

## CHAPTER XIII.

## NOTES OF LIFE IN 1850-51.

They come !  
 My ear drinks in the measured tread,  
 It steals upon me from afar ;  
 They come ! but not o'er heaps of dead,  
 Their tread is not the tramp of war.

They come !  
 But no red carnage tracks their heel,  
 No blood-stained banners do they wave ;  
 They carry not the murderous steel,  
 Nor dig at each new step a grave.

They come !  
 Their numbers wave like ears of corn  
 Before the wind ; their ranks increase ;  
 But theirs are numbers that adorn  
 The armies of ' *The Prince of Peace.*'

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Rev. Dr. ASPINAL, of *Liverpool*.

On the 15th of April 1850 we went abroad for change of air and scene, after the heavy pressure of desolating bereavement,—first visiting Brussels and Antwerp, and then remaining for some weeks in Paris, where my father enjoyed meeting scientific and literary friends, M. de la Rive, the Abbé Moigno, editor of *Les Mondes*, M. Babinet, the Chevalier Neukomm, and others ; he was much with Lord Brougham, who was in Paris that spring, and came to see us almost every day. Even when he had not time to come in, his quaint friendly visage was sure to appear at a small opening

of the antechamber door, from whence he poured forth original and striking conversation. But the man to whom my father's heart clung most, and who excited his warmest admiration and sympathy, was Dominique François Jean Arago, five years his junior, whose acquaintance he had first made when in the prime of manhood, at the French Institute in 1814, and of whose early and chequered career Brewster had given some notes in his home letters. Since then life had been to the French astronomer full of changes and vicissitudes. He had acted as Minister of War and Marine during the short Provisional Government of 1848. He had borne the white flag at the murderous barricades, where the muskets and cannons of the infuriated insurgents were pointed against the brave peace-maker, although he wonderfully escaped further injury than a shock to the nerves of the eyes, which eventually produced blindness; and he had shed the bitterest tears of bereavement over the graves of an idolized wife and son. His appearance was striking. He was tall, though somewhat bent, with hair grizzled and matted, deeply-sunken eyes, a lofty brow, furrowed more with sorrow, care, and labour than with age, and features once handsome, then only grand and massive, expressive at once of expansive intellect and of the deepest depression. He came to see us one day, when rumours were so rife of the certainty of *émeutes*, and the probability of another revolution, that many of our countrymen had provided passports for instant flight; and even Lord ——, the highest diplomatic authority, had assured my father that there was no danger "before Saturday." Arago's cheerful laugh and "*Bah! bah! Paris est assez tranquille,*" had

a wonderful effect in banishing uneasiness. He went on to give his opinion as to the state of the people, the false reports and exaggerations so currently circulated and believed, and the improbability of further danger and bloodshed, at least for a time, which subsequent events fully verified. There was something in his voice and look that gave one confidence.

Some days after we went to the Observatoire—a large and magnificent building erected by Louis Quatorze, of which M. Arago was director, and in which he had his home of many years, and much sorrow. There he dwelt, amidst the instruments and books, which were, alas! his chief consolation for the troubles of life. There he lived, with the external heavens brought close to him by means of the magnificent telescopes of the Observatoire—those starry, beautiful heavens, which yet he could not see. We were shown into his library, a large and lofty chamber, decorated with prints and photographs of contemporary *savans* of all nations. When the philosopher came in, it was easy to see the traces of a new and deep depression. That morning his attached friend and scientific companion, M. Gay-Lussac, the celebrated chemist, had breathed his last at his dwelling in the Jardin des Plantes, and it was touching to trace the tender feeling and deep sense of bereavement, so rare in a man no longer young, and of such absorbing thought and occupation. He spoke a few words, also very despondingly, of his own health, and seemed to anticipate that the close of his life was near at hand. His cheerfulness, however, partially returned, as his old friend directed the conversation, in a medley of French and English, to their favourite theories, demonstrations, and discussions. It was in-

deed a touching and an interesting sight to watch the communing of those two remarkable men, so different, yet so full of sympathies, which they never again were to interchange in life.

Before saying farewell to Arago, we went all through the spacious halls and beautiful machinery of the Observatoire, emerging upon the top, from whence we saw the most beautiful view that could be imagined of that strangely fascinating city, with its spires and faubourgs, Seine and bridges, stretched out calmly and silently, as if there existed not within it so many appalling elements of woe, crime, and anarchy. When we were seated in the carriage, one of the *savans*, of loyalist tendencies, who had been doing the honours of the Observatoire, presented us with a small tumbler, royally ciphered, which had been rescued from the sack of the Tuileries, when we became aware of having attracted the attention of the French footman and coachman on the box, who were listening with an unmistakable earnestness of attention and ferocity of look. The philosopher, with somewhat unphilosophic haste, changed the subject, and we all immediately found the weather to be a topic of engrossing interest. We drove away from the Observatoire with a melancholy feeling that we should never again see its distinguished *chef*, which indeed was the case. On our next visit we found that Arago was a prisoner from a severe attack of illness, and shortly afterwards we took our final departure from Paris.

