandelion, afterward by a fresh and cooling salad, as of lettuce, cucumbers or tomatoes; then by cheese, pudding, fruit and coffee.

Meat eating is largely a habit, says the Brooklyn Eagle, and to some persons it is a habit acquired with difficulty. If to vegetables, fruit and constructions made of flour and sugar are added eggs, butter, cheese and milk, a range of diet becomes possible that makes one independent of animal food. It can do no harm to those who consider themselves the gainers in health, as well as in pocket.

Let a girl rave about romantic poetry, if she likes; in a few years she will care for none but that with a nursery jingle, suitable to say for a "speech" in school.

THE POPULAR PULPIT



PROSPEROUS YEARS.

By Rev. Daniel H. Overton

If they hearken and serve him, they shall spend their days in prosperity and their years in pleasantness.—Job xxxvii, 11.

We have here in the text the conditions laid down for prosperous days and pleasant years, and we notice, first, why conditions are necessary.

Nearly everything that is good is conditioned. We fulfill the conditions and we get the good. The greatest and best promises of God have an "if" in them that concerns us. We take care of the "if" and God takes care of the fulfillment of the promise.

There are some blessings that are for all without distinction. God's rain falls and his sun shines upon the just man's field and upon the unjust man's as well. But there are other blessings that come only to the just man, and which the unjust man misses altogether because he does not fulfill conditions. It is well for us to learn this fact, and to have it so firmly fixed that it shall not escape us. Things do not go by chance and haphazard even in this old world, which seems sometimes so badly out of joint. Things go and come by law, and the law of their coming or going can be quite definitely fixed. Effects argue causes and causes produce effects. The seen leads us back to the unseen, and the unseen becomes real in seen results.

Prosperity is not a fickle, capricious dame, as she is often pictured to be, who smiles on a few and frowns on all others. She has smiles for all if only they know it, and know how to win them. All seek her smiles, but they do not know how to win them, and many turn smiles into frowns because they do not know how to use them.

Prosperity is a product of firmly fixed and knowable laws and conditions. Those laws known, those conditions fulfilled, prosperity comes to man or nation, and it is for all who will know, follow, or fulfill laws and conditions. What makes these years prosperous years in our nation? They are not by chance. They can be traced to well-known causes, and to fulfilled conditions. Fertile fields? Yes, but to fertile fields well tilled. To tariff laws fixed for the time at least, and to confidence in all lines of business, born of confidence in government. When for any cause there is a lack of faith in the honesty and permanency of government or in our national policy, confidence departs, and business becomes dull and fortune frowns instead of smiles.

Happiness is not happiness. Happiness does not happen. It is not a gaudy toy that we get by a blind grasp from the world's grab bag. It is a resultant of fundamental forces and fixed functions. It is born of holiness, and it is not something for the few, but for all those who will seek it in the right way.

Holiness is a condition of happiness, and if a person seeks to be holy he will have all the happiness that is good for him. I know that it is true that all are seeking happiness and few are finding it, but it is not because happiness is a "will o' the wisp" or a false fire along life's way. It is because the many are seeking it where it cannot be found, and trying to get it in ways that cannot produce it. They are trying to be happy without "trying to be holy," and happiness does not grow on that tree. The eternal law of happiness and the one great condition is holiness. Who seeks holiness is happy.

Success—the highest, best success—is not the laurel wreath or crown for the one winner, and won only by the genius, the talented man. It is within the reach of all who will fulfill the conditions of the race and run his best for the prize. Every man cannot win what the world calls success, but every man can win success if he will. What is success? What is the greatest, highest success? It is the making of this life the fittest beginning of the endless life. Who does this succeeds. Who does not do this fails. But I claim all can do this. It is in the reach of all if they will fulfill the conditions and carry out the law. I say this, too, well knowing that the many are failing and the few succeeding, but real success is nevertheless within the reach of all who are willing to have it and get it in the right way.

With these thoughts in mind we are not at all surprised to find our text starting out with an "if." We are not surprised to learn that prosperous and pleasant years are conditioned. They are results of certain causes. They come by fulfillment of certain conditions. I believe the years should be prosperous and happy as they pass. I believe God intends that they should be, but I know that he has conditioned their prosperity and happiness, and that we must fulfill these conditions to get the prosperity and pleasantness. What, then, are the conditions?

