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CARMELITES OF CALABRIA.

BY DUNCAN M'GREGOR.

PART II.

WHEN one takes monastic vows, he is currently supposed to be thereafter no more a man, but a monk. That is, he has no family, no country, no private friendships, no feelings, no ambitions, no sorrows like other men; he is not an individual, but a part of an Order. *Non homines, sed cadavera*, is the declaration of the Jesuits, and toward this ideal of an animate machine, a corpse, from which the sentient soul has vanished, galvanized into life by a General of an Order, all classes of monks reach in theory. Experience has taught me, however, that in the interior life of monasteries very much of individuality remains; no power of earth, however searching and severe, is able to root out the Heaven-implanted diversity of the race.

In my Calabrian convent, therefore, I found a life of routine, a mechanical, prescribed, tread-mill existence of the whole, and the outcropping life of the individual. At first it was designed that I should only see the ordained life of the *community*; but by degrees the brethren grew accustomed to the stranger within their gates; they perceived that I rel-

ished them better when they were playing not the rôle of *cadavera*, but of men, and the flimsy veil of disguise was very often drawn away, and I saw the men themselves, distorted and emasculated as I deemed by their wonderful existence, but individuals still, living out themselves. Not only was there this dual existence of the men and the community, but there was the diversity of the men as monks. Brother Simon, the preacher, was devoutly in earnest. Right or wrong, Brother Simon believed in himself, his convent, and his Brown Scapular. Brother John had had a wider outlook in the world, and had become wiser, to the detriment of his sincerity. He knew better than to place implicit confidence in either his Order, his Scapular, or himself; but he knew nothing truer than any or all of the three, and clave to them, the undevout twinkle glittering in the extreme corner of his left eye, and perfect propriety regulating the utterance of his lips.

The chief virtue of the Superior was that he ran in a groove, and never reasoned. He had been furnished by his masters with a set of rules and formulas.

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GENII OF ROOF AND HEARTH.

BY MRS. JULIA M'NAIR WRIGHT.

I HAVE recently read that nothing can be better for the eyes than yellow spectacles. I am heartily glad of this, for I have a pair of golden glasses, the wearing of which is very delightful. I put them on when I am meditating. I had donned these glasses one day last autumn, as I sat before the fire that rолlicked in the grate. Suddenly the arch of the fireplace arose, and extended itself indefinitely; the lumps of coal formed seams, and beds and pillars; the flames were lamps and implements of labor; pickaxes and crowbars wrought; cars rolled, mules and miners went and came; the genii of the mine, grotesque and grim, nodded at me, my familiar spirits, and hinted darkly of their to me untried arcana.

Nor was this all; necromancy was elsewhere busy; bricks and mortar melted like mists at the sunrising; then the roof, the beams, the panels, the wood work generally of the house, the furniture even, while retaining its original form, bloomed and leaved and budded like Aaron's rod, becoming fantastic trees of pine and fir, walnut, oak and mahogany, until a goodly forest rustled responsively to the winking, gibing gnomes, and coming to me faintly as from afar, I heard the swing of axes, the fall of trees, the woodman's shout, and the whirr of waters and machinery, where great saws tear the logs into pieces.

Mr. Shafto sat on the opposite side of our wonderful fireplace, polishing his knee-buckles.

I addressed him. "Have you, my Bobby, ever been into the coal mines and the lumber camps?"

"Not I," replied the whilom sailor, "the one is black, and the other is damp."

"However," I said, "we will no doubt visit them presently; fate impels."

"I would as soon think of standing all day at the polls, to see how the election will terminate," replied the calm Bobby; "some foolish people do it, but not I. I drop my vote and come away, content to leave my side, the right side always, to win. So I am well suited to have a roof and a hearth, without following them to their first sources."

"That I cannot stand by the primal springs of empire, Mr. Shafto," I responded, "is a fixed fact; but as for the roof and the hearth, their genii compel me to come to them; to resist is useless; let us be going."

