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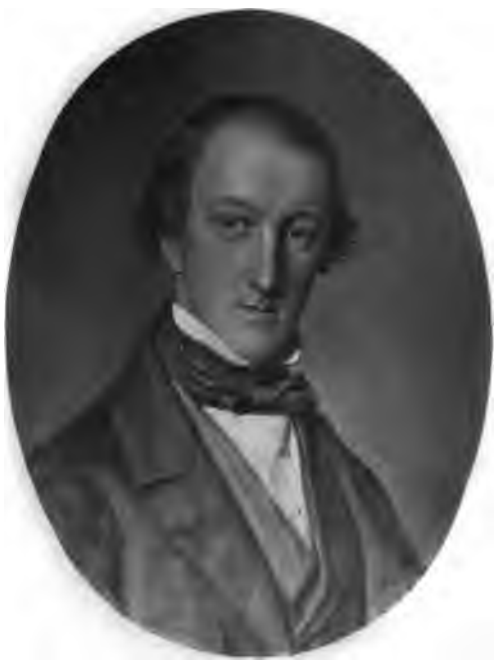

MEMOIR

OF

LEWIS D. B. GORDON, F.R.S.E.

LATE REGIUS PROFESSOR OF CIVIL ENGINEERING AND MECHANICS
IN THE UNIVERSITY OF GLASGOW

For Private Circulation

EDINBURGH—MDCCCLXXVII

EDINBURGH: T. AND A. CONSTABLE,
PRINTERS TO THE QUEEN, AND TO THE UNIVERSITY.

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PREFACE.

In the course of a life that has extended beyond the average duration, I have more than once been received on terms of brotherhood by other circles than my own; but gratitude to the fatherly providence of Him who "setteth the solitary in families" has never been so strongly called forth in me as in the year 1834, when—having been left alone of my kindred in Edinburgh—I was invited to enter the family that then occupied 11 Bellevue Crescent. It was indeed a privilege to be affiliated for a time to Mr. Joseph Gordon and his most hospitable wife, to be admitted to loving intercourse with their children, and, above all, to secure the warm and steady friendship of him whose life—in sunshine and in shadow—will be the subject of the following Memoir.

That, after a lapse of forty-two years, I should be invited to re-enter in spirit the family of my friend, and, as it were, to live with him through the years

that have intervened, I feel to be a crowning honour; but it is with trembling that I cross the threshold of the past, and, however appearances may seem now and then to contradict the assertion, I entreat my readers to believe in my abiding consciousness that we tread together sacred ground.

In this labour of love I have the advantage of association with Mr. David Stevenson, C.E., whose affection for its subject is equal to my own, whose scientific accomplishment eminently qualifies him for delineating Mr. Gordon's professional career, and who kindly unites with me in this memorial of our friend.

THOMAS CONSTABLE.

EDINBURGH, *October* 1877.

CHAPTER I.

The Family—Early education—Choice of a profession—The Dundee Foundry—M. Brunel—Employment at Uphall—The British Association—M. Brunel offers employment—Phrenological estimate—Letter from Mr. Colthurst—Resolves to study at Freiberg.

LEWIS DUNBAR BRODIE GORDON was born in Edinburgh on the 6th of March 1815. He was the fourth son of Joseph Gordon of Carroll in Sutherlandshire, and of Anne, daughter of Colonel Gordon Clunes of Crakaig, in the same county. The estate of Carroll, like most other properties in the district, passed by purchase into the possession of the all-absorbing Duke, and the home of Mr. Gordon's family was thenceforth only in Edinburgh, where he enjoyed high consideration, both as a man zealous for the best interests of his fellow-citizens, and as a distinguished member of the honourable body known in Scotland as Writers to the Signet.

Mr. Gordon had been a Liberal in politics when such sentiments were at a discount in the State and in society. They were rooted in the deep humanity of his nature, warmly seconded by his wife in every

relation and application, imperial, municipal, or domestic, and commended themselves so thoroughly to his descendants, that I believe they have been adhered to by all of them through life until this day.[1] The hospitalities of the family were only limited by the unyielding conditions of time and space, and as their intimate friends were invariably agreeable and cultivated persons, the education of the younger members was not confined to the ordinary vehicle of school-instruction.

Five sons of singular promise and two daughters completed the family of Mr. and Mrs. Gordon. Of these, one brother and two sisters are all that still survive to cherish their venerable mother, now in her ninety-first year. John, the eldest son, entered the Civil Service of the East India Company in 1828, when nearly nineteen years of age, and died from sunstroke, after three days' illness, on 3d May 1846;[2]

[1] So lively was the interest taken by Mrs. Gordon in all events that illustrated the success of the Whig party, that without informing her husband of her intention,—and accompanied by Mrs. John Thomson, the wife of the distinguished Professor of Pathology,—she attended the banquet given in Edinburgh to Henry Brougham in 1825, and surprised Mr. Gordon by her knowledge of the speeches that had been delivered, before any report of them had been published in the papers of the day.