Little more than two years after this, Arago lay down to die, and in connection with that event, a conversation was recorded in scientific annals which gives at least the consolation of knowing that Arago was possessed of

a praying mother and a faithful friend. An old friend of my father's, M. de la Rive, a Swiss philosopher, whom it was a great happiness to meet in Paris at this time, had been led by the loss of his wife to seek and to find consolation in revealed religion. Being again in Paris at the time of Arago's last illness, M. de la Rive sought to render his illustrious friend a partaker of the same happiness, although fully understanding the difficulties of a mind which would only admit what it could perfectly comprehend. He thus described the interview:—"We conversed upon the marvels of creation, and the name of God was introduced. This led Arago to complain of the difficulties which his reason experienced in understanding God. 'But,' said I, 'it is still more difficult not to comprehend God.' He did not deny it. 'Only,' added he, 'in this case I abstain, for it is impossible for me to understand the God of you philosophers.' 'It is not with them that we are dealing,' replied I, 'although I believe that true philosophy necessarily conducts us to belief in God: it is of the God of the Christian that I wish to speak.' 'Ah,' he exclaimed, 'He was the God of my mother, before whom she always experienced so much comfort in kneeling.' 'Doubtless,' I answered. He said no more; his heart had spoken; this time he had understood."<sup>1</sup>

On the 2d of October 1853 Arago breathed his last, at the age of sixty-seven. His last words were—*Travaillez, travaillez bien*; and a new edition of three volumes of scientific notices, it was touchingly said, "a été préparée par Arago mourant." The Emperor decreed a public funeral for this man, so widely celebrated

<sup>1</sup> *François Arago*. Par M. de la Rive. *Bull. Univ. de Genève*, Oct. 1853.

and so deeply beloved. In spite of a heavy rain, the procession was followed to the Cemetery of Père la Chaise or awaited by crowds in silent and tearful sorrow. As many as twelve thousand persons thus "assisted" at the great mourning, proving that the name of Arago had preserved all its prestige and its immense popularity.

My father was deeply interested in all M. Arago's works, and reviewed several of them in the *North British*. In a notice of Arago's Life, he thus wrote:—"We have had the good fortune, as we now feel it, of breaking a lance with Arago, both as a principal and a second, in some of the tournaments of science. A nobler and more generous opponent we never encountered. When after a campaign of twenty-five years it became necessary that we should meet, he prepared the way by a letter of lofty sentiment and warm affection. Other twenty years have elapsed, in which we have found ourselves in open combat with him on questions of exciting interest and national feeling; but he has ever shown to us the warmest friendship, not only in words which he has addressed to the world, but in acts of substantial and much valued kindness. It is therefore with the deepest sorrow that we mourn the double loss of a friend and of a sage, and that we now express over his tomb our admiration of his genius, our sympathy with his patriotism, our gratitude for his kindness, and our affection for his character."

An evening spent with M. Guizot at this time interested my father exceedingly. It was strangely solemnizing to enter from the guarded yet threatening streets, the scene of the *coup d'état* only a year later, into the quiet salon of the fallen statesman. He showed us the

portrait of his father, who had perished on a scaffold of the first Revolution, and for whom Guizot's mother had worn mourning to her last days. In that happy intelligent home-circle, however, it was difficult to retain long the remembrance of outside turbulence.

Amidst much sight-seeing in Paris and its neighbourhood, nothing occupied his attention more than the remarkable electro-chemical telegraph, exhibited to us by its inventor, Mr. Alexander Bain, upon which M. Leverrier and Dr. Lardner were experimenting at that time before committees of the Institute and the National Assembly. Brewster afterwards wrote:—"When we saw in Paris the whole operation of perforating the message and recording it in blue lines at the other end of the wire, it seemed more like magic than any result of mechanism which we have ever seen. The dry steel point, when tracing its spiral path, actually seems to be depositing blue ink upon the paper. But it is not merely ingenuity that is the characteristic of Mr. Bain's telegraph. It is unlimited in its quickness, and unerring in its accuracy; and it has another advantage, of requiring a battery of much less power than other forms of the telegraph." Mr. Bain received a large sum for his inventions from the Electric Telegraph Company, and he went afterwards to America, where his form of telegraph is, I believe, still extensively used, and under some conditions of the atmosphere it works better than the ordinary kind. The fact of Mr. Bain being a Scotchman did not decrease the admiration with which the beautiful experiments were watched. Although the first steps in the invention of the telegraph were taken in France by M. Le Monnier, and in England by Sir W. Watson about the