Therefore Mr. Shafto ceased rubbing his buckles; we took up the stores of our pilgrimage, and went to the mountains.

Now there is in Pennsylvania a bountiful region, parent of our hearths and homes, where the fuel for our fires lies stored in the heart of the hills, and the timber for our roof-trees bristles over every summit that rounds against the sky. It is a realm of the actual, full of hard facts, and suggesting statistics and experiments and solid results. Still in going there we passed through a paradise of romance, through forests, and a river country.

This was a beautiful river of phantasy, where all the trees grew in the water upside down; where the world was round, and you could see the sky donned on the other side of the earth, and birds flying through the blue. The river wound into a wood, and one who has not visited here can have no idea how white these trees are. They stand so closely, and are so tall that you cannot see the tops; but the trunks are branchless, and so pallid that you realize in a minute that they are ghosts of trees that have died long ago, and have come back to haunt the land.

Behind the wood lives a giant, puffing volumes of smoke from the top of his



ROMANCE LAND.

head. The smoke was dark blue and | off to the country where Sinbad the
 funnel-shaped, but as it rose it spread | Sailor dwells. We asked the giant's
 out, took wings, become a roc, and flew | name; he and his brothers are com-

mon in these parts; he is the giant Steam.

At the very end of romance land was a depot; we were now getting into the domains of the real. In the depot the floor and windows were very grimy; we found, seated on greasy benches, three gloomy young women and a gilt bird cage; also an old woman in a state of great despondency, with an umbrella, depressed by the memory of a long and stormy life. A young man was leaning in at a window, discoursing to the old woman concerning his weight, as if it were a matter of vital importance to the universe; opposite the young man was a small girl, exercised by the care of her lunch basket; to relieve her mind of responsibility in this line, she kept constantly ferreting out fragments of cheese and gingerbread, and betimes a whole pickle of a vivid hue.

A few minutes, not more than thirty, after we were violently dragged out of this depot, we were set down on a vast waste of coal dust; great sounds of machinery, crash, rattle and bang went on around us. Presently a small blackened imp rose out of the earth, scrutinized us, and rushed into a little dungeon called an office. Out of this came the grand manager of the place, white, starched, and benevolent.

The manager asked what we would have. Mr. Shafto informed him that the sole object of our lives was coal mining.

"And where will you begin?" asked the manager.

"At the beginning," I responded.

"The beginning is half a mile away," said the manager; and straightway we plunged into a corduroy road, leading across a swamp. It was very beautiful to see the ferns, and the bushes covered with red berries on either hand, and when we reached hard earth, it was covered with white shining stones. These lying on top of the earth, spell *coal* beneath, and reading this trace as a Bedouin does a tribe sign, an expert had begun to prospect in this locality.

The practical man who goes out to locate anew uses no enchantments; he has no witch hazel-wand that mysteriously

stoops toward the spring in the earth; but he is a man who has learned Nature's alphabet, and puts her signs together with words.

Having pursued the corduroy road for half a mile, we came upon a busy scene. A clearing had been made in the woods, the trees felled were sawn into lumber by horse-power, and other lumber had come over the road aforesaid, which material was being built into the various sheds and houses needed about a mine. The first of these is an engine-house, that the water may be pumped from the mine by machinery.

In the Upper Lehigh region, *slope*, and not *shaft* mining, is the rule. Ground being broken, the miners pursue their way on an inclined plane at an angle of about forty-five degrees at first, which gradually becomes steeper. In this new mine, at a few feet below the surface, they came upon a black, moist, putty-like substance which overlies coal strata, and *at ten feet from the sod* began to take out coal, so that the engines which pumped up the water, were fed with coal taken from the new slope. As fast as the slope was opened ties and rails were laid down for the cars which bring up the coal, and the earth overhead was supported with beams and uprights. Everywhere the water percolated freely, and the use made of this water will presently be seen.