First—Attention to God. "If they hearken." We must hear and heed God's voice speaking to us day by day and year by year. That year is most prosperous which is most full of God. Time is most important and rich when it is most full of eternity and of eternal things. The world is full of God. "The heavens declare his glory," etc. "The whole round year is full of him." He is calling us in the common things and common tasks of life, as he called Moses to do a great work for him. We must hear and we must heed if we would succeed—if we would succeed with the best success. Attention is the great condition of prosperity and success in all walks of life. No man succeeds without attention to his task. No man can have success in Christian work without attention to God.

Service is the second condition of prosperous and pleasant years. "If they will hearken and serve him." First, the call of God to the task, then the task. First, the call of God to service, then the loving, loyal service. We are here to serve. "If any man would be great among you let him serve."

Good works are important everywhere. They are nowhere more important than

in God's kingdom. I believe prosperity, happiness, success is conditioned on service more than on anything else. There is no genius like the genius for work. The men who are succeeding are men with the talent for toil. This is true in the world's work. This is true in God's work. Attention and work—these are the conditions for prosperity and pleasant years. Would we have prosperity and pleasantness as the years come and go? Let us attend unto God, let us serve him in sincerity and truth.

GREATEST OF MIRACLES.

By Rev. A. H. Stephens

The gospel of Jesus Christ has filled the world with wonder and amazement at the things that have happened. The day of its experimental stage has long since passed, and it is now part and parcel, warp and woof, of the life of the best civilizations on the face of the earth. Its sacrifices, its benevolences, its trials, toils and triumphs are written upon the pages of the most enduring history.

Its inception was recognized as a miracle by its founder and His earliest followers. One of them says that His apostleship "was not of man, neither by man, but by Jesus Christ and God the Father." No Christian can with impunity come short of the Pauline conception of the source of power. The healing of a crippled man filled Jerusalem with wonder and astonishment. It was indeed a large miracle to heal the body, but it was a larger miracle to heal the soul. It was beautiful and blessed to cast out evil disease, but it is more blessed to cast out evil spirits.

This gospel is also a miracle in its expansion. No man can account for it on the basis of the natural. The weapons of its warfare have never been carnal, but they have nevertheless been mighty through God to the pulling down of strongholds.

With its message of peace and of truth it has supplanted some of the most ancient of the paganism. Its founder told His followers that they were not qualified to become witnesses of His truth until a peculiar, divine, but real, power had come upon them. After that they could with promise of success bear His truth to the uttermost parts of the earth.

This gospel is miraculous, not only in its inception and expansion, but also in its victories. The victory that overcomes, that comes over the world is faith in its divine Head, coupled with the activity that strong confidence always brings.

The largest miracle of to-day is what God hath wrought. Evil prophets in all the centuries have arisen to predict all sorts of dire disaster, defeat, extinction, annihilation, but the old truth goes grandly on from conquering to conquering, ever winning fresh victories and gaining fresh laurels, in the face of the world, the flesh and the devil.

It has infused itself into the young blood of the nations, and its tide of enthusiastic service among young people is rising higher and higher. This gospel has been the foster mother of every reform, of every charity, of all progress. It has been the friend of the lowly and of the oppressed, its teachings have become the basic principles of the administrations of civil governments, and with its benedictions Presidents have been inaugurated and Kings have been crowned. Verily, we behold the colossal miracle of the ages—a Christian civilization.

WORLD OWES POOR A DEBT.

By Rev. R. Keene Ryan

The only sure basis of social advancement is the progress of the common people. In days gone by philosophers and leaders argued that the only way to elevate the toiling multitudes was to strengthen and elevate the patrician classes, exalting to leadership the sons and relatives of geniuses and generals. With the coming of Christ a new and better epoch was ushered in. From the moment that Christ came preaching the "gospel" and the reign of the common people, the generations felt a new impulse and passed under a new influence.

From peasants' coats and workmen's humble patched homes have come great artists like Correggio, Corot and Millet, and musicians like Mozart, Mendelssohn and Beethoven. The history of invention and mechanical science is one of the most tragic this old earth contains, because it is wholly and entirely composed of "The Annals of the Poor."

From the ranks of the pampered rich and the arrogant patrician classes has come no single instance of invention that has alleviated any suffering or ameliorated any of the intolerable ills of humanity.

From the poor have come the great inventors like Watt, Stevenson, Edison, Bell, Berliner, Morse and Fulton. On sea and land the victories achieved in man's awful havoc have been all won by the humble and honest, the brave and the gallant sons of toil. In science and in medicine, in astronomy and education, the discoverers and heroes have ever hailed from the ranks of the humble poor.

"God must love the poor," said Abraham Lincoln, "because He created so many of them."

