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A memoir of the life, writings, and mechanical inventions of Edmund Cartwright

Cartwright, Edmund

London, 1843

ETH-Bibliothek Zürich

Shelf Mark: Rar 27030

Persistent Link: <https://doi.org/10.3931/e-rara-64901>

Chapter V.

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CHAPTER V.

IN November, 1798, Mr. Cartwright became a member of the "Society for the Encouragement of Arts, Manufactures, &c.;" and in October of the following year, he was recommended by his friends to offer himself as a candidate for the situation of secretary to the society, recently become vacant by the death of Mr. Samuel Moore. The candidate being on this occasion required to present a memorial of his pretensions, Mr. Cartwright, on the 18th December, read

before the society an address, from which the following extracts are taken:—

“The qualifications more particularly looked for in the person who is to fill the important office of secretary to this society, are, I understand, practical knowledge and experience in those matters which are its leading objects. These are, chemistry, the polite arts, agriculture, manufactures, and mechanics. It is expected, also, that he should know something of the modern languages. The only living languages I ever was acquainted with, are the French and Italian, and though disuse for a long series of years has nearly obliterated them from my recollection, I do not feel, however, as if I should have much difficulty in recovering them, and, in the meantime, I should take care that the society should experience no inconvenience on that account. Of che-

mistry, though I am not ignorant of its elementary principles, my knowledge is much too limited to speak of it with any degree of confidence. In this department, therefore, I am free to confess you will not find my acquirements of that service to you I could wish, and yet I flatter myself you will not find them altogether useless. That they have not been altogether useless to the world, I need only appeal to that most invaluable discovery—the method of administering, in the form of yeast, the carbonic acid gas; a discovery which, not only in this island, but in various parts of the globe, has already, in innumerable instances, proved an inestimable benefit to the human race. You will perceive I am alluding to the almost invariable success with which this remedy has been administered in cases of putrid fever, and as a specific in that cruel disease,

the sea scurvy. Those only who have experienced that sublimest of enjoyments, the pleasure of benefiting mankind, can appreciate the satisfaction I have had in its discovery."

"But of all the objects which engage the attention of this society, the principal, and, without dispute, the most important, is agriculture; an art which, at the present awful period, more, perhaps, than at any former one, requires the exertions of every enlightened mind to bring it to its highest stage of practical perfection. That much is to be done, it is unnecessary to observe, for till such time as every field shall be a garden, agriculture has certainly not arrived at its acme. That this is no ideal point of improvement to look forward to, we need only advert to the state of this art amongst the Chinese, and the manner in which they

are at once compelled and enabled to practise it by an overflowing population. With us, the great mass of population being diverted into other channels, other means are to be resorted to. The combined energies of various arts must be employed; chemistry must lend her inexhaustible stores—mechanics, her hundred arms. The one, by calling into action the latent principles of nature, gives to vegetation renewed life and increase of fertility; the other, by furnishing man with multiplied ability, giving to a pigmy the powers of a giant. But no combination of science in agriculture will avail without practical knowledge; and in no art, so indispensable as this, is practical knowledge required from your secretary. On every other subject, information or assistance, in a city like this, may be met with in every street, and at

every hour ; for here is the resort of genius and talents in every department of science, not only because they are here most encouraged, but because they are here also most conveniently cultivated. With agriculture and its professors it is otherwise. Agriculture is not to be practised in cities, nor has a city life allurements for a mind devoted to its pursuits. On this subject, therefore, more frequently than on any other, must your secretary depend on the stores and resources of his own mind. These stores are not to be collected from books or theory, nor from the speculative opinions of artists, mechanics, chemists, or philosophers; they must be the result of real practice and repeated observation, under different circumstances, and at different seasons. On this ground I feel to tread with confidence; for during nearly thirty years of my past life

my constant residence has been in the country, and for a considerable part of that time those hours which were not occupied by the duties of my profession, or devoted to literary pursuits, were chiefly employed in the practice and study of agriculture. I may truly affirm there are few experiments in that most useful and interesting pursuit which I have not either tried myself, or witnessed the trial of by others.

“Respecting manufactures and practical mechanics, it will be no boast in me to say, —what, indeed, so many here present can probably confirm,—that few men have had greater experience than myself; still fewer, I should hope, have purchased that experience at so dear a rate. The manufactures I am most immediately acquainted with, are those extensive ones of cotton and wool; every process of which I am acquainted

with, from the raw state of the article till perfected in the loom.

“There are several other manufactures, also, of which you will not find me ignorant.