year 1747, yet the idea of its practical application to the transmission of messages was undoubtedly first suggested by an anonymous correspondent of the *Scots Magazine*, dated Renfrew, Feb. 1, 1753, signed C. M., and entitled "An Expeditious Method of conveying Intelligence." After a good deal of correspondence on the subject, Sir David Brewster gave up all hope of discovering the name of the inventor, and it was not till 1859 that he had the great pleasure of solving the mystery, in the following manner: he "received from Mr. Loudon of Port-Glasgow a letter, dated 31st Oct. 1859, stating that while reading the article in the *North British Review* his attention was arrested by the letter of C. M., and having mentioned the fact to Mr. Forman, a friend then living with him, he told him that he could solve the mystery regarding these initials. Mr. Forman recollects distinctly of having read a letter, dated 1750, and addressed by his grandfather, a farmer near Stirling, to Miss Margaret Winsgate, residing at Craigengilt, near Denny (to whom he was subsequently married), referring to a gentleman in Renfrew of the name of Charles Morrison, who transmitted messages along wires by means of electricity, and who was a native of Greenock, and bred a surgeon. Mr. Forman also states that he was connected with the tobacco trade in Glasgow—that he was regarded by the people in Renfrew as a sort of wizard, and that he was obliged, or found it convenient, to leave Renfrew and settle in Virginia, where he died. Mr. Forman also recollects of reading a letter in the handwriting of Charles Morrison, addressed to Mr. Forman, his grandfather, and dated 25th Sept. 1752, giving an account of his experiments, and stating that he had sent an account of them



to Sir Hans Sloane, the President of the Royal Society of London, who had encouraged him to perfect his experiments, and to whom he had promised to publish an account of what he had done. In this letter Mr. Morrison stated that as he was likely to be ridiculed by many of his acquaintances, he would publish his paper in the *Scots Magazine* only with his initials."

After a week or two in London, where we made the acquaintance of Frederica Bremer, whose kindly, homely simplicity my father much admired, we came northward, paying a visit *en route* to Mr. and Mrs. Fox Talbot in their lovely summer residence on the banks of Windermere, where the two philosophers had much pleasant intercourse over photography and other scientific pursuits, rendered doubly interesting by the beauty of the scenery.

The twentieth meeting of the British Association took place for the second time in Edinburgh, July 23d of this year, and Sir David Brewster was the President. His opening address was carefully prepared, as all his public appearances were, and was published separately. True to his persistent energy of aim, whatever others might do, he never forgot the original objects of this Association, which he again brought forward prominently. He spoke as follows:—"It has always been one of the leading objects of the British Association, and it is now the only one of them which has not been wholly accomplished, 'to obtain a more general attention to the objects of science, and a removal of any disadvantages of a public kind which impede its progress.' Although this object is not very definitely expressed, yet Mr. Harcourt, in moving its adoption, included under it the revision of the law.

of patents, and the direct national encouragement of science,—two subjects to which I shall briefly direct your attention. In 1831, when the Association commenced its labours, the patent-laws were a blot on the legislation of Great Britain; and though some of their more obnoxious provisions have since that time been modified or removed, they are a blot still, less deep in its dye, but equally a stain upon the character of the nation. The protection which is given by statute to every other property in literature and the fine arts, is not accorded to property in scientific inventions and discoveries. A man of genius completes an invention, and, after incurring great expense, and spending years of anxiety and labour, he is ready to give the benefit of it to the public. Perhaps it is an invention to save life—the life-boat; to shorten space and lengthen time—the railway; to guide the commerce of the world through the trackless ocean—the mariner's compass; to extend the industry, increase the power, and fill the coffers of the State—the steam-engine; to civilize our species, to raise it from the depths of ignorance and crime to knowledge and to virtue—the printing-press. But, whatever it may be, a grateful country has granted to the inventor the sole benefit of its use for fourteen years. That which the statute freely gives, however, law and custom as freely take away, or render void. Fees, varying from £200 to £500, are demanded from the inventor; and the gift, thus so highly estimated by the giver, bears the great seal of England. The inventor must now describe his invention with legal precision. If he errs in the slightest point—if his description is not sufficiently intelligible—if the smallest portion of his invention has been used before—or if he

has incautiously allowed his secret to be made known to two individuals, or even to one—his patent will be invaded by remorseless pirates, who are ever on the watch for insecure inventions, and he will be driven into a court of law, where an adverse decision will be the ruin of his family and his fortunes. Impoverished by official exactions, or ruined by legal costs, the hapless inventor, if he escapes the asylum or the workhouse, is obliged to seek, in some foreign land, the just reward of his industry and genius. Should a patent escape unscathed from the fiery ordeal through which it has to pass, it often happens that the patentee has not been remunerated during the fourteen years of his term. In this case, the State is willing to extend his right for five or seven years more; but he can obtain this extension only by the expensive and uncertain process of an Act of Parliament—a boon which is seldom asked, and which, through rival influence, has often been withheld. Such was the patent-law twenty years ago; but since that time it has received some important ameliorations; and though the British Association did not interfere as a body, yet some of its members applied energetically on the subject to some of the more influential individuals in Lord Grey's Government, and the result of this was, two Acts of Parliament, passed in 1835 and 1839, entitled, 'Acts for Amending the Law touching Letters Patent for Inventions.' . . .

