

## WEALTH FROM RUBBISH.

"DUST-HO!"



"DIRT," said Lord Palmerston, some years ago, "is simply matter in the wrong place." Modern chemists and speculators, taking the saying to heart, have for a decade or so bent all their energies to getting rid of the obnoxious epithet by putting matter in the right place, when, instead of dirt, it becomes

gold. Copying nature, which knows no waste and ignores the term "useless," man has begun to find that everything, however unsavoury or obnoxious in itself, yields, under proper treatment, that which is useful and beautiful; and consequently the rubbish that formerly floated down our rivers, was cast into the sea, shot into waste ground, or increased into ugly mounds, disfiguring the landscape, is analysed, re-constructed, and sent into circulation in other forms, and under new names.

We are all familiar with the London dust-cart and the lugubrious cry of its attendants, who, coated with a light-brown layer of the material in which they are continually dabbling, make the quiet streets and suburbs echo with their loud and prolonged roar of "Dust-ho!" But many may wonder what becomes of all the material these vestry servants collect, and where the hundreds of cartloads collected in the metropolis daily are bestowed. Formerly each vestry had its dust-contractor, who, for a given sum annually, undertook to remove from street and dust-bin everything likely to create a nuisance; but when these dustmen began to grow golden, the eyes of the vestries were opened, and instead of paying they put up to auction the privilege of removing the valuable rubbish; and more recently, finding the utilisation of street-sweepings and the proper distribution of the contents of the dust-heap meant reduction of the rates and general popularity, some vestries have become their own dust-contractors, and in those districts the rate-payers reap a very sensible benefit. In former years, it was quite a common thing to see in outlying pieces of waste ground a warning fixed to a post, "No rubbish to be shot here;" but now, if one comes across such an empty space, very likely he may observe an intimation displayed to induce those who have useless rubbish to place it there. The teaching is obvious. The dust-bin and the rubbish-heap have been found to constitute a mine of wealth, and the smart land-

owner is willing to be enriched by his less sensible neighbours.

Whether the dust is taken by contractors or utilised by the vestry in which it is collected, a large open space is needed for its collection. As each cart comes up with its uninviting load, it is directed to a given spot, where the contents are tilted into a separate heap, to be dealt with by a class of persons who have their counterpart in what were formerly known as the "rag-pickers of Paris," or those ragged and solitary individuals called in Scotland "midden-rakers." They are of both sexes, and though the occupation at first sight might appear unhealthy, some veterans in the profession have assured us this is a mistake. Ordinary mortals are said to be obliged to "swallow their peck of dust and die," but these "hill-men" and "hill-women," as they are enigmatically called, although obliged to swallow bushels a year, live to a good old age and enjoy the best health. As soon as one cart has emptied itself in the yard a swarm of men and boys at once surround the load, pick out the bones, glass and crockery, whole or broken bottles, nails, scraps of iron, old saucepans, rags, paper, greasy dishcloths, and the thousand-and-one items thrown away by the household as useless. This done, women, each armed with a sieve and a number of baskets, gather round the heap, and while one man remains to assist them, the others rush off to a new one to repeat the operation in which they have just been engaged. The women now hold their sieves to receive each a shovelful of the dust, which they riddle till all the finer particles, consisting chiefly of floor-sweepings, ashes, and coal-dust, have passed through, and scraps of unburnt coal, or larger bits of cinder, with paper, small bones, bits of glass, and other things remain. Each of these is thrown into its proper basket, a fresh shovelful of the heap is taken and dealt with, till the whole of it has been roughly but effectively analysed, when the ladies transport themselves to a fresh cartload, and deal with it in a similar manner.

In most yards the workpeople are paid either by the day or the piece, and the women may earn on an average as much as ten or twelve shillings a week. They have, in addition, the privilege of a "sider" of cinders, coal, and bits of wood, which they either carry home for fuel or dispose of at the yard-gates to those who are poorer than themselves; but these diurnal *honoraria* are worth money, and may, in some instances, add half-a-crown or three shillings to their weekly earnings. Wretched as these labourers may appear, their legs tied up in coarse sacking, their heads covered with some undistinguishable material, and their garments so saturated with dust that it is difficult to say which is flesh and which clothes, to hear them singing at their work, or to see them after their working attire has been removed and replaced by evening dress, and soap and water have charmed the

dirt from face and arms, they look on the whole as if they rather enjoyed living nine or ten hours a day in the midst of "breeze," and took kindly to the wholesale swallowing of dirt.

