

IX.

M'CULLOCH THE MECHANICIAN.

CHAPTER I.

Anything may become nature to man; the rare thing is to find a nature that is truly natural. — ANON.

IN the "Scots Magazine" for May 1789, there is a report by Captain Philip d'Anvergne, of the *Narcissus* frigate, on the practical utility of Kenneth M'Culloch's sea-compasses. The captain, after an eighteen months' trial of their merits, compared with those of all the other kinds in use at the time, describes them as immensely superior, and earnestly recommends to the admiralty their general introduction into the navy. In passing, on one occasion, through the Race of Alderney in the winter of 1787, there broke out a frightful storm; and so violent was the opposition of the wind and tide, that while his vessel was sailing at the rate of eleven miles on the surface, she was making scarce any headway by the land. The sea rose tremendously, at once short, high, and irregular; and the motions of the vessel were so fearfully abrupt and violent that scarce a seaman aboard could stand on deck. At a time so critical, when none of the compasses supplied from his majesty's

stores *would stand*, but vacillated more than three points on each side of the pole, "it commanded," says the captain, "the admiration of the whole crew, winning the confidence of even the most timorous, to see how quickly and readily M'Culloch's steering compass recovered the vacillations communicated to it by the motion of the ship and the shocks of the sea, and how truly, in every brief interval of rest, it pointed to the pole." It is further added, that on the captain's recommendation these compasses were tried on board the *Andromeda*, commanded at the time by Prince William Henry; our late king; and so satisfied was the prince of the utility of the invention, that he, too, became a strenuous advocate for their general introduction, and testified his regard for the ingenious inventor by appointing him his compass-maker. M'Culloch, however, did not long survive the honor, dying a few years after; and we have been unable to trace with any degree of certainty the further history of his improved compass. But, though only imperfectly informed regarding his various inventions, — and they are said to have been many, and singularly practical, — we are tolerably well acquainted with the story of his early life; and, as it furnishes a striking illustration of that instinct of genius, if we may so express ourselves, which leads the possessor to exactly the place in which his services may be of most value to the community, by rendering him useless and unhappy in every other, we think we cannot do better than communicate it to the reader.

There stood, about forty years ago, on the northern side of the parish of Cromarty, an old farm-house, — one of those low, long, dark-looking erections of turf and stone which still survive in the remoter districts of Scotland, as if to show how little man may sometimes improve, in even a civilized country, on the first rude shelter which his ne-

cessities owed to his ingenuity. A worn-out barrel, fixed slantwise in the ridge, served as a chimney for the better apartment,—the spare room of the domicile,—which was furnished also with a-glazed window; but the smoke was suffered to escape from the others, and the light to enter them, as chance or accident might direct. The eaves, overhung by stonecrop and bunches of the houseleek, drooped heavily over the small blind windows and low door; and a row of ancient elms, which rose from out the fence of a neglected garden, spread their gnarled and ponderous arms over the roof. Such was the farm-house of Woodside, in which Kenneth M'Culloch, the son of the farmer, was born, some time in the early half of the last century. The family from which he sprang—a race of honest, plodding tacksmen—had held the place from the proprietor of Cromarty for more than a hundred years; and it was deemed quite a matter of course that Kenneth, the eldest son, should succeed his father in the farm. Never was there a time, in at least this part of the country, in which agriculture stood more in need of the services of original and inventive minds. There was not a wheeled cart in the parish, nor a plough constructed on the modern principle. There was no changing of seed to suit the varieties of soil, no green cropping, no rotatory system of production; and it seemed as if the main object of the farmer had been to raise the least possible amount of grain at the greatest possible expense of labor. The farm of Woodside was primitive enough in its usages and modes of tillage to have formed a study to the antiquary. Towards autumn, when the fields vary most in color, it resembled a rudely-executed chart of some large island, so irregular were the patches which composed it, and so broken on every side by a surrounding sea of brown, sterile moor, that here and there