“That I may not detain you too long by reciting all the different mechanical inventions of magnitude and importance that I have at various times brought forward, I shall enumerate only three; and these three, as you will perceive, are in departments of invention totally distinct from each other. These are, the method of combing wool by machinery; the geometrical principle of constructing arches, so as to have no lateral pressure; and the late improvements I have made in the steam-engine. By that single invention of combing wool by machinery, the manufacturers are at this moment saving at least 40,000*l.* a year, and in a short space of time will annually save between

one and two millions. By the geometrical principle of constructing arches, so as to have no lateral pressure, buildings may be erected at as little expense as they now are, and be perfectly secure from fire. And by my improvement on the steam-engine, I have so added to its power, and reduced its expense, that it may not only be employed in manufactures more extensively than it has hitherto been, but may be made also a most powerful and profitable agent in husbandry, as will, I hope, be exhibited on an extensive scale in the course of next summer.

“ There are many other circumstances in a long, and, I may say, useful life of unwearied exertion, which might, with propriety, have been brought forward; but I have confined myself to those chiefly which, being of public notoriety, the public, if anything has been stated unfairly, has the means of confuting.

“Permit me to trespass on your time one moment longer. Since the death of Mr. Moore, a very unusual number of new members, I am told, has been admitted into the society; many, it is possible, for the mere purpose of voting at the ensuing election. There are, I trust, no friends of mine who have gained admittance from any such motive. If they have, I must request they will either not vote at all, or bestow their votes on some other candidate. For myself, I should feel it a disgrace to owe that to private interference which it would be my ambition to obtain by the public voice. If I am to succeed I will succeed only by fair and honourable competition.”

This memorial was received with so much favour by the society, that little doubt was entertained of Mr. Cartwright's success, had he been inclined to continue the contest.

He, however, withdrew his pretensions in favour of Mr. Charles Taylor, to whose merit he bore the most liberal testimony, in a speech delivered before the society on the 29th January, 1800.

Mr. Charles Taylor was elected secretary to the society, in which situation he remained until his death.

It is somewhat remarkable, that in the memorial from which some extracts have been given, Mr. Cartwright only slightly alludes to his improvements in the art of weaving; and in the enumeration of what he considered his most important inventions, that of weaving by machinery is altogether omitted, although it ultimately proved to be the only one that ever returned any portion of the expense incurred in bringing it to perfection. But it was unknown to him that the power-loom was gradually and

secretly coming into use; and although he might not despair of its ultimate introduction, yet his patent-right being expired, all remuneration to himself for that invention seemed nearly hopeless.

The frequent invasions of his patent for combing wool, as well as the petitions that had been presented to parliament, as early as the year 1796, against the introduction of his machinery, might justly be considered as indications of its increasing importance, and rendered it, to all appearance, much more likely to prove advantageous than the weaving machine. But the difficulty of detection, as well as the expense of procuring redress, had paralyzed the efforts of his assignees, and had hitherto prevented them from pursuing inquiry in many cases in which they were morally convinced that great infringements on his patent-right were

practised. A most flagrant instance, however, having come to their knowledge, in which the parties not only used machinery on Mr. Cartwright's principles themselves, but fabricated combing-machines for the use of other manufacturers, an action was brought, in the names of Major Cartwright and his brother Charles, against the persons thus offending.

In this cause, which came on to be tried after Trinity term, 1799, the plaintiffs were nonsuited; but this check, although an addition to their expense and trouble, in no way affected the principles on which they sought redress. It appeared that when Mr. Cartwright, in 1793, had assigned over his patent-rights to his brothers, a suit was then pending between him and another person (on a question of invasion of patent-right), and in the deed of assignment it was stipu-

lated that Mr. Cartwright should be held as legal owner of the patents, in trust for the assignees, until the suit in question should be legally determined. This suit had, in fact, terminated, not in a legal trial, but in one of those compromises to which the exigency of his affairs had but too frequently compelled Mr. Cartwright to agree; and his assignees, considering this compromise as having the same effect as if the matter had been determined by law, had consequently proceeded to act according to the different provisions of the assignment. The defendants, however, objected, that as no fresh assignment had taken place subsequent to the determination of the depending suit, the legal interest, not being vested in the plaintiffs, still remained in Edmund Cartwright, and therefore the defendants were entitled to recover. The learned judge (Rooke)

being of that opinion, directed a nonsuit. But on the 18th November, of the same year, Serjeant Runninton having moved to set aside the nonsuit, the judge admitted, that on a further consideration of the effect of the deed than was given to it at Nisi Prius, he was convinced "that the legal interest vested in the plaintiffs immediately on the determination of the suit that was then depending at the time when the indenture was executed." The rest of the court having expressed an opinion to the same effect, the nonsuit was set aside, and in the following spring the cause was brought forward again, and tried before Lord Chief Justice Eldon, in the Court of Common Pleas.