It was an odd spectacle, this new industry waked up in the heart of the beautiful, solemn woods; these miners tossing up great lumps of coal, when their own heads were hardly below the surface of the ground; the gathering of these red wintergreens and purple asters on the edge of the new slope, with pick and crowbar sounding just beneath your feet.

One could have spent all day, or several days, in these glowing autumn woods; but friend Shafto and I were out after information, and as we had seen the beginning of the mine, it behooved us to go next and see the mine in full operation; therefore we retraced our way, and came to the Sahara of coal dust before mentioned.

Here we found an immense wooden

building of many stories, each diminishing in area until the structure assumed a pyramidal shape. This was the *breaker*, and stood between the openings to two mines. On each side of the breaker was an inclined plane, laid with a car track, and reaching to the topmost story; along this lofty way small black cars crawled like snails. While one car went up, the other car went down; they each in turn performed some errand to the topmost story, and then retraced their way.

Just beyond the slope openings we beheld a fierce monster, of a flaming red hue; it appeared to have come up out of a hole in the earth, and spun itself around with violence and clamor. Mr. Shafto thought it one of the monsters which our particular friend Don Quixotte de la Mancha so bravely attacked; I thought it the irate divinity of the coal strata risen up to protest against armed invasion of his dominions. The manager, who is a very practical person, said that it was a *ventilator*. This ventilator stands at the top of a large opening, extending to the centre of the mine, and by its constant motion by the whirling of its multitudinous arms, this Briareus of the Upper Lehigh provides pure air to the toilers underground.

Besides the clamor of the ventilator we heard the thud of pumps, but their work was to be an after consideration. We entered a shed built at the mouth of the slope, and prepared to descend and see where our hearth deities came from.

"This," said the manager, after we had gone some way, "is called the breast. Nomenclature differs in different localities; with us this part above the chambers is called the breast."

The roof of this portion dripped a fine shower. On either side the pathway down the slope, ran a little stream of water, a barrier divided the footpath from the car track, and up and down went the cars, loaded and empty, dragged by chains held in the grasp of some invisible power. We had now learned three names of three different parts of the mines: the slope, the filling, and the breast.

• Of course the mine was black as Erebus. We all had little smoky lamps, the people

we met were grimy exceedingly, and we soon lost the gloss of fairy land and were very grimy ourselves. We now reached a chamber; here in niches from which the coal had been hewn, a number of miners were seated. In every cap was a little lamp; some of the men were eating their dinners. As we sat there, a mule, dragging a full car, rattled out of a black passage way. An empty car had just slidden down the slope, and the mule exchanged the full one for it—at least his driver did. The mule had a very depressed appearance, owing to the monotony of his occupation and the sunless nature of his existence, and I was sure he wished he were dead.

A profound sympathy led us to follow the mule along an underground corridor; through this we arrived at a little lobby, which seemed devoted to luncheon; from the wall, niches and recesses had been picked, and in each sat a piece of animated statuary, all expressing some different fashion of eating. Every man had his lamp in his cap, his tiny tin bucket between his knees, and with a dingy but well-satisfied countenance, was happily accomplishing the destruction of whatever edibles had been provided for him at home.

Here even the mule had something to eat, *i. e.*, a bundle of timothy; as the creature ate

"He gave a groan—and then another,
Of that which went before a brother,
And then he gave a third—"

But singular as it may seem, men do not spend all their time in mines in eating, they also work; indeed, that is their business. We therefore went into the part of the mine where the cars were being filled. Here the Cyclops of modern days hewed out the mansions of mid-earth, and sent the product of their toil to light and warm the firesides of the upper world.

We picked out one of these Cyclopeans, who being old and weird, we deemed could thoroughly inform us concerning the marvellous.

"Tell us, grandfather miner, have you ever met goblins in the mine?"

"Nane here," he replied, decidedly.

"Why, are Lehigh mines different from other mines? In old worlds, and in old times, there were gnomes in the mines."

