

sionate and violent, but not without a rude kind of Spartan tenderness lying underneath her fierceness, which redeemed it from absolute brutality; inexorable, self-willed, with strong Puritan leanings, yet, with true Puritan logic, a pope to herself, consecrated infallible by her own grace. She cuffed and thrashed, and maybe swore at her son Samuel with tremendous zeal and energy; but she loved him, nevertheless, as a she-bear loves its young, or a tiger-cat, or a rhinoceros, which yet are not exactly types of maternal tenderness. Betty Holt was clever as well as strong-willed, and in her way even a celebrity. She was famous for her elderberry wine, and her butter got the topmost price of the market; she kept bees and made a good thing of their honey; she was parish overseer for one while; and, not content with her own industry and bustling habits, she set her children to earn their bread betimes, and tied them down to the loom so soon as their little legs were long enough to work the treddles. No idleness was allowed in her house; no unthrift, no useless dawdlings, no new-fangled ways, nor even learning that had not its pound and pence value: not an hour spent for pleasures that had not been fairly earned by labour—not an inch of ground left for flowers that were not planted at the roots of potherbs. Work, thrift, a rigid order of morality, and the gloomy pietism of the Puritan school reigned over her and hers; and what amusements or dissipation the children got were got by force of youth and nature, for Betty Holt gave none of her own making, nor thought it needful that any should be had. Add to this hard-handed discipline the saddening presence of "Uncle Alexander," lame and as ascetic as the rest of them, and we can understand in what an unnatural, stifling, narrow atmosphere young Samuel Crompton lived. He bore the marks of that suppressed early training of his to his last day, in the shyness, want of facility, and savage pride, which rendered all his talent unavailing and his life a miserable failure for himself. Had Betty Holt of Turton been an easier-natured woman, and had she not thought it the best manner of education to set her children on stepping-stones far apart from their kind, in all probability Samuel Crompton would have been a successful man. As it was, he was only a successful inventor; which is by no means the same thing.

One little trait of Uncle Alexander, and then I dismiss him for ever to the oblivion of the past. Sick and crippled, he could not stir out from the house, nor make more exertion than the one step which was necessary to carry him from his bed to his loom; but he observed the Sabbath and attended church in his own way. So soon as the bells began to ring, Uncle Alexander took off his week-day working coat, and put on his Sunday's best, then slowly read the church service to himself, and maybe thought out his own sermon as well as spelled out one of a favourite divine. When the "ringing out" bells told that all was over, and that the congregation was streaming homewards to their potato

THE MULE-MAKER.

TOWARDS the close of the last century, in an old Elizabethan house near to the rough manufacturing town of Bolton, lived one Betty Holt, widow of George Crompton, farmer and weaver; one of those farmers who, as the saying went, "paid their rent through the eye of the shuttle," and helped out cow-keeping and egg-hatching by the spindle and the loom. Betty Holt was a character: a stern, rigid, upright dame, pas-

pots and Irish stews, Uncle Alexander took off his Sunday's best and put on his week-day coat again; and then his church Sabbath was at an end. There was something very special and characteristic in the whole proceeding: a bit of broadcloth fetishism rich in all the elements of British respectability.

Young Samuel had one pleasure, besides that of reading, which was always a favourite exercise of his: he had his violin; and many a dreary hour he charmed away by scraping unmelodious sounds from that tortured catgut, many an angry scold of his fierce old mother he forgot in the dismal wailings of what passed with him for music. But even this harmless dissipation grim Mistress Betty clutched and girded at, only suffering it at all—and then grudgingly—when he had given in his appointed stint of work, and made his daily tale of bricks without a flaw. But his bricks were hard to make, and for the most part had to be squared, and pressed, and baked without sufficient straw; for this spinning was weary work, the yarn being very bad and the piecing of broken ends a never-ending labour.