[2] "THE LATE MR. JOHN GORDON.—It is with feelings of the most deep and heartfelt regret that we have to intimate the demise of Mr. John Gordon, Collector at Surat.

"Mr. Gordon had been for some days complaining, but was

the second, Gordon Clunes Gordon, born May 29, 1811, after serving for eight years in the Indian Navy, entered on the study of law, that he might qualify himself to assist his father in that profession,[1] taking the position that had been intended for Charles, his youngest brother, a youth of rare ability and excellence, who died of consumption on the 21st of March 1835, two days before the eighteenth anniversary of his birth—already a man, mature in

not considered in any danger, when, late on Saturday, he was suddenly cut off.

"He arrived in India as a writer on the 23d January 1828. It was as Deputy-Postmaster, and afterwards as Postmaster-General, that Mr. Gordon was best known to the community, and distinguished as the gentlemen have been by whom this important appointment has recently been held, for all the qualities fitting them for the discharge of their duties, Mr. Gordon was pre-eminently conspicuous for his zeal, activity, and obligingness of disposition, his anxiety to exert himself to the uttermost for the benefit of Government and convenience of the public.

"He was kind-hearted, upright, and honourable, and his premature dissolution will occasion many deep and sincere regrets amongst all who knew him."—*Bombay Times*, May 6th, 1846.

[1] I cannot refrain from giving here the following quotation from a letter of Mr. Gordon to his elder daughter at this period, in which, with reference to the subject of Clunes's change of profession, he takes occasion to express the high regard in which he held his partner, the late Mr. Alexander Stuart, whom, with all the fervour of his generous nature, he loved and trusted: "You do not know, my dear Mary, how very dearly I love Mr. Stuart, because I know him to be a man of unrivalled worth, of the purest honour and integrity, unostentatious generosity, and that genuine kindness of heart that makes the greatest sacrifices of his own enjoyment and interest, to promote the

all save years. Clunes himself, after passing as Writer to the Signet, died in November 1843.

The death of the beloved Charlie was the first break in this united household, and certainly before that sad event a happier family could not well be imagined. Order reigned in all its branches; the parents being tender and considerate, the children loving, cheerful, and obedient, and every inmate happy.[1] No one who ever heard them can have forgotten the stentorian tones in which, with the voice of a lion and the heart of a lamb, Mr. Gordon was wont to shout, just two minutes after the prescribed hour had struck, "Is there to

comfort of others, easy to him. On neither brother nor son have I more dependence than on him for protection to my wife and you, my two darlings, if I die before him, which, in the course of nature, should be the case, as he is ten years younger than I."

[1] The domestics of the family were not less so than the other members of the household. Servants who did their duty were always treated with high consideration. One of these, who entered Mrs. Gordon's family seventy-three years ago, still lives at the age of ninety-three years, a loved and cherished member of her daughter's household. After a long life of constant usefulness in the Old World and in the New, Bell Cameron, now Mrs. Leslie, has returned to Britain, resumed her old pet name of "Boodle," and now enjoys in full measure the blessing Shakespeare says should ever "accompany old age,—honour, love, and troops of friends." Among the boys, *Maister* Lewie was a great favourite of hers,—and in later years, letters from the "Professor," addressed to herself, and an invitation to spend some time at Poynters Grove, made her *very* happy.

be *no* breakfast in this house to-day?" or his appropriate salutation, to the punctual and the lazy, as they took their places at the breakfast-table. Alike in childhood and in their maturer years, Mr. Gordon was the intimate friend of all his children. Nothing they told to him seemed too trifling to secure his interest, and in the gravest circumstances of their lives they were sure of his warm sympathy and loving counsel. Courtesy seemed to descend by inheritance to every member of the family, and although free interchange of jest and repartee was permitted and encouraged, no remark was ever heard that meant to make a wound or leave a sting behind.

Alike in boyhood, early manhood, and maturer life, Lewis was distinguished for grace of person and for gracious manners. Fastidiously neat in all his personal arrangements and requirements, he has been known, even when a schoolboy, to use his play-hour in running home to have a lost button replaced, and when visiting in the country he dressed habitually for dinner, when his brothers were content to appear in morning-dress; yet it is remembered of him by an early friend, that on hearing the cry of an unknown child who had fallen in the mud, he hastened to lift him, and with his own spotless handkerchief to dry his tears.

Terpsichore herself might have rejoiced to spend

a winter evening in Bellevue Crescent, and would scarcely have felt it a condescension to have joined her youthful votaries there. Mrs. Gordon played our national music exquisitely, her husband's dancing of the Scottish reel was perfect, and grace of motion came by nature to all their children.