"Na, na," says the old man, "I dinna believe what I canna see; there is naething supernatooral."

"Why, miner, I have seen pictures of the gnomes. They have almond eyes and high cheek bones, conical fools' caps on their heads, arms as big as their legs, and legs banded like a pair of tongs. They are white like mushrooms; thin fires flow from their mouths; they leap, they howl, and drive the miner from their dominions. We do not make pictures of things which have never been, do we? and I have seen pictures of the gnomes."

"Vera weel; but there are nane this a' way."

"And what would you do if you met one?"

"I wad rin," said old grizzly, with a laugh.

"If he and his co-workers all ran, the price of coals would increase, and I should never have a chance to wear my buckles," whispered Mr. Shafto in my ear.

On the whole we were glad there were no gnomes.

Drip, drip, drip—the water fell ceaselessly from the roof.

"What becomes of this, that it does not flood the mine?" we asked the manager.

He pointed to some hose. "Come and see how we turn an element of danger into a useful servant."

Up, and up the inclined plane, alongside the cars; we reached the open air, and there was a huge pump working like a Hercules. Hercules sent the water from the mine into a great cistern, which was always full, always filling, and never overflowed. What was the answer to that riddle? We were to find it in the Breaker.

The breaker begins at the lower story, like a huge fort; it grows narrower as it grows higher, and ends in a small top story, on either side of which coal cars come up and down a steep line of track.

High then we went, to reach that airy summit; high as the top of the Beanstalk planted in days of old by our brother Jack.

Up to the top of the breaker the mystery of the cistern is explained, for here is another cistern, forever being filled from the one below. Here we are; we have on one hand a coal car creeping up, a huge black caterpillar; on the other hand an empty car crawling reluctantly out of that beautiful upper world of sunshine, into the dismal depth where are the Cyclopeans and the mule. Here too is a cistern. Up comes that coal we saw the miners but now pecking out of the earth, it reaches the little top story and is dumped into a huge screen, a sieve so large that pumpkins could roll through it.

And now what is the history of this load of coal? It is made up of huge rocks or masses, and of finer pieces; of small fragrants and of dust, and down it goes. Story after story it tumbles, forever falling into a lessening series of screens or sieves, each of smaller meshes than the one preceding it. Each screen keeps the size of coal which belongs to it, namely, that too large to pass through. But the coal does not go down alone. No; as it is dumped, a rush of water from that aerial cistern follows it; where the coal goes, the water goes, washing and rewashing grade after grade. Thus the coal is freed of much of its dust; the breaker is kept from being a place of instant suffocation; the fragments are made to show what they are, and thus often what seemed a pure lump of fuel, being crushed and washed, reveals itself as slate, or largely mixed with slate.

And here we come to another point in the preparation of our fuel; the breaker, as its name indicates, makes as thorough a smash as any modern railroad is capable of doing, and the huge boulders of coal are crushed into a useable size. The breaking, sieving and washing prepare for market the following grades of coal: Lump, Steamboat, Broken, Egg, Stove, Chestnut, Pea and Buckwheat. The last named variety is used for large furnaces, in factories and foundries. The egg coal is the most plentiful in a breaker, being apparently the size to which the coal most naturally reduces itself—and as there is more of this than the market

demands, it is broken into stove coal, of which a larger supply is needed.

As the coal passes down the building, from the crusher, it slips from the sieves into inclined planes, where the base slate is to be detected and cast aside. At the upper end of each plane stands a man, to prevent a jam or a rush of coal; for this he uses a sort of wooden hoe. Now on each side of the plane a row of little boys, or young lads, or superannuated miners, sit on their heels, tilting backward and forward, and looking for all the world like a row of crows on a fence. Here are mites of lads as young as four years. They keep their eyes fixed on the coal that slides by them; as by an intuition they divine the slate, which to the uninitiated looks just like coal, and pouncing on the deceitful mineral they fling it aside. Down goes the black stream, and as it goes its alloy is sorted from it.