“The other object contemplated by the British Association—the organization of Science as a national institution—is one of a higher order, and not limited to individual or even to English interests. It concerns the civilized world:—not confined to time, it concerns

eternity. While the tongue of the Almighty, as Kepler expresses it, is speaking to us in His Word, His finger is writing to us in His works; and to acquire a knowledge of these works is an essential portion of the great duty of man. Truth secular cannot be separated from truth divine; and if a priesthood has in all ages been ordained to teach and exemplify the one, and to maintain, in ages of darkness and corruption, the vestal fire upon the sacred altar, shall not an intellectual priesthood be organized to develop the glorious truths which time and space embosom—to cast the glance of reason into the dark interior of our globe, teeming with what was once life—to make the dull eye of man sensitive to the planet which twinkles from afar, as well as to the luminary which shines from above—and to incorporate with our inner life those wonders of the external world which appeal with equal power to the affections and to the reason of immortal natures? If the God of Love is most appropriately worshipped in the Christian Temple, the God of Nature may be equally honoured in the Temple of Science. Even from its lofty minarets the philosopher may summon the faithful to prayer; and the priest and the sage may exchange altars without the compromise of faith or of knowledge.”

The subject of the patent-laws had long occupied the attention of Brewster, and Lord Brougham was the champion of this long-contested battle. In 1835 Lord Brougham's first bill to give relief to the sorely oppressed inventors of England was passed by a considerable majority in the House of Lords, but only by a small majority in the House of Commons. Much was still needed, and after long efforts the amalgamated bill of Lord Brougham and Lord Granville was passed

in 1852. So many alterations were made in Committee that the Act was still regarded only as a mere instalment of reform.

In 1865 Sir David Brewster wrote upon this subject : —“The injustice of the patent-law has been so fully admitted, that various Acts of Parliament have been passed in favour of the patentee, adding slightly to the protection of his right, and reducing the expense of its attainment; but no addition has been made to the shortness of its tenure, and no increase of security against direct piracy, or partial infringement. Whatever difficulty the statesman may experience in giving security to the rights of inventors, he can have none in giving them the same tenure as copyrights, and conferring them as gratuitously, or at no greater cost than is necessary to cover the expenses of the Patent Office. Between the national claims of authors and inventors there can be no comparison. Value as you may, and value highly, the treasures of ancient and of modern thought, what are they when weighed against the inventions of art and science, predominating over our household arrangements, animating our cities with the sounds of industry, and covering with mechanical life the earth and the ocean? The eloquence of the orator, the lesson of the historian, the lay of the poet, are, as it were, but the fragrance of the plant whose fruit feeds us, and by whose leaves we are healed; or as the auroral tint which gives a temporary glory to a rising or a setting sun. But grant to the favoured genius of copyright its highest claims, and appreciate loyally its most fascinating stores, their value is shared, and largely shared, with that of the type, the paper, and the press, by which these stores have been multiplied and pre-

served. The relative value of books and inventions may be presented under another phase. Withdraw from circulation the secular productions of the press that are hoarded in all the libraries of the world, and society will hardly suffer from the change. Withdraw the gifts with which art and science have enriched us—the substantial realities through which we live, and move, and enjoy our being—and society collapses into barbarism.”

In 1851 the Duke of Argyll was elected Chancellor of the University of St. Andrews, and his installation took place in the large Hall of the University Library,—a ceremony which many crowded to witness. The Duke and Duchess of Argyll, and Lady Emma Campbell, visited my father on this occasion at St. Leonard’s College.

This was a busy year to him, as to many of his contemporaries. His duties as a juror of the Great Exhibition kept him in London for some months. During this time the Kohinoor diamond was an object of great interest to him. The various phenomena to be observed in precious stones, their fluids, their imbedded crystals, and their “pressure cavities” had long been traced and experimented upon by him. He had invented an instrument for testing and examining precious stones, which he called a Lithoscope, from two Greek words signifying *a stone*, and *to see*—one constructed by Dollond having been exhibited at the British Association at York in 1832. Ladies brought their jewels to him to be admired and examined, and were startled to find them branded as simple glass. As long ago as the old Kinrara days a splendid set of amethysts shown to him by Jane Duchess of Gordon, of witty memory, were ruthlessly denounced as “shams.”

The diamond and its strange history—brilliant production as it is of dim and dark vegetable life—had been a special object of research to him. In comparatively early life Brewster was the first person to investigate the remarkable optical structure of the diamond; and an early scientific friend of his, Sir George Mackenzie of Coul, was the first person in this country who burned diamonds, making a free use of his mother's jewels, and by means of diamond powder converting iron into steel. Sir David was therefore quite in his element while examining the famous gem which drew so many admirers around it in the Crystal Palace. At first it had caused disappointment, as owing to its position and the manner in which it was cut, it emitted little brilliancy, but when, at his suggestion, fifteen or sixteen gas lights were placed behind, it threw out a radiance of coloured light which delighted all who saw it. In 1852, having been consulted along with others by Prince Albert as to the best manner of having it recut, he was kindly given every facility of examining it at Buckingham Palace, which he did with the microscope and by the aid of polarized light. This further minute investigation only confirmed the conclusion he had previously arrived at, that this diamond, large and beautiful as it was, was not the Mountain of Light, nor any portion cut from the original body, although given to the English under that name from the Lahore Treasury, where it had been placed after the death of Runjeet Sing.