The hardship of Mr. Cartwright's case, so strongly appearing in the pains that had been taken to evade his patents, and defeat

his efforts for protecting them, had awakened a general sympathy in his favour. The novelty and ingenuity of the machinery, of which he was clearly proved to be the inventor, with the great display of talent and knowledge on the part of those scientific persons who had been called upon as witnesses to distinguish between artful imitation and original invention, rendered this trial (John and Charles Cartwright *v.* Amatt and others) one of the most curious and interesting suits relative to the invasion of patent-right that had ever been brought forward in any court of justice. After a laborious investigation, which occupied the court two days, a verdict was given for the plaintiffs, with a thousand pounds damages.

The patient attention shewn by the Lord Chief Justice Eldon throughout the whole of this investigation, in which his lordship

took infinite pains to make himself master of the mechanical part of the subject, was always duly and gratefully acknowledged by Major Cartwright and his brother.

So favourable an issue to this important trial was naturally hailed by Mr. Cartwright and his friends as the turning of the tide in the state of his affairs. It was discovered, that in mills in several different parts of the kingdom, his wool-combing machine had been surreptitiously introduced and worked; and now that he had legally substantiated his claim to the invention, he might reasonably expect some pecuniary advantage from its general adoption. But, strange as it may appear, no pecuniary benefit ever did accrue to him connected with this invention, either immediately, in consequence of this trial, or subsequently, on obtaining an extension of his patent-right. It cannot be

denied that Mr. Cartwright had, in the late trial, obtained the justice he was entitled to; but the expenses and difficulties attending it were such as to deter him from again seeking the same mode of redress. Major Cartwright, indeed, by his indefatigable perseverance, had succeeded in detecting fresh instances of piracy; but, in most instances, the assignees were induced to enter into compromise with their opponents, rather than incur the cost and vexation of another lawsuit; and in these compromises, it is hardly necessary to remark that Mr. Cartwright and his brothers were not likely to have the advantage. By this time, ten years of the patent-right (relative to wool-combing) were expired; and there seemed so little prospect of deriving a reasonable remuneration from it during the four remaining years, that Mr. Cartwright was advised to apply

to parliament for an extension of the term—
an indulgence, which, though rarely granted,
was not without example. He accordingly
presented a petition, to that effect, to the
House of Commons, on the 17th March,
1801, the substance of which is contained
in the following document, which, as it ex-
hibits in a succinct form, the causes of his
past and then existing difficulties, as well
as the grounds on which he sought parlia-
mentary relief, is inserted nearly at full
length.

*“ The Case of Edmund Cartwright, of Marylebone
Parish, Clerk, Master of Arts.*

“ Mr. Cartwright, who now seeks the
protection of the legislature, is the author
of various mechanical inventions, of great
utility to the manufactures of his country;
but hitherto the labour of many anxious

years, fruitful in benefit to the public, hath brought him no other reward than barren reputation, accompanied by ruined fortunes, a situation bitterly aggravated by his having been obliged to behold many scandalous invasions of his property, without the means of resistance; and he might even have had torn from him the honour of having been the inventor of the art of combing long wool by machinery, had it not been for the assistance of friends, by whose means he was enabled to vindicate, in a court of law, the originality of that invention.

“Mr. Cartwright dates the origin of his misfortunes from the burning of a mill, which, in the year 1792, had been erected at Manchester, for the working of five hundred looms of his invention, which burning there was strong reason to believe had been the premeditated act of evil-minded persons.

Be this, however, as it may, it had the effect of deterring other manufacturers from attempting to adopt the use of the patent looms; notwithstanding the invention was such, that with the loom in question, one child of ten years old could execute as much as two experienced men, and in a style superior to any hand-weaving, which, at the best, is only an approximation towards correctness, whereas the patent loom gave the same number of threads to every yard of work, with mathematical accuracy.

“Notwithstanding, Mr. Cartwright, by the misfortune above mentioned, was totally defeated in his hope of advantage from an invention he was some years in bringing to perfection; yet the invention is still in possession of the public, and when the necessity of economy shall bring it into general use, the national profit, from its abridg-

ment of labour, and superiority of work, cannot be less than *one million and a half sterling* per annum; especially as it will be the means, whenever universally adopted, of working up at home all that cotton twist and yarn, which now seeks a market in Saxony and other countries.

“But to come to the immediate subject of his present application to the legislature, Mr. Cartwright has to state, that although we derive from high antiquity the art of converting wool into jersey, by means of the ordinary comb, no one has recorded any improvement whatever, either upon the art or the implements, until they became the subject of his study and contemplation—a fact which affords no slight presumption of the inherent difficulty of the task.