But if it is wonderful to see a small infant, fit for the nursery, earning his own living, and grinning superiority "at you grown up, who don't know slate when you see 'im," how much more amazing is it to see an unerring machine, impartially dividing "stove" from "egg" coal, and tirelessly handing it out by the basketful. This object of magic is called an "elevator." It is furnished with a series of buckets or baskets, which it fills with egg coal. No other kind suits its fancy; and nothing can be more uncanny than to see this brainless and handless monster doing the work of brains and hands.

But elevator and pump, crusher and sifters, all have an animating spirit, a joint heart, which moves them in accord. When this heart stops beating, this great busy breaker is dead. The heart is to be found on the ground floor; it has a fiery furnace of vitality, and a rush of water which it pumps into itself for its own support, as other hearts pump blood. This heart of the breaker is called an *engine*. We have come down to the engine-room through very many apartments, in which breaking, sorting, washing and sifting are going on. Here in this lower room is the engine. Other

parts of the breaker are grimy, dark, dusty; this shines with polished steel and brass; the walls are whitewashed; pictures—odd pictures cut from illustrated newspapers; fire assurance advertisements, portraits of favorite horses and other brutes, even great flaming circus and play bills, hang along these walls. Every part of the room is clean and airy. It is fiercely hot, and full of a deafening noise. Almost the whole room is occupied by this prodigious engine.

Apparently in the middle of these pistons, levers, wheels, screws, plates and what not, is an arm-chair, and here sits the engine's master, or its living soul, the engineer. He has an oil-can by him, and an index, at first glance somewhat like a long thermometer. There is a black bar on it, creeping up and down. By some subtle process of association, this moving bar reminds us of those cars, forever going up and going down the inclined lines of track. And sure enough here these very cars mark their progress. As the car goes up, up goes the figure on the index, and then in like manner it goes down again.

Can earth present us a more terrible monotony than this engineer's life? All day long he sits amid the steady thud and crash of his machinery; all day long he notes the slow crawl of the index up and down; all day long he swelters in more than summer heat; his eyes are full of this ceaseless light and motion, that has yet no change, and his ears of this perpetual noise. We don't wonder that the engineer has covered the walls of his room with a heterogeneous mass of prints; we don't wonder that he has hung his engine with scarlet, and yellow, and orange branches from these autumnal woods; without these rests to mind and eye, we should expect to have our engineer very speedily get into a mad house; we wonder he don't do it any way. But for all our commiseration of his existence in the midst of this thundering, sweltering, prodigious engine, our engineer looks fat, healthy, jolly and contented. He gives you a bow; he cannot stop to speak, lest that horrible index pass for one second from his mind, and

he may not touch the right motive power for that car, which crawls so many feet above his head. There is an instant's pause, the engineer rises, takes, like the Lady of Shallot, "three paces through the room," bestows a little oil, and a rub with chamois skin and silk on some parts of the machinery, and back he goes to his chair of state. If we were that engineer, we feel as if we should in sheer despair rush off into the cool air, the quiet, the variety of outer life, and wait to see what that engine, and these dreadful caterpillars overhead would do without us. May-be we should not do it though.

We step from the engine-room upon that great waste of coal dust, thousands of tons of dust yearly growing and spreading around the breaker. We wonder that it could not be utilized, that it could not be compressed by hydraulic pressure into blocks of fuel, fit for furnaces and founderies, and conveyed to market solidly packed into cars.

Indeed since Mr. Shafto and I have come away from the coal regions, we have heard that something of this kind has been done.

We know now a little about coal; whence it comes and where it is handled. We have only to look at a train of a hundred cars, drawn up beside the breaker, getting filled and going off, through lovely scenery which they care nothing about, to the cities where tons and tons of coal strangely vanish away.

But besides the coal in these countries we have lumber, and it behooves us, now that we are improving our minds, to see the process which turns trees into tables, clapboards, and picket-fences.