"Breeze" is the technical term for the small dust that passes through the fine sieves, and, consisting as it does in most localities of a large admixture of unconsumed coal, is a valuable commodity. The brick-makers of the metropolis and the home counties buy it eagerly, and even the builders deal largely in the road-sweepings. The "breeze" is thrown into the interstices between the bricks stacked in the kiln, and when set fire to burns with a dull red heat till the clay is baked into a hard substance. Sometimes it is mixed with the clay prior to its being placed in the mould, to increase the bulk, and at the same time to facilitate the "cooking" of the bricks, so that in reality it may be said that the suburbs are the outcome of the dust-bins of the older portions of the capital, and that what is carted away as useless rubbish is handed back to us in the shape of bricks and mortar.

Bottles, broken glass, and bits of crockery-ware form a large percentage of the contents of every dust-bin. The last-named, with the rest of the "hard core," as the solid ingredients in the dust are called, such as shale, stones, oyster-shells, and clinkers, are used by builders for making the foundations of new streets, laying over drain-pipes, or for forming a solid bottom on which the flag-stones are laid. The whole bottles—mostly those originally bought from the chemist—simply find their way back again to vendors of medicine, and following the hint given by Hamlet in his interview with the grave-digger, one can fancy how one bottle may have had a large and varied experience, and that, gifted by some good fairy with the power of speech, it could tell of strange death-bed scenes, or grow eloquent over its sick-room reminiscences. It is quite possible that the same bottle which originally held some cosmetic for the skin of beauty may at last—through manifold gradations—have become the receptacle for the dose of laudanum which the poor misguided wretch swallowed in frenzy, to get rid of life and misery at one gulp. The broken glass—one of the most indestructible of manufactured products—is simply taken to the glass-house, re-melted, and moulded into new bottles, or spread out into sheets for mirrors or window-panes.

Bones, scraps of iron, nails, hair-pins, broken combs or other articles manufactured from horn or ivory, also take their place among the "hard core" of the dust-yard, and none of them are thrown away. The joint served up hot and appetising at dinner, cold at supper, or in the form of hash a day or so afterwards, has its quota of bone, which, though boiled till it looks more like a bit of lime than anything else, is even then destined to a further career of usefulness. Bones, however, are divided into various classes. There are green bones got direct from the butcher, with marrow, fat, and gristle adhering, which fetch the highest price—sometimes as much as £6 per ton; then household bones, which, taken from the meat, are thrown to the dog or into the dust-bin—worth from a

pound to thirty shillings less; then bones that have been boiled, their value depending upon the time they have been subjected to water; and lastly, bones that have been steamed in potted meat establishments, which are the cheapest of all, because neither marrow nor gristle remains on them after the thorough cleansing they undergo. It will be understood that each class of bones has its particular merchant and its individual history; but as we are dealing with dust-bins, we may discard all but that class known as household bones. The larger bones are used by cutlers for knife-handles, tooth-brushes, combs, napkin-rings, trinkets, and other things; and the smaller ones crushed, ground, or broken, to be carbonised, made into bone-flour, or treated with muriatic acid and spread over the soil as a fertiliser much more productive than guano. Carbonisation is carried out on a similar principle to gas-making. The crushed bones are placed in a retort, where they are subjected to such heat as causes them to give off the gas they contain. As this gas is washed it impregnates the water with ammonia, from which the marketable sulphate of ammonia is obtained. The gas is re-conducted to the furnace, and used as fuel to carbonise fresh bones, while the charred bone that clings to the sides of the retort is a valuable bone-black used by manufacturers. Some bones are treated solely with a view to the utilisation of the ammonia they contain; and in France the "bone-black" is largely used for clarifying beet-sugar. This charcoal, which it has been found will easily "revivify," or yield up the colouring matter in the sugar which it has absorbed, is used over and over again. The bone manure is yearly increasing in favour, and has given rise to a distinct branch of manufacture; and as it has been found that time has no effect upon their nutritive qualities, the whole world, so to speak, is rummaged for bones. Charnel-houses, trenches in bygone battle-fields, even the deserts of Africa and Asia, where the skeletons of defunct creatures lie bleaching in the sun, are ransacked to meet the ever-growing demand. It will, therefore, be easily understood how every scrap that turns up in our dust-bins is cherished by the dust-sorters, and eagerly bid for by merchants. These bones, after proper treatment, go to the farmer, who spreads them upon the hungry earth, which gives them back to man in grass, corn, flowers, fruit, fat cattle, and succulent vegetables. Really, then, the ripe lips which the lover kisses in his ardour may owe their colour to the bits of bone that were picked out of the dust-bin attached to her father's house; the waving fields may have grown from the bones of the Pharaohs; the ripe pears and velvet peaches that adorn our tables, and the fruit we so enjoy in pies and puddings, may trace their juice and sweetness to the dry white skeletons picked up in Sahara. From this point of view, the author of "Jack the Giant-killer" must be set among the prophets, for did not he make one of his monsters say, "I'll grind your bones to make my bread"?—a prediction literally fulfilled in these latter days. Bone-ash is used by silver and gold assayers, as it absorbs all impurities, and leaves the precious metal intact; a product made