It was about this time that the natural balance between spinning and weaving was so much disturbed. John Kay, of Bury, had just invented the fly-shuttle, which enabled the weaver to get through as much work again as before; and he had been mobbed and nearly killed for his pains. He escaped, wrapped up in a sheet of cotton wool, and was thus carried bodily through the mob by two of his friends who did not think that an invention which doubled work and production merited Lynch-law condemnation. Poor Kay, after some more vicissitudes, went to Paris, where he lived in great poverty and distress, and where he finally died in very painful circumstances. Robert Kay, his son, in his turn invented the drop-box, by means of which three spindles of different coloured wuffs could be used successively without the trouble of replacing them on the lathe; and thus weaving got another step forward. Robert was not more popular than his father. He was mobbed and insulted, his machines broken to pieces, and himself dangerously threatened: for was he not the natural enemy of the workmen, and was it not worth a good day's work at any time to harry and annoy one who had presumed to invent anything that should lighten labour and increase trade? By these inventions, then, weaving had got the start of spinning, and there was not enough weft to be had for the loom. The weavers lost half their time in collecting their yarn ounce by ounce from the cottages; and even then they had to bribe the spinsters with all sorts of fair words and fine promises, before they could get enough of it to be of any use. Thus the barragons and fustians, herringbones, thicksets, quiltings, and cross-overs, dimities and velveteens, for which Bolton was famous, and the checks and greys dear to the soul of Blackburn, were in an anomalous position; contravening the first principle of political economy which asserts that the demand creates the supply—that manufacture ensures material. And thus weaving hands

were idle, and never knew their full tale of work; and great hulking fellows were to be seen everywhere lounging against the sunny south walls about Bolton, talking a language which no one but themselves could understand, or joking roughly with the spinners as they came into market with their bags and bales of coveted yarn. That market indeed was an extraordinary place, for the goods were mostly pitched into the middle of the streets, though there were halls, and warehouses, and places proper for civilised traffic. But Bolton preferred the great "moothall" common to all, and never cared to transact its business under any other cover but the sky or a public-house parlour. The "Bolton chaps," as they are called to this day, were always a queer, rough, unconventional set, and in Samuel Crompton's time were even rougher than at present.

To help remedy this disturbed balance, Hargreaves then made his spinning-jenny, which substituted eight spindles for one; afterwards the eight spindles were raised to eighty; when the sapient spinners took the alarm, and after great rioting and bitter wrong-doing, drove Hargreaves, broken-hearted, to Nottingham. There he died in want and distress, having first given up his jenny to the Strutts, who made a practical thing of it, and made their own fortunes at the same time. But the spinning-jenny, though thoroughly successful in its way, did not do everything; it did not make a thread strong enough for the warp, but only spun out additional weft; whereupon Richard Arkwright, a barber at Bolton, great in the secret of a certain hair-dye, great, too, in his power of wheedling young women out of their long back hair, turned his attention to mechanics and the spinning-jenny, and invented a spinning-frame, which drew the cotton from a coarser to a finer and hard-twisted thread, and so rendered it fit for warp as well as weft. But something even yet remained. The thread broke eternally; there was nothing but piecing together the flying ends, and the work was for ever stopping that the mending might be done. Also, no machine yet made spun fine threads; and the weavers were beginning to wish they could rival the fine India muslins which came over sparsely enough, but which commanded such fabulous prices, and were so eagerly caught up when they did come. A machine, then, that could keep the thread from breaking, and that could deliver a fine muslin thread, was now the great thing to be next accomplished.

When Samuel Crompton was sixteen, he spun on a jenny of eight spindles, and broke his heart over the perpetual piecing of the broken ends. They took up all his time, and stopped his fiddle-playing for many a bitter evening. When he was twenty-one, he began to think, says Mr. French. His brain turned on improved spinning machinery, and how he could make his yarn go without this eternal breaking. And he spent precious hours, and as Betty thought, more precious money, in trying experiments of all kinds, and at all times. The neighbours saw

lights in the old hall at dead of night, and unusual sounds were heard, and unusual things done; and soon Samuel got the reputation of being a "conjurer"—an inventor, according to Bolton phraseology. All his money now went in his experiments. He was for ever getting the wayside blacksmith "to file his bits of things," and the joiner to make him odd-looking wheels and rollers; and then, to supply the drain perpetually going on, he hired out himself and his violin to the orchestra at Bolton theatre, and got eighteenpence a night for his "fiddle and his bow." This sum, though small, helped him wonderfully; it enabled him to carry on the war with poverty, want of knowledge, repetition of what had been already done, and all the other enemies of an ignorant and solitary worker; and after five years' toil and thought and love he perfected his rude machine, called then "Hall-i'-th'-Wood Wheels," or "Muslin Wheel." Thus, his great aim, the discovery of a machine which would enable him to spin fine yarn fit for the muslin used for ladies' dresses, he finally accomplished without help or aid of any kind.