Once more we begin at the beginning, and once more the beginning is reached by a corduroy road. The road is a creation of modern days, and of civilization, advancing through these wilds—but it seems to lead us back six thousand years at least, into a primeval world, such as was before Adam saw Eden. We are in what they call an original forest; one where woodman's axe has never been "lifted against the thick trees." What a hush is here! The pines tower up to

touch the sky, and the sky stoops down to meet the pines. The birds which have been singing ecstatically up in the blue and gold, come sliding silently into these purple shadows. Even your own footfalls wake no sound; they sink unechoing, in moss and lichens. Here a tree has fallen from sheer old age; it has become one long mound of dark green moss; beyond it is a great bed of bright-green vines, gemmed with scarlet berries; and out of it rises a mound, which was once the stump of the fallen tree, but is now a cone of hoary lichen, looking like a triumph of frost-work, a sudden freak of winter in the midst of autumn.

Another wonder of these woods you find in the ancient fungi. These grow out of the trees like shelves and brackets; indeed Mr. Shafto and myself carry off some for this very use; the top is brown and velvety; the lower surface shows concentric circles of brown, white, gray, blue, violet and black.

These are not like the big trees of California, but they are big enough for us; we join hands, and cannot reach around some of them.

As we go on, the ringing of axes breaks the stillness; we are coming to the logging camp. Here the trees are falling on every hand. Yonder men are busy stripping the bark from the trunks, which bark is corded up, and will be sent to market when "hauling time" comes. It is a pleasant scene; these stalwart, red-shirted men, against the background of green; the gleam of axes in the air; the glittering points of light where sunshine finds the rows of dinner pails hung on the branches—the golden glow which the clearing has let in upon the moss—the red-brown cords of bark, the whiteness of the newly stripped logs, horses tied here and there, and the superintendent's buggy waiting for him at the end of the corduroy road.

Mr. Shafto thinks if it were not for the everlasting bother of chopping, he would like to be a wood-cutter!

Here they are marking the logs. Every owner has a certain sign, which is cut into the ends of his timber. The

logs stripped and marked are ready to be hauled to the river. Thither we follow them in imagination, which will be easier than travelling the ordinary wood road! When there is a "fresh" in the river—a roaring torrent from rains or melted snows—all goes well enough with the lumbermen. But may be the rains do not fall, there are no snows to melt, and the river, a blue thread, sings heedlessly along over the stones. When this continues for months, matters come to a crisis. Then the mill masters take council together, and prepare for a grand "log-drive." The logs are lying jammed together in the stream, thousands of them forming a solid mass. Above these the waters are collected by a series of dams. The art of log-driving consists in opening these dams exactly at the right moment, that the garnered waters may sweep down at once, and carry the logs with them.

Stand on the bank and watch the scene. The lumbermen are all anxiety and bustle; watches are eagerly consulted; the jam is scanned curiously. Suppose the waters are not let out simultaneously, and so lose their force? Suppose that after all the trouble, there is not water enough to start these sluggish tree-trunks, which are so wedged together, in the whole breadth of the river-bed? But see! there is a trembling in this mass; the logs quiver and heave a very little, like Skrymir when Thor struck his head with the mallet. These men who have been running along the logs so securely would not now trust themselves to that treacherous surface, unless with a deliberate intention of committing suicide. Aha! The full force of the water has come; you have heard the rush and and roar up yonder above the crush; and now that huge log which has acted as a keystone to the "jam," suddenly leaps into the air, stands almost as erect as when growing in these woods, and falls forward on its fellows; but already hundreds of other logs have caught the impulse. They leap and roll, and plunge, like living things; they crowd one upon the other; the forefront of the barrier points out into the stream, the waters

boil and surge around it; half a dozen logs get loose and tear away. It is like the jump of the proverbial sheep over the fence; all the logs are stirred to emulation, and down the stream sweep the lately inert timbers; mile after mile they go with headlong speed, gradually diminishing as the force of the stream and of the first start expends itself.