He wrote as follows:—

“LONDON, *May* 31, 1851.

“ . . . I was occupied all yesterday in examining the diamonds in the British Museum. The Duke of

Northumberland had told me in the forenoon that it was a general belief in India that the Kohinoor diamond in the Queen's possession is not the real one which belonged to the Great Mogul, and which was weighed and examined by Tavernier in 1665, and I went to the library of the Athenæum to see Tavernier's drawing and description of it. From both it is obvious that the Queen's diamond is not the Kohinoor—**THE MOUNTAIN OF LIGHT.** I send a sketch of Tavernier's drawing of it, which is like a *mountain*, resembling, as he says, half an egg, or one cut in two, whereas the Queen's diamond has no such form, and could not be obtained from the above by any process of cutting. Besides, the above weighed 280 carats, and the Queen's only 184 carats. The real Kohinoor of the Great Mogul, when in a rough state, weighed  $787\frac{1}{2}$  carats, and was reduced by a Venetian diamond cutter, the Sieur Hortensio Borgis, to 280, which so enraged Shah Jehan that he refused to pay him for his labours, and made him pay as a fine 10,000 rupees."

In all my father's writings one thing is prominent, and that is the care he ever took to draw a religious moral from his subject-matter; thus he concludes an article on the Diamond in these words:—"A moral as well as a secular lesson is read to us by the diamond. Like every organism of this world, it bears the impress of decay. The stoutest metal and the toughest gem exist by forces which time weakens and the elements destroy; and in that great catastrophe when the 'earth and the works which are therein shall be burned up,' the jewel so highly prized will pass into its primeval cinder, while the silver and the gold will only



change their form and reappear perchance brighter and purer in the new earth which is to arise. Let us covet, then, the virgin gold and the pure silver of truth and justice, and estimate at their real value the glittering qualities and the dazzling possessions which bear so high a value in this world, but which have none in the next."

My father's horror of war and its appalling train of consequences, which he considered as a scene of legalized slaughter, was a very marked feature of his mind. He considered it alike a breach of the commandment of Sinai and of the spirit of the New Testament, and to the last, never softened the statement which he so frequently made through life, that "he could not understand how any Christian could be a soldier." That he had two sons in the army was a real grief to him, to which he alludes in an address from which I shall presently quote. Nothing excited his indignation more than any encouragement in the pulpit or from clerical lips of the miserable glories of martial fame. His attention had been much directed to the subject of international peace, by means of international arbitration. It was in accordance, therefore, with all his views and feelings, that when requested to act as President of the great Peace Congress, held in the Exhibition year, he should put aside his dislike to such a prominent position, and lend his energies to perform it thoroughly. He thus wrote :—

"LONDON, *July 22, 1851.*

"I HAVE just come from Exeter Hall, where I have been presiding as President of the Congress of Peace, which meets for three days, the 22d, 23d, and 24th. On Friday last a deputation from the Congress, consist-

ing of Mr. Cobden and other two gentlemen, called upon me to ask me to be the President of the Congress at its meetings in London. I, of course, refused on account of my incompetency as a speaker; but having learned that it was not a speech that I had to make, but an address, which was read by the Presidents of the three last meetings at Paris, Brussels, and Frankfort, I agreed, as I had just sent off the last page of my article to Edinburgh. My engagements were so numerous that I could scarcely find time to write my address. I, however, set myself heartily to the task, and I, this day, delivered it with much courage, to a splendid audience of nearly 4000 persons, by whom it was well received. There were several splendid speeches delivered to-day at the Hall by Mr. Angell James, Rev. Mr. Brock, Don Cubii Soler, a Spaniard; Mr. Athanasius Coquerel, of Paris, a clergyman; M. Vischers of Brussels; Dr. Beckwith, an American, and Dr. John Burnet, a Scotchman. The British members of the Congress give a soirée to the foreign members on Friday evening, in Willis's Rooms.

“To-morrow is the last day of our jury labours, so far as the great medals are concerned, so that I can only be *an hour* in the chair of the Peace Congress, where there are to be some eloquent speakers. A large body of French workmen of the superior class are to be there, to testify their hatred of war. They are, of course, visitors to the Exhibition.”