from the ash is used by the butler in scouring the plate; and the perfumer's violet powder and tooth paste are for the most part made of bone-ash. Our dust-bins then, it will be seen, are amongst our best friends.

Other samples of "hard core," such as scrap iron, old pans, nails, &c., are used over and over again; and in the streets and on smithy floors are gathered the old nails wrenched from worn-out horse-shoes, which produce the raw material from which the finest gun-barrels are manufactured. The pan the cook threw away the other day is carefully laid aside by the dust-contractor, and when he has a certain quantity of useless household utensils, he sells them to an enterprising gentleman, who melts the solder, collects it, and sells it to the plumber or tinman in bars of lead. The old iron goes back to the furnace, and assumes the shape of new knife-blades and other useful articles.

"Soft core" is the name given by the dust-sifter to such things as paper, linen, cotton, or woollen rags, hay, straw, vegetables, and all substances perishable and soft. The hay, straw, and decaying vegetable matter are sent to the market-gardeners near London, who from them produce next year's potatoes, cauliflowers, kidney-beans, peas, and cabbages. The paper, if white, goes back to the mill, and is returned

to the same house perhaps in packets of superfine scented note-paper. That printed on is cleared from ink, and reappears some day in the last new book, or bearing the name of some morning journal; and the page of CASSELL'S FAMILY MAGAZINE which you are now reading may originally have been picked out from your own dust-bin. Coloured or decayed paper is manufactured into papier-maché, or it may be that the head of the doll with which the dear children are playing was moulded out of the paper that rotted on some dustheap. Cotton rags nearly all go into paper; and the dirty cloths with which the servant wiped the canvas, old stockings, and other scraps of wool thrown into the dust-bin, are sent to the town of Batley, in Yorkshire, whence they return in the shape of tweeds and other cloth to make the boys their last new suit. In one word, the dust-bin is a mine of wealth, and the articles that go to it are always returning, after being used by man, to be re-manufactured, used again, and once more thrown away. The odds and ends in the dust-bin, in fact, are indestructible, and, for the most part, come back to us again and again, transformed, beautiful, useful, acceptable to the palate, and comfortable to wear; and many men have from comparative poverty grown to be millionaires simply by learning the varied uses of its contents.

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### TIED UP IN THE AIR; OR, HANGING THE WRONG WAY.



chance of being whisked off into space, or heavily bumped in his descent, he will ascend in a "captive" one, and so be "tied up in the air" for a time. The risk of the rise is thus infinitely diminished, if not done away with; and yet he will form that fresh estimate of the strength of the atmosphere, in being pushed up by apparently nothing, that a balloon ascent alone conveys. The popularity of the "Captive Bal-

loon" at Paris during the Exhibition will probably result in the provision of others where there are enough people to find custom for them. There was one, indeed, in London some few years ago, but I think it rose only some 1,000 feet, whereas that at Paris has shown that a rise may be had of something more than the third of a mile; and some day we shall see one which will reach a still higher altitude. I went up, as many hundreds did, in the Paris "Captive," and as I had never been in a balloon before, I expected to feel, and felt, a totally new sensation. No mountain-top or edge of a precipice can afford the same view, especially of a city, since there is none with a sufficiently high eminence near it, and certainly none with a standing-place immediately above the heads of its inhabitants. In going up a mountain, moreover, one's progress must be slow, and the perception of more distant objects gradual. The horizon rises step by step, or if any elevated peak is reached after, say, some hours of climbing through forests, the new scene presents itself at the top without any realisation to the climber of the short successive rises which have preceded it. It is not so with an ascent in a balloon. When I had taken my place in the car of the French one, and the thing was let go, the bottom of the middle of Paris seemed to drop out, and the houses to tumble into the crater from all sides. The horizon rose as suddenly,

NY one who desires a new sensation, and wishes to have a wholly different view of his surroundings to that which has presented itself all his life, had better go up in a balloon. But if he shrinks from the danger of a voyage in the sky, dreading the