Now next we find the logs far down near the saw mills, and here they are still objects of interest.

You observe at once that the river is fenced off, like the land, into lots. These belong each to a different mill. These great divisions are called *booms*. The logs being all together in the river, in the first quiet after their "drive," the lumbermen go among them, and searching for the mark on the ends, select their own. Each man then draws his log by means of hooks, into his own boom.

Besides the booms, are smaller divisions called *pockets*; these are for logs of different lengths.

We will get into this row-boat, and go past the pockets to the mill at the bend of the river.

The pockets are filled with logs from twelve to thirty feet long. As we reach the mill we see a slippery inclined plane, running from the water to the first story. Here stands a man with a long pole, with a hook in one end. He strikes the sharp hook into a log, and drags it to the car upon the plane. A chain draws the car up, and it disappears through a great door. Meanwhile we enter another door, and are in the furnace-room. There is nothing to be seen here but very many and very hot fires, so we go to the room above to find what the fires are made of. This room is floored and walled of brick and cement. On one side are a row of large iron caps. These lifted, show iron cylinders leading down to the furnace fires. Opposite these openings is a huge heap of sawdust. Through the floor rises an elevator bringing loads of sawdust. This irrepressible servant of the fire-man pops up continually—like a "Jack-in-a-box"—bringing bushels of sawdust, gathered from the cellar of the mill. The fire-man takes off a cap,

shovels in a vast amount of sawdust, puts on the cap, banks it with fresh sawdust; at once finds the next cap blazing and smoking, pushes it aside, shovels in sawdust, drives on the cap and banks it, and rushes to the next one. By the time he has got to the end of his line, he finds cover No. 1, sending up signals of distress, in waving red flames, and back he rushes, sweating and puffing, to feed again in succession his insatiable charge; and like the leech's daughters, the open-mouthed cylinders never have enough—and the elevator never ceases to bring sawdust.

We might as well go now to the engine which these fires move. It is of one hundred and forty horse power, and two little boys with oil cans wait on it continually. After the engine we must see the machinery which it drives, and therefore we come out into a wide, airy room, overhanging the river, and meet an old acquaintance, a twenty foot log, just from the nearest pocket. The little car trundles the log to a platform on wheels; a man stands on this platform, employed all day in riding up and down a space of thirty feet.

He also has to attend to these constantly coming logs. The platform starts, and as it moves brings the end of the log against a great circular saw, which neatly, and without the least hesitation, begins gnawing into the log, in such a manner as to take off a slab equal to one-fourth of its surface. The saw keeps eating its way, while the platform pursues its journey, until the platform has reached the end of its line, and the saw the end of the log. The man then runs back, rolls over his log upon its now flat side, readjusts his queer conveyance, takes another ride, and by that time another side of the log has been eaten off; and so on, until after four sides, the log is no longer round but square, and certain boys have dragged away the rejected slabs, while the sawdust has gone down cellar to that rapacious elevator. Now the man with the log in charge becomes belligerent. He fixes his log, and rushes defiantly at the circular saw, and the saw without flinching takes off

an inch plank from the log, and so goes on until there is no log left. The circular saw can make way with three hundred logs a day. Next neighbor to the circular saw, is the gang saw, which in a working day can destroy six hundred logs. The gang saw is a number of saws together, so adjusted that they tear simultaneously through a log, and rip it at once into as many logs as it is capable of making. But some of the logs are to make joists, instead of planks. The circular saw is then made to cut the timber into slabs several inches thick; these are turned over, piled on each other, and driven against the saw to be cut transversely, and thus square joists are made instead of flat planks. But the lately rejected outer slab has found friends where the boys have conveyed it. A smaller circular saw cuts it into lengths for palings—a piece too thin for palings is good for laths; so beyond the log cutting we find a number of little circular saws, buzzing consequentially, making laths and palings. Near one of these saws is a curious little machine for cutting out the triangular, or leaf-shaped heads of the ordinary fence paling, fashioning the tops of three at a time. Bits of board too small for these sorts of pickets, are made into *taper-palings*, a cheaper kind, with narrow tops.