This address, prepared under difficulties, possesses a peculiar interest, from the fact of his singular appreciation of it, which was very uncommon with regard to his own writings. Lady Brewster tells me that when, in

after years, she spoke to him of any of his compositions, he used to say,—“Oh, they are nothing, but the Peace address *is* worth reading.” I give some extracts from it:—

“Most of you, like myself, know war only in poetry and romance. We have wept over the epics and the ballads which celebrate its tragedies. We have followed the warrior in his career of glory without tracing the line of blood along which he has marched. We have worshipped the demigod in the Temple of Fame, in ignorance of the cruelties and crimes by which he climbed its steep. It is only from the soldier himself, and in the language of the eye that has seen its agonies, and of the ear that has heard its shrieks, that we can obtain a correct idea of the miseries of war. Though far from our happy shores, many of us may have seen it in its ravages and in its results, in the green mound which marks the recent battle-field, in the shattered forest, in the razed and desolate village, and, perchance, in the widows and orphans which it made! And yet this is but the memory of war—the faint shadow of its dread realities—the reflection but of its blood, and the echoes but of its thunders. I shudder when imagination carries me to the sanguinary field, to the death-struggles between men who are husbands and fathers, to the horrors of the siege and the sack, to the deeds of rapine, violence, and murder, in which neither age nor sex is spared. In acts like these the soldier is converted into a fiend, and his humanity even disappears under the ferocious mask of the demon or the brute. To men who reason, and who feel while they reason, nothing in the history of their species appears more inexplicable than that war, the child of barbarism, should exist in an age

enlightened and civilized, when the arts of peace have attained the highest perfection, and when science has brought into personal communion nations the most distant, and races the most unfriendly. But it is more inexplicable still that war should exist where Christianity has for nearly 2000 years been shedding its gentle light, and that it should be defended by arguments drawn from the Scriptures themselves. When the pillar of fire conducted the Israelites to their promised home, their Divine Leader no more justified war than he justified murder by giving skill to the artist who forges the stiletto, or nerve to the arm that wields it. If the sure word of prophecy has told us that the time must come when men shall learn the art of war no more, it is doubtless our duty, and it shall be our work, to hasten its fulfilment, and upon the anvil of Christian truth, and with the brawny arm of indignant reason, to beat the sword into the ploughshare, and the spear into the pruning-hook. I am ashamed, in a Christian community, to defend on Christian principles the cause of universal peace. He who proclaimed peace on earth and goodwill to man, who commands us to love our enemies, and to do good to them who despitefully use us and persecute us; He who counsels us to hold up the left cheek when the right is smitten, will never acknowledge as disciples, or admit into His immortal family, the sovereign or the minister who shall send the fiery cross over tranquil Europe, and summon the bloodhounds of war to settle the disputes and gratify the animosities of nations. The cause of peace has made, and is making, rapid progress. The most distinguished men of all nations are lending it their aid. The illustrious Humboldt, the chief of the republic of letters, whom I am

proud to call my friend, has addressed to the Congress of Frankfort a letter of sympathy and adhesion. He tells us that our institution is a step in the life of nations, and that, under the protection of a superior power, it will at length find its consummation. He recalls to us the noble expression of a statesman long departed, 'that the idea of humanity is becoming more and more prominent, and is everywhere proclaiming its animating power.'"

After an eloquent description of the crystal "Temple of Peace," which was drawing crowds of different sea-severed nationalities, he goes on:—

"Amid these proud efforts of living genius, these brilliant fabrics, these wondrous mechanisms, we meet the sage, and the artist of every clime and of every faith, studying the productions of each other's country, admiring each other's genius, and learning the lessons of love and charity which a community of race and of destiny cannot fail to teach. The grand truth, indeed, which this lesson involves, is recorded in bronze on the prize medal by which the genius of the exhibitors is to be rewarded. Round the head of Prince Albert, to whose talent and moral courage we owe the Exposition of 1851, and addressed to us in his name, is the noble sentiment, '*Dissociata in locis concordi Pace ligavi*'—'What space has separated I have united in harmonious peace.' This is to be our motto, and to realize it is to be our work. It will, indeed, be the noblest result of the Prince's labours, if they shall effect among nations what they have already done among individuals, the removal of jealousies that are temporary, and the establishment of friendships that are enduring. Nations are composed of individuals,

and that kindness and humanity which adorn the single heart, cannot be real if they disappear in the united sentiment of nations."

The President concluded the proceedings of the Congress by one of those practical hints which he always strove to introduce:—

"Were our youth better instructed than they are in the popular departments of physical and natural science, subjects with which no deeds of heroism or personal adventure are associated; and were every school to have a museum containing objects of natural history, and specimens of the fine and the useful arts, the amusements of the school would assume a different character, and the scholars would go into active life better fitted for those peaceful professions to which ere long they must be confined. But there is still another class whose active interest in the cause of peace I would fain secure. If there are mothers in this assembly, as I can testify that there are fathers, whose sons have been sent in the service of their country to the regions of pestilence or of war, I need not solicit their assistance in propagating the doctrines of peace. They will proffer it in tears—in tears shed in the recollection of those anxious days in which they have followed in their hazardous career the objects of their deepest love,—now sinking under a burning sun, now prostrate under tropical disease, now exposed to the sword of the enemy."