Then I pray this prayer: Godspeed to every church in the world to-day, to every labor union, to every organization of any kind in existence anywhere whose ultimate aim and object is the amelioration of sin and suffering, the elevation of morals, advancement of education, relieving distress, visiting the sick, burying the dead and caring for the orphans, the aged and infirm.

SERMONETTES

Awaited by the Grace.—When we came into the world we were awaited by the grace of our Lord Jesus Christ. The divine purpose and grace was given to us.—Rev. J. Herron, Presbyterian, Akron, O.

Perfection.—The idea of perfection depended on the definition which is given to the word. In order to be successful the young man must be energetic and persevering.—Rev. Dr. Patton, Presbyterian, Princeton, N. J.

Labor World

There are 244 establishments, employing 9,880 glove-makers, in the United States.

The executive council of the American Federation of Labor recommends mass meetings on Labor Day to protest against the injunction abuse.

One of the strongest organized national bodies of labor in the United States is the Brotherhood of Carpenters and Joiners. Its annual convention will be held in Atlanta next September.

The Brotherhood of Painters, Decorators and Paper Hangers of America issued eighty-three charters for the quarter ending March 31, 1902, making the total number of locals under its banner 621.

Baggage smashers of Chicago have organized and the next thing will be union labels on freight and baggage to insure safe transportation. The union has formally affiliated with the National Brotherhood of Railway Employees.

President Buffington of the Illinois Steel Company in announcing a 10 per cent increase of wages for the workmen employed at the Joliet mills said that the action of the management is "in recognition of the advanced cost of living."

From the first of the year up to June 10,000 Japanese laborers had been sent to Hawaii. It is reported that advices have been received from Hawaii to the effect that no more emigrants should be sent for the present, as there are fears of the emigration act being enforced.

The South is keeping up with the procession of trusts. A combination of cotton yard mills is being organized with a capitalization of \$9,000,000. The object is to fix prices, regulate production and float trust bonds in New York and New England while the fever for such investments is on.

The work of organizing the retail drug clerks of Baltimore into a union to affiliate with the Federation of Labor has begun. It is said that Baltimore and Philadelphia are the only two large cities in the country where the clerks are not organized. An eight-hour work day will be demanded by the union.

The striking machinists of the Allis-Chalmers Company at Chicago returned to work. They gained about 4 per cent increase in wages over the amount offered by the company before the strike was inaugurated. Under the terms of the settlement the men will work ten hours except Saturday, when they work five hours, making a fifty-five-hour week. The union has paid out \$55,000 in strike benefits, suffering has been endured and human life sacrificed. The company has returned to a ten-hour day, but this condition is likely to be temporary.

ACCOUNTED FOR HIS PLANK.

Stogie Man Tells a Story of Those Who Seldom Speak Truth.

"Speaking of liars," began the stogie man, lighting his abominable at the lamp on the end of the cigar counter, when the man with the checkboard trousers, who stood next to the meek man in the "line-up" murmured sotto voce:

"And we weren't saying a word about him when he came in!"

The meek man choked, but the oracle, having obtained his light, walked majestically down the room and took up his usual position, not deigning to glance in his interrupter's direction.

"Speaking of liars," he repeated, "about the coolest and most refreshing member of that profession was a fellow of rather doubtful reputation who used to live in the town where I was born. He was on his way home one night and came across a pile of planks [which for some reason had been unloaded before Deacon Skillings' door. Deacon the deacon was building a new shack of some kind.

"Well, anyhow, the fellow couldn't resist the temptation to appropriate one of those planks to his own use—a plank comes in handy any time, except after election; then we try to forget 'em."

"Political jokes taboored!" remarked the broker's clerk, but the stogie man went on:

"He couldn't go through the village with the board, so took a cut across the fields. By and by, in the dark, he wandered into a bog hole and sank waist deep in the mire. The more he struggled the deeper he sank until, getting scared, he yelled blue murder, and the deacon, who was out hunting a stray heifer, heard him. The old man, who had labored out and again with the embogged citizen, re-down with a lantern.

"'Wal, Jonas,' he said, eyeing the man and the plank suspiciously, 'what does this mean? How in the name o' goodness did you come here?'"

"'Wfey, deacon,' said the erring one, 'I was in such a hurry ter git him that I cut across lots, an' got inter this 'ere bog. Th' more I tried ter pull myself out, th' deeper I got in, an' finally I went back ter the road and got this plank ter see if I couldn't get myself out with it!'"—New York Mail and Express.

Whenever a woman is alighted, and doesn't get invited to a picnic, she wonders if it is her duty to ask the Lord to send rain for the crop.