Lewis received his earliest education at two elementary schools,[1] whence he passed into the High School of Edinburgh, where he became a pupil, first of Dr. Pyper, and, in the Rector's class, of the respected Dr. Carson. During these years he had among others for companions Mr. Theodore Martin, the late Dr. Joseph Cauvin, Mr. David Stevenson, and Edward Strathearn Gordon (now Lord Gordon of Drumearn), all of whom continued to be his intimate associates in later life.

The bent of his mind being decidedly rather towards science than the classics, and a promise having been made to his father of a nomination to the East India Engineering College of Addiscombe, Lewis was sent on leaving the High School to that of Mr. Fanning at Finchley, in the neighbourhood

[1] His first teacher was noted for extreme harshness to his pupils, and Lewis having on one occasion been enraged by seeing a little boy severely punished,—he himself being at the time only six years of age,—was seen next morning by a companion sharpening his knife on a stone. To the question—"What are ye doin', Pug?" he replied—"I'm sharpin' my knife, to stick ——."

of London,[1] where particular attention was given to mathematics. It was here that the love of study was developed and confirmed which led to distinction in his active career, and which, through the later years of suffering and enforced seclusion, was one great solace of his life. He used to say—"My love of study, and understanding of what 'study' means, date from my time at Finchley. Until then, I had learned nothing; it was there that I began to *think*." We are writing, however, of a time when many of the avenues to fortune were strictly guarded for the privileged few; and the patron having died who could have unbarred for him the gate of Addiscombe, it became necessary that Lewis should find another opening. He at once decided to become a Civil Engineer.

Mr. Gordon senior turned in this emergency to the late Mr. Cubitt for advice, and that gentleman replied that it was impossible for any man to conduct successfully important engineering works without practical experience,—that he himself could

[1] He is still warmly remembered by the widow of Mr. Fanning, who on 26th August 1876 wrote as follows:—"Most pleased am I to bear testimony to the very high estimation in which my husband ever held his former pupil Mr. Lewis D. B. Gordon, whom I know he always regarded with the truest affection and esteem. It is now many years since we had any personal intercourse, but we heard with deep regret of his afflicting illness. I can only add that he completely gained and retained our warmest regard."

earn a living as a bricklayer, a carpenter, or a stonemason,—and that if the youth desired to become an engineer, he ought at once to enter a good workshop. In accordance with this sound advice, Lewis was sent in 1832 to Dundee, where, in the machine-foundry of Mr. Stirling, he worked for nine months assiduously at bench and forge,[1] to gain a practical acquaintance with the construction of machinery.

On his return to Edinburgh from Dundee Lewis attended the Natural History class of Professor Jameson, and the Natural Philosophy class of Professor J. D. Forbes, with whom, and especially with the latter, he was a favourite pupil.

In the summer of 1834 the British Association for the Advancement of Science assembled for the first time in Edinburgh, and by no one of its members were its meetings more carefully attended than by Lewis Gordon, to none were its deliberations more interesting. It was my pleasure and privilege to be his only companion of the home-circle at that time, and we had together the honour of entertaining as our guest M. Marc Isambard Brunel, the celebrated engineer of the Thames Tunnel. The high opinion Mr. Brunel then formed of his young

[1] Lewis at this period, and indeed I believe it may be said through life, was tall and very slender. He used to tell with much amusement that as he passed along the street in his apron, at six o'clock in the morning, he often heard the lads and lasses say to one another, "There gaes Kitchen-tangs to his wark!"

host had such important influence on Lewis's future career, and it projects so clearly a foreshadow of what that was to be, that I shall here quote a passage from a letter addressed to two friends who had lately left this country :—

"UPHALL, 27*th September* 1834.

"Soon after you sailed I came out to Uphall to an architect, to study that part of my profession, and here I have been nearly ever since, my employments being chiefly drawing, writing, and riding about to see the works going on under my instructor's management. All this is very pleasant, no doubt very instructive, and often very interesting, and as my doing it bears the same relation to my future as a child's creeping before it walks, I am very willing to undergo the drudgery.

"Mr. Brown's business, though extensive, is not very varied, and therefore, after three months, I begin to find it rather dull and monotonous work. I long on this account to be where I could lay out my precious time to more advantage; but, being of a contented disposition, I manage to console myself in all my little troubles and seeming hardships—sometimes in one way, sometimes in another. You know in some degree my love of study, and it is to this absorbing and most constantly delightful of all occupations that I owe most of my enjoyment.

"Though such employment generally causes hours

to speed on like minutes, languor and weariness *will* sometimes take hold of me, and then I would willingly betake myself to converse with intelligent friends, but I find these friends few and far between. . . .

"Within the last fortnight I have been more delighted than ever I was in my life before, and for want of matter which I can think would be more interesting to you, I would even venture to tell you how! The British Association for the Advancement of Science met here last week, under the most favourable circumstances of a