Crompton's fine yarn soon attracted attention. How did he do it? What was his secret? Neither Hargreave's spinning-jenny nor Arkwright's water-frame could produce such yarn as this young man gave up, week after week, from the Old Hall in the Wood; and public curiosity, mingled with something of public indignation, waxed high and ragged severely. The hall was besieged. Some brought ladders and climbed up to the window of the room where Samuel worked; others offered bribes; one, more persevering than the rest, concealed himself in the loft, and watched the "conjurer" at work through a gimlet-hole bored in the ceiling; Arkwright travelled sixty miles to see the new muslin wheel; and Peel, the father of the great Sir Robert, came with an offer to take Crompton into partnership; or—according to Mr. French—with the intention of getting the secret underhand and for nothing. The inventor was plagued to death; and, being a shy man, a moody man, and a mistrustful man, heartily wished that his persecutors would break their necks some of these fine days, when they swarmed too thickly upon him. His muslin wheel was destined to bring him only disappointment and annoyance; and whether he kept the secret or displayed it, he was equally sure to be troubled and mishandled. He had no means of buying a patent; so, after a time, determined to give up his invention to the public, on condition of receiving a miserable sum of sixty pounds, which was subscribed by most of the leading manufacturers of the district. But the worst part of the story is, that many of those who had set their names down for certain sums, refused to pay them when required, even threatening Samuel grossly, and accusing him of imposture when he called upon them for their guineas. It was this last piece of treachery which put the finishing stroke to the morbid pride and suspicion of Crompton's character. Henceforth he and the world were Ishmaelites, face to face.

As Crompton's muslin-wheel came more into notice and repute, it changed its name and took that of the Mule; being a kind of hybrid between Hargreave's jenny and Arkwright's water-frame, partaking of the principles of both, but differing in application from both. Its "great and important invention was the spindle-carriage, and the principle of the thread's having no strain upon it until it was completed. The carriage with the spindles could, by the movement of the hand and knee, recede just as the rollers delivered out the elongated thread in a soft state, so that it could allow of a considerable stretch before the thread had to encounter the stress of winding on the spindle. *This was the corner-stone of the merit of his invention.*" It was a great misfortune that Crompton could not make any real use of his discovery. Had he joined Peel, who had all the business habits and capability which the Bolton weaver wanted, they would have advanced the cotton manufacture by twenty years, says Mr. French, and Samuel would have made his fortune. But he chose his own path, and elected a life of solitude and loneliness; and when a man, by obstinacy or by want of clear-sightedness, has set himself to his own loss, it is very hard to prevent him. No life with which I am acquainted is such a striking instance of the folly of pride and exclusiveness as that of clever, moody, sensitive Samuel Crompton.

The mule got into the market; and soon the mule-maker was distanced by his own machine. Various improvements in detail were applied—the rough wooden rollers were replaced by others of smooth, swift-running metal; David Dale, of Lanark, applied water-power to its use. Peel and Arkwright, and all the great manufacturers adopted it, with all its improvements, in their gigantic mills; while the inventor toiled humbly and sadly in his old behind-handed workshop, and nursed the smarting wounds which he made all the worse by contemplation. And then he clothed himself anew in his impenetrable garment of pride and reserve, and thought himself ill-used because the world regarded him as a celebrity. If he saw himself pointed at, or spoken of, in the market, he would not attempt to transact business, but would return home with all his samples in his pocket; or if a "rough-and-ready manufacturer" offered him less than he asked, he would wrap up his samples and leave him, never condescending to explain or to bargain. He used to complain bitterly of the manner in which he was watched and suspected of still further improvements; and took the natural curiosity of men, even their natural homage to his genius, as so many insults and wrongs. In fact, every incident of his life shows how entirely morbid and wrong-headed he was in all his dealings with the world and his fellow-men.