This was the fourth meeting of the Peace Congress, which had been originated by Mr. Elihu Burritt. Letters of adhesion, sympathy, and approval were read from Count Pierre Dionysie Dumelli, President of the Chamber of Deputies of Turin, from M. Barthélemy St.

Hilaire, Member of the National Institute, representative of the people, and formerly ambassador to England; M. Carnot, representative of the people, and son of the celebrated Carnot who organized Napoleon's armies; M. Victor de Tracy, formerly Minister of Marine in the administration of M. Odillon Barrot; Dr. Bodenstedt; General Subervie, one of the oldest generals in France; Archbishop Whately, M. Victor Hugo, and the Archbishop of Paris. Thomas Carlyle also, a friend and correspondent of the President for many years, in this matter heartily sympathized with him. These were his characteristic words:—

“I fear I shall not be able to attend any of your meetings; but certainly I can at once avow—if indeed such an avowal on the part of any sound-minded man be not a superfluous one—that I altogether approve your object, heartily wish it entire success, and even hold myself bound to do, by all opportunities that are open to me, whatever I can towards forwarding the same. How otherwise? ‘If it be possible, as much as in you lies, study to live at peace with all men;’ this, sure enough, is the perpetual law for every man, both in his individual and his social capacity; nor in any capacity or character whatsoever is he permitted to neglect this law, but must follow it, and do what he can to see it followed. Clearly, beyond question, whatsoever be our theories about human nature and its capabilities and outcomes, the *less* war and cutting of throats we have among us, it will be the better for us all!”

During this summer, Sir David, notwithstanding his busy labours as a jurist, found time as usual for much society, and thus wrote:—

“ I dined with Mr. Cowan, M.P., on the 16th, and with Sir Robert Inglis and a nice party on the 17th, and went in the evening to Lord Rosse’s second soir e, bristling with foreigners. On the 19th, on coming home from the Exhibition to dress, I was surprised by an invitation to the Queen’s ball, to which I of course went. It was a splendid sight, and I met there with crowds of friends. The Queen danced a great deal, and there was something in her whole manner (so happy and cheerful and frank), and in that of the Prince, which made the most favourable impression on everybody. The apartments in the Palace were all thrown open, and the party was very numerous. There were refreshments—tea, coffee, ices, etc., in one room, and a standing supper in the dining-room. We got home about three in the morning, after waiting about an hour in the lobby, where some ladies were sleeping on their seats, and others stretched on the stone steps waiting for their carriages. We were at this time with the Herschels, and had much amusement from the scene around us. The whole display surpassed in beauty and grandeur anything I had seen.

“ On the 20th I dined with Sir John Herschel, and on the 21st I had *three* parties to encounter,—one being a very agreeable dinner at the Bishop of Durham’s, where Mrs. Opie was, upwards of eighty, but full of life, whose acquaintance I made. . . .

“ One of the most interesting acquaintances I have made since I came here, I made yesterday. It was that of Miss Bront e, the authoress of *Jane Eyre* and *Shirley*, a little, pleasing-looking woman of about forty, modest and agreeable. I went through the Exhibition with her yesterday.”



Later in the year we saw together many interesting literary personages—numberless celebrities at the Countess of Lovelace's (Ada Byron), and elsewhere ;—a pleasant breakfast at the venerable Rogers', where were Sir Charles Lyell and Dean Milman,—the poet himself being the object of the deepest interest, as with the admiration and reverence for Scripture which distinguished him, he repeated, in tones tremulous with age and feeling, what he called the "Child's Psalm," "The Lord is my shepherd, I shall not want." This love of the Bible in Rogers my father recollected with interest, and alluded to on another occasion :—"Since writing the above I have received a note from Lady B—, a great friend of Mr. Rogers. She says,—'I went to dear Mr. Rogers' for an hour on Tuesday evening last, and read to him a chapter of Isaiah, the 40th, and the 15th of 1 Corinthians, which pleased the dear old man, and delighted myself.'"

One of the sights which my father most keenly enjoyed was a walk by gaslight through the fairy Palace with Mrs. Davenport,<sup>1</sup> and Sir Charles Fox as our cicerone. It was an unusual privilege, and we were carefully watched by policemen gliding around with feline footsteps, being shod in india-rubber. The crystal roof flashed back the light till it appeared like the firmament, bright with huge planets. The sculpture gleamed or frowned in the bright light and thick shadows in which we alternately moved, till it seemed instinct with life and movement, reminding us of 'a simple experiment which my father often exhibited at home, moving a candle slowly round and round the face and head of a statue in an otherwise dark room, by

<sup>1</sup> Now the Dowager Lady Hatherton.

the light and shadow of which the speaking expression of a life-like face is obtained.