went winding into the interior in long river-like strips, or expanded within into friths and lakes. In one corner there stood a heap of stones, in another a thicket of furze, here a piece of bog, there a broken bank of clay. The implements, too, with which the fields were labored were quite as uncouth in their appearance as the fields themselves. There was the single-stilted plough, that did little more than scratch the surface; the wooden-toothed harrow, that did hardly so much; the cumbrous sledge, — no inconsiderable load of itself, — for carrying home the corn in harvest; and the basket-woven conical cart, with its rollers of wood, for bearing out the manure in spring. With these, too, there was the usual misproportion to the extent and produce of the farm of lean, inefficient cattle, — four half-starved animals performing with incredible labor the work of one. And yet, now that a singularly inventive mind had come into existence on this very farm, and though its attentions had been directed, as far as external influence could direct them, on the various employments of the farmer, the interests of husbandry were to be in no degree improved by the circumstance. Nature, in the midst of her wisdom, seems to cherish a dash of the eccentric. The ingenuity of the farmer's son was to be employed, not in facilitating the labors of the farmer, but in inventing binnacle-lamps which would yield an undiminished light amid the agitations of a tempest, and in constructing mariners' compasses on a new principle. There are instances of a similar character furnished by the experience of almost every one. In passing some years since over a dreary moor in the interior of the country, our curiosity was excited by a miniature mast, furnished, like that of a ship, with shrouds and yards, bearing a-top a gaudy pinnet, which we saw beside a little Highland cottage; and on

inquiring regarding it at the door, we were informed that it was the work of the cottager's son, a lad who, though he had scarcely ever seen the sea, had taken a strange fancy to the life of a sailor, and who had left his father only a few weeks before to serve aboard a man-of-war.

Kenneth's first employment was the tending of a flock of sheep, the property of his father; and wretchedly did he acquit himself of the charge. The farm is bounded on the eastern side by a deep, bosky ravine, through the bottom of which a scanty runnel rather trickles than flows; and when it was discovered on any occasion that Kenneth's flock had been left to take care of themselves, and of his father's corn to boot, — and such occasions were wofully frequent, — Kenneth himself was almost invariably to be found in this ravine. He would sit for hours among the bushes, engaged with his knife in carving uncouth faces on the heads of walking-sticks, or in constructing little water-mills, or in making Lilliputian pumps of the dried stalks of the larger hemlock, and in raising the waters of the runnel to basins dug in the sides of the hollow. Sometimes he quitted his charge altogether, and set out for a meal-mill about a quarter of a mile from the farm, where he would linger for half a day at a time watching the motion of the wheels. His father complained that he could make nothing of him; "the boy," he said, "seemed to have nearly as much sense as other boys of his years, and yet for any one useful purpose he was nothing better than an idiot." His mother, as is common with mothers, and who was naturally an easy, kind-hearted woman, had better hopes of him. Kenneth, she affirmed, was only a little peculiar, and would turn out well after all. He was growing up, however, without improving in the slightest; and when he became tall enough for the plough, he made a

dead stand. He would go and be a tradesman, he said, a mason or smith or house-carpenter, — anything his friends chose to make him, — but a farmer he would not be. His father, after a fruitless struggle to overcome his obstinacy, carried him with him to an acquaintance in Cromarty, an ingenious cabinet-maker, named Donald Sandison; and, after candidly confessing that he was of no manner of use at home, and would, he was afraid, be of little use anywhere, he bound him by indenture to the mechanic for four years.

Kenneth's new master — a shrewd, sagacious man, who had been actively engaged, it was said, in the Porteous mob about twenty years before — was one of the best workmen in his profession in the north of Scotland. His scrutoires and wardrobes were in repute up to the close of the last century; and in the ancient art of wainscot carving he had no equal in the country. He was an intelligent man, too, as well as a superior mechanic. He was a general reader, as a little old-fashioned library in the possession of his grandson still remains to testify; and he had studied Paladio, in the antique translation of Godfrey Richards, and knew a little of Euclid. With all his general intelligence, however, and all his skill, he failed to discover the latent capabilities of his apprentice. Kenneth was dull and absent, and had no heart to his work; and though he seemed to understand the principles on which his master's various tools were used, and the articles of his trade constructed, as well at least as any workman in the shop, there were none among them who used the tools so awkwardly, or constructed the articles so ill. An old botching carpenter who wrought in a little shop at the other end of the town was known to the boys of the place by the humorous appellation of "Spull [*i. e.* spoil] the Wood," and a lean-

sided, ill-conditioned boat which he had built, as "the Wilful Murder." Kenneth came to be regarded as a sort of second "Spull the Wood," — as a fashioner of rickety tables, ill-fitted drawers, and chairs that, when sat upon, creaked like badly-tuned organs; and the boys, who were beginning to regard him as fair game, sometimes took the liberty of asking him whether he, too, was not going to build a boat? Such, in short, were his deficiencies as a mechanic, that in the third year of his apprenticeship his master advised his father to take him home with him and set him to the plough; an advice, however, on which the farmer, warned by his previous experience, sturdily refused to act.