Here we see the laths sawed up and tied into bundles; here the pickets are numbered and tied up also; just here they are cutting up large boards, (still by circular saws,) into roof laths. But beyond all there is a curious machine, with a busy and ingenious workman by its side. This is one of those modern mechanisms, which seem very nearly human in their exploits. The cutting edges have just been sharpened, and the machine is being readjusted. We observe that the workman does this to a hair's-breadth. Behold now, all is ready for action; a plank is laid in place, the machine starts, the upper surface of the wood is planed beautifully, and a groove is cut in the edge. Now the plank is turned, the lower surface is planed, and a dove-tail is cut on the other edge. Try a hundred of these anywhere, and groove

and dove-tail join with absolute perfection.

Everywhere, from every machine, saw-dust and shavings go down for that elevator, which carries fuel to the fires. Everywhere fragments and remnants of wood lie about. We have seen how some of these make palings, and others various kinds of lath; big boards, little boards, beams, joists, clapboards, are all fashioned out of whatever is best suited to make them; but after all, Mr. Shafto, looking at the heaps of small bits and the greater piles of ends of logs, tells the mill-owner that there is a tremendous amount of waste.

"Not at all," says the gentleman; "come, see what we do with the refuse."

We go out to a platform in the rear of the mill. Here we find lines of tressel work running in every direction. On these we see the manufactured timber waiting for the cars, which come up on lines of track extending among the tressel work. Near the platform we have a train of cars loaded with these refuse ends of logs. They are sold for firewood, at fifteen dollars a car-load of ten cords. In the rear of this train of cars are some larger and lighter ones, filled with kindling wood, made up of the smaller refuse of the mill. This is sold at the mill for nine cents per barrel; the dealers in the cities get it for sixteen cents the same quantity, and retail it to their customers for forty and forty-five.

Besides this which is sold, we see a great quantity piled up for fuel for the mill hands, who have their homes in snug little houses built for them on the hill side. These abodes are romantic-looking enough; overhanging the river, sheltered by forest trees, and surrounded with wild flowers.

At a little distance is a huge wooden building, which we are told went up as an experiment. The manufacturers thought they would have single workmen, and board them in this showy looking establishment. But the experiment did not work well; the single men were wild

and unreliable; over-fond of holidays and taverns. The mill-owners discovered that only the worst of the men stay single. The industrious workman, able to support a family, wants to have his wife and babies about him.

Therefore these houses were built, and married workmen became the order of the day; these were decidedly more temperate, better natured, and more industrious than their predecessors. So much for matrimony in the lumber regions.

It is pleasant to see how well these men are cared for; they have an ice-house for the general good, which is filled by the men in winter; they have their gardens, as large as they like, for the mill-owners here have a great tract of territory; wages are good; fuel is plenty; the houses are comfortable; the churches and school-houses are in sight; they are not over-worked; the mill is warm enough and cool enough; and altogether the process of turning trees into tables, houses and fences is rather a pleasant one, from beginning to end.

The little boat took us to the car, and the car began to take us homeward. Everything went on with that monotony which characterizes the story where the butcher begins to kill the cow, and everything moves until the stick begins to beat the goat, and the little woman gets home at night.

Likewise Mr. Shafto and I got home. We saw the smoke curling up from the chimneys, we saw the roofs, gable, French and Mansard, lift against the sunset. We entered the house; we knew now where the fire on the hearth, the doors, sashes, beams and facings came from. The *Genii of the Hearth*, and the *Genii of the Roof* had no secrets from us any more. Mr. Shafto locked up his buckles, and I laid by my spectacles; a little boy stood at my elbow with proof; and I heard from Mr. Shafto murmurs about binomial theorems, Napierian logarithms, and equation of hyperbola; ah, we were at work; but we had had our day among coal and lumber.