Nothing could be more interesting and improving than going the round of the various departments of that wonderful Exhibition with him. His love and gift for popularizing knowledge never shone to greater advantage. He particularly enjoyed little popular scientific *séances* with groups of intelligent ladies, a pleasant custom remembered by many, and playfully alluded to in the following letter :—

“MY DEAR MRS. DAVENPORT,—I thank you very much for the privilege you have obtained for me of becoming acquainted with the Archbishop of Canterbury.

“It will give me great pleasure to meet you on Saturday at three o'clock at the Crystal Fountain, which will not be so crowded on that day as it has been during the week.

“I shall endeavour to get up a course of lectures for you on the Paranaphthadipine and all the other products of peat ; but you must understand that if you come to the first lecture you must attend the whole course, and thus give me the pleasure of seeing you every day, for I mean to lecture till the close of the Exhibition. You will be glad to hear that Mr. Babbage's book has reached a second edition, which he is now busy preparing.—I am, my dear Mrs. Davenport, ever most truly yours,  
D. BREWSTER.

“1 DORSET STREET,  
MANCHESTER SQUARE.”

After the closing of the Great Exhibition, October 15th, we paid interesting visits *en route* homewards to

Arbury Park, the beautiful residence of C. N. Newdegate, Esq., M.P., and to Capesthorpe, the residence of Mrs. Davenport, who arranged an excursion to the Conway and Britannia Tubular Bridges, staying a night at Chester, and returning the next evening to Capesthorpe.

This was my father's first visit to the Tubular Bridges, and possessed a peculiar interest to him from his cordial friendship with Mr. Fairbairn, and the keenness with which he had entered into the controversy as to his share of merit in the invention and construction of those marvellous monuments of engineering science. Misled by printed documents, he had, in an article in the *North British*, on the railway system, ascribed the entire credit of these works to Mr. Robert Stephenson. When put into possession of the whole facts of the case, Brewster with characteristic energy defended his friend bravely in a later article solely on the subject, written after this visit, advocating what is now universally admitted,—that while Mr. Stephenson had the undoubted priority of proposing *a* Tubular bridge to span the mighty waters, *the* Tubular bridge actually doing so, owes its existence and its success to “the genius, practical knowledge, and patient experimental inquiries of the eminent engineer, Mr. William Fairbairn of Manchester,” who acted as engineer of the bridge, in conjunction with Mr. Stephenson, the sole engineer of the railway works.

Brewster's public appearances of this busy year were closed by an address delivered to the members of the Edinburgh Philosophical Institution on the 11th of November. I extract from it some of his geological views as brought to bear on higher science:—

“It is impossible that the human race could have

existed while the world was in a state of preparation. Man could not have lived amid the storms, earthquakes, and eruptions of a world in the act of formation. The home of the child of civilisation was not ready for his reception. The stones that were to build and roof it had not quitted their native beds. The coal that was to light and heat it was either green in the forest, or blackening in the storehouse of the deep. The iron that was to defend him from external violence lay buried in the ground ; and the rich materials of civilisation—the gold, the silver, and the iron—even if they were ready, had not been cast within his reach from the hollow of the Creator's hand. But if man could have existed amid catastrophes so tremendous, and privations so severe, his presence was not required ; for his intellectual powers could have had no suitable employment. Creation was the field on which his industry was to be exercised, and his genius unfolded ; and that divine reason which was to analyse and combine, would have sunk into sloth before the elements of matter were let loose from their prison-house, and Nature had cast them in her mould. But though there was no specific time in this vast chronology which we could fix as appropriate for the appearance of man, yet we now perceive that he entered with dignity at its close. When the sea was gathered into one place, and the dry land appeared, a secure footing was provided for our race. When the waters above the firmament were separated from the waters below it ; and when the light which ruled the day, and the light which ruled the night, were displayed in the azure sky, man could look upward into the infinite in *space*, as he looked downward into the infinite in *time*. When the living creature after his kind appeared in the fields, and the

seed-bearing herb covered the earth, human genius was enabled to estimate the power, and wisdom, and bounty of its Author; and human labour received and accepted its commission, when it was declared from on high, that seed-time and harvest should never cease upon the earth. . . . Thus ennobled in its character, the natural theology of animal remains appeals forcibly to the mind, even when we regard them only as insulated structures dislodged from the interior of the earth; but when we view them in reference to the physical history of the globe, and consider them as the individual beings of that series of creations which the Almighty has successively extinguished, and successively renewed, they acquire an importance above that of all other objects of secular inquiry. The celestial creations, imposing though they be in magnitude, do not equal them in interest. It is only with *Life* and its associations;—with *Life* that has been, and with *Life* that is to be, that human sympathies are indissolubly enchained. It is beside the grave alone, or when bending over its victims, that man thinks wisely, and feels righteously. When ranging therefore among the cemeteries of primeval death, the extinction and the renewal of life are continually pressed upon his notice. Among the prostrate relics of a once breathing world, he reads the lesson of his own mortality; and in the new forms of being which have marked the commencement of each succeeding cycle, he recognises the life-giving hand by which the elements of his own mouldered frame are to be purified and re-combined.”