Seventeen hundred and ninety-three was a year of unexampled prosperity to the muslin weavers of Bolton. A piece of twenty-four yards brought four guineas, or three-and-six pence a yard for the weaver, "whose trade was

that of a gentleman," who took home his work in top boots and ruffled shirts, carrying canes or riding in coaches. Many weavers used to walk about with five-pound Bank of England notes spread out under their hatbands, thus curiously prefiguring one of the most remarkable characteristics of the Californian diggers; they would smoke none but long "churchwarden" pipes, kept themselves as a race apart, and suffered no one else to intrude into their particular rooms in their public-houses. In seventeen hundred and ninety-seven the four-guinea piece of cambric fell to twenty-nine shillings for the weaver; continuing the downward course up to eighteen hundred and twenty-seven, when it brought only six-and-sixpence. This was the natural consequence of a great discovery made popular. A subscription was set on foot for Crompton during a year of great distress, and he got between four and five hundred pounds, which was the first real reward yet obtained for his invention. Afterwards Parliament was "spoken to," and the spinner came up to London to see to the advancement of his own fortunes. He was in the lobby with Sir Robert Peel and Mr. Blackburn, when Mr. Perceval, the then Chancellor of the Exchequer, came up. "You will be glad to hear," he said, "that we mean to propose twenty thousand pounds for Crompton; do you think that will be satisfactory?" Crompton walked away, not wishing to hear the reply, and in two minutes a great shout was raised—Perceval had been shot. Of course the motion for the grant was withdrawn for that night; and when made it was made by a less friendly patron: only five thousand pounds were asked for instead of twenty. The sum which Crompton proved that he had contributed to the revenue by the number of his mules then at work, was about three hundred thousand a year; the per-centage of five thousand pounds out of this increase was an unheard-of meanness. And even this did not come free of charges. One of the charges was a fee for forty-seven pounds seventeen shillings and fourpence, "being fees to both Houses, for inserting one clause in the appropriation act;" and a parliamentary friend, who had pushed his claims, took care to make a demand for a loan of one out of the five thousand pounds; which request, however, it is satisfactory to know, was refused.

Things never went thoroughly well after this. The sons disagreed, and turned out but indifferent helps and supports to him; some bleaching works that he took, failed; his machinery was copied, his patterns pirated; the world, that busy, pushing, commercial world of Bolton, trod too hard on his heels, and even threatened to drive its Juggernaut over his body; and, as years passed on, the grey, grave, quiet old man, grown more thoughtful and more pensive, grew also poorer and more obscure, and wore a deeper air of ill-usage and wrong. From poverty to poverty he sank lower and lower; and his last days, under the mismanagement of his thriftless and not over estimable daughter, were threatened with worse than stint, when a number of

his friends banded together, and raised a subscription among themselves, with which they purchased an annuity of sixty-three pounds, and so rescued him from at least any frightful catastrophe. A last attempt to obtain a further grant from government failed, partly because (so it was stated) "his primitive enemy," Sir Robert Peel, had undermined him; and partly because the House had one of its odd fits of ingratitude and want of appreciation concerning him, which nothing could overcome. Poor Crompton felt only too keenly the wrongs, which his own want of business capacity and common sense had helped to draw upon him, and died, as he had lived, with all the bitterness belonging to a sense of failure and disappointment. But his invention has revolutionised the cotton trade, and the cotton trade is one of the great powers of the present; so that in this way the old Lancashire spinner has made himself an undying influence in the future, and has set his mark and seal upon a trade which may be taken as the symbol of western civilisation and British supremacy. No mean epitaph that for an obscure Lancashire man, to whom eighteenpence a night was good pay for his violin-playing, and whose mother thrashed him soundly if he failed in his daily tale of work!