“In the year 1790, Mr. Cartwright, however, after some abortive attempts, had the

happiness to strike out a practicable mode of combing wool by machinery; and for the combing machinery he then invented, together with other inventions, he obtained his Majesty's patent for England, &c. Pushing his experiments and discoveries, he made successive improvements, taking out a second patent in December of the same year; and a third patent, for combing machinery, and other inventions, in the month of May, 1792, besides one in December, 1792, for Scotland.

“Fortunately for Mr. Cartwright, not only the originality of his invention for combing wool has been established upon a rock, but its great national utility also has been proved beyond contradiction, in the course of the late laborious trial (which, for two whole days, occupied the Court of Common Pleas), before the Right Honourable

Lord Chief Justice Eldon, and a special jury.

“As besides the presence of the Chief Justice, that trial was attended by a noble lord of the upper house, as a witness, and by an honourable member of the House of Commons, as a barrister; there are thus, in both houses of parliament, honourable and noble persons, to whom an appeal can be successfully made for the correctness of this statement. As the whole proceedings on that trial are very voluminous, Mr. Cartwright is printing, and means to publish, the summing up only, transcribed by Mr. Gurney, from his own short-hand notes, and the manuscript has been submitted to the Chief Justice for his correction. Therein will be seen the opinion Lord Eldon entertained, and frequently expressed, of the merit and utility of the invention. On the

trial alluded to, it was proved, that by the use of each single set of Mr. Cartwright's patent combing machines, the saving in labour was more than one thousand one hundred pounds per annum; from which fact, combined with the estimate of the quantity of combing wool produced in England, it results that whenever the patent combing machine shall be universally adopted, the total saving to the nation cannot be so little as a million sterling a-year.

“Mr. Cartwright will not load his case with a detail of all those complicated causes which have hitherto prevented his deriving benefit from the invention in question; but leave them to the imagination of the reader, who will easily conceive the difficulty of stemming the tide of prejudice, rivalry, and injustice, by a man of ruined fortunes.

“Suffice it then to say, that after em-

ploying himself indefatigably for several years in his mechanical pursuits and discoveries, and failing to meet with that remuneration which could alone enable him to support the expense, he in the year 1793 sunk under a burthen too great for him to bear; surrendering for the benefit of his creditors, not only his whole estate, but assigning also all his patents themselves to trustees for the same purpose; and although the only rightful owner of the only valid patents for combing machines, he had the mortification to find himself, for seven years more, sinking deeper and deeper in debt, before even those patents could be put out of danger by the decision of a court of law.

“Why those patents, intrinsically of so much value as hath been stated, have not yet in any degree amended his pecuniary

situation, is only to be accounted for from causes already touched upon, but the fact is certain, that the expense incurred in their preservation from that destruction of them that was attempted, has hitherto very far exceeded the profits they have brought in, so that by the necessary accumulation of a debt when there is not the means of keeping down the interest, the patentee is at this moment much deeper in debt than when he first surrendered his estates; whereas, had his patent combing machinery above mentioned, been adopted so early and so generally as he might reasonably have expected, he must long, ere now, have been in a state of affluence. The whole of his actual loss from prosecuting his mechanical inventions, when the debt thereby is taken into the account, much exceeds the sum of thirty thousand pounds. Seeing that the

patents which included his wool-combing machinery are respectively drawing near to their expiration, while yet the degree in which the machines have been adopted is far too small to flatter the patentee with even a hope of paying the interest of his debt, unless the legislature shall generously take him under its protection; he has resolved to make the present application for an extension of the patent terms, so far as relates to the combing and preparing of wool. And he most humbly and earnestly hopes, that if his claims shall be found deserving, he shall receive from the individual and collective wisdom of parliament, that indulgence which other patentees, on similar applications, though not under circumstances of such peculiar hardship, have in many instances received from the legislature of their country."

The petition from Mr. Cartwright was favourably received by the House of Commons, and being referred to the consideration of a committee, different witnesses were examined, whose evidence went to prove not only the truth of all the allegations contained in the petition, but many additional circumstances calculated to strengthen the claims of the petitioner. It appeared by the evidence given on the occasion, by Major Cartwright, that by reason of the distressed state of the petitioner's affairs, he had not the means of appealing to the laws of his country for redress, but that he (the witness), as trustee for his brother's patent rights, had in the year 1799 commenced an action at law against certain invaders of those rights, which action was concluded in April, 1800, by a verdict in favour of the patentee.