It was remarked that Kenneth acquired more in the last year of his apprenticeship than in all the others. His skill as a workman still ranked a little below the average ability; but then it was only a little below it. He seemed, too, to enjoy more, and become less bashful and awkward. His master on one occasion took him aboard a vessel in the harbor to repair some injury which her bulwarks had sustained in a storm; and Kenneth, for the first time in his life, was introduced to the mariner's compass. The master, in after days, when his apprentice had become a great man, used to relate the circumstance with much complacency, and compare him, as he bent over the instrument in wonder and admiration, to a negro of the Kanga tribe worshipping the elephant's tooth. On the close of his apprenticeship he left this part of the country for London, accompanied by his master's eldest son, a lad of rather thoughtless disposition, but, like his father, a first-rate workman.

Kenneth soon began to experience the straits and hardships of the inferior mechanic. His companion found little

difficulty in procuring employment, and none at all in retaining it when once procured. Kenneth, on the contrary, was tossed about from shop to shop, and from one establishment to another ; and for a full twelvemonth, during the half of which he was wholly unemployed, he did not work for more than a fortnight together with any one master. It would have fared worse with him than it did had it not been for his companion, Willie Sandison, who generously shared his earnings with him every time he stood in need of his assistance. In about a year after they had gone to London, however, Willie, an honest and warm-hearted, but thoughtless lad, was inveigled into a bad, disreputable marriage, and lost, in consequence, his wonted ability to assist his companion. We have seen one of Kenneth's letters to his old master, written about this time, in which he bewails Willie's mishap, and dwells gloomily on his own prospects. How these first began to brighten we are unable to say, for there occurs about this period a wide gap in his story, which all our inquiries regarding him have not enabled us to fill ; but in a second letter to his mother, now before us, which bears date 1772, just ten years after the other, there are the proofs of a surprising improvement in his circumstances and condition.

He writes in high spirits. Just before sitting down to his desk, he had heard from his old friend Willie, who had gone out to one of the colonies, where he was thriving, in spite of his wife. He had heard, too, by the same post, from his mother, who had been so kind to him during his luckless boyhood ; and the old woman was well. He had, besides, been enabled to remove from his former lodging to a fine, airy house in Duke's Court, opposite St. Martin's Church, for which he had engaged, he said, to pay a rent of forty-two pounds per annum — a very considerable sum

sixty-eight years ago; and he had entered into an advantageous contract with Catherine of Russia, for furnishing all the philosophical instruments of a new college then erecting in St. Petersburg, a contract which promised to secure about two years' profitable employment to himself and seven workmen. In the ten years which had intervened between the dates of his two letters, Kenneth McCulloch had become one of the most skilful and inventive mechanics in London, perhaps in the world. He rose gradually into affluence and celebrity, and for a considerable period before his death his gains were estimated at about a thousand a year. His story, however, illustrates rather the wisdom of nature than that of Kenneth McCulloch. We think all the more highly of Franklin for being so excellent a printer, and of Burns for excelling all his companions in the labors of the field; nor did the skill or vigor with which they pursued their ordinary employments hinder the one from taking his place among the first philosophers and first statesmen of the age, nor prevent the other from achieving his wide-spread celebrity as at once the most original and most popular of modern poets. Be it remembered, however, that there is a narrow and limited cast of genius, unlike that of either Burns or Franklin, which, though of incalculable value in its own sphere, is of no use whatever in any other; and to precipitate it on its proper object by the pressure of external circumstances, and the general inaptitude of its possessor for other pursuits, seems to be part of the wise economy of Providence. Had Kenneth McCulloch betaken himself to the plough, like his father and grandfather, he would have been, like them, the tacksman of Woodside, and nothing more; had he found his proper vocation in cabinet-making, he would have made tables and chairs for life, like his ingenious master Donald Sandison.