Before it was convenient to him to advance money in defence of the said patents, he had found himself under the necessity, for promoting the interests of the patentee and his creditors, to make a compromise with persons who had taken out two patents for wool-combing machinery, although he knew, and the parties themselves have since acknowledged to him, that their patents were for machinery that infringed on the patents of the petitioner. It was also stated by Major Cartwright, that his brother had been compelled, by the exigency of his affairs in 1793, to desist from a suit, and enter into a compromise with another person who had taken out a patent, which the witness, having seen both the machinery itself and a specification of it, was convinced was not a valid patent, but an infringement of that of the petitioner. In conse-

quence of these forced compromises, and of the inability, on the part of the inventor, to vindicate in all cases of infringement the originality of his invention, the public remained in suspense as to what machine for wool-combing might be legally and most advantageously used; and this witness was further of opinion, that unless the term of the present patent-right should be reasonably prolonged, it would not be prudent for the patentee, or his trustees, to enter into any fresh lawsuit for the purpose of vindicating his rights.

In addition to the above evidence, was that of another witness, who had been employed for seven years in a mill, where six sets of the combing machines were used; and who estimated the profits arising from each set at 1100*l.* per annum. This witness mentioned also some other mills

where this machinery was employed, and was of opinion that, had it not been for the invasion of the patent, the original machine would have been in general use.

The report from the Committee, which was delivered the 13th April, by Mr. Spencer Stanhope, having proved satisfactory to the House, leave was given on the 8th May, to prepare and bring in a Bill, for the purpose of prolonging Mr. Cartwright's patent right, as far as regarded wool-combing, for the term of fourteen years. Whilst this Bill was in progress, several counter petitions were presented to the House from certain persons, who conceived that its operation would affect those agreements, or compromises, which Mr. Cartwright had been induced to enter into with them, as well as tend to check the ingenuity that

might be beneficially exercised in improving upon the invention in question.

These petitions being referred to the consideration of the Committee appointed to inquire into Mr. Cartwright's claims, and leave being given to the respective petitioners on both sides of the question to be heard by counsel, the matter was argued with all the acuteness that might be expected from some of the most eminent legal characters of the day. On this occasion, Mr. Cartwright conceiving himself personally aggrieved by the observations of one of the counsel for the opposing party, prepared a reply to these offensive observations, which, to judge from the sketch found amongst his papers, appears to have been drawn up with his usual perspicuity and clearness, though somewhat partaking of that indignant style,

which, when roused by insult, it was well-known he could assume. The case of Mr. Watt, to whom an extension of patent right was granted in the fifteenth year of George III., having been alluded to, with an invidious comparison between his superior claims and those of Mr. Cartwright, the latter observed in reply, "It was admitted by the learned counsel of my opponent, that in extending the patent of Mr. Watt, Parliament was justified. Perhaps if the learned gentleman had known the whole of the two cases, he would not in the same breath have approved of the one extension, and condemned the other. The steam-engine is doubtless a machine of immense value, but Mr. Watt did not invent the steam-engine. That was a discovery of a former age. It had been known and used a great part of a century at the time when Mr. Watt first exercised

his invention upon it, and his invention went no further than to an improvement. I do not mean to arrogate too much to myself, but I certainly have a right to say, that not only the first machines for combing wool were of my invention, but that I invented the very ART itself of combing by machinery, which till that time was utterly unknown, and in which I did not derive a single ray of light from any human ingenuity of a former date; and it will be kept in mind that the combing of wool is the very basis of the great supereminent manufacture of this country." On the 5th June, the Bill was read a third time, and passed the House of Commons. It received an amendment in the House of Lords, providing for the security of such persons as had previously entered into compromise with Mr. Cartwright, and on the 2nd July, the Bill received the Royal Assent.

This great object being attained'd, Mr. Cartwright, in having fourteen years of secur'd possession to look forward to, seem'd plac'd in so advantageous a position, that it might reasonably be expected he should in future be able to treat with his opponents on more equitable terms, and compel those who employ'd his machinery to acknowledge a right thus sanction'd by an especial act of the Legislature. But the deficiency of pecuniary means to follow up the necessary inquiries, still continu'd; and in addition to this impediment, the activity of his mind became divert'd towards a variety of other objects, from some of which he probably hop'd to derive more immediate benefit. Whatever the causes of failure might be, it is certain that no advantage did accrue to him from the renewal of his patent right, nor indeed did he ever reap any pecuniary

gain from an invention of such acknowledged ingenuity.*

* That the wool-combers had taken alarm at the introduction of the machine in question, was evident from the circumstance of there having been between fifty and sixty petitions to Parliament against its use as early as the year 1796. The number of wool-combers was estimated at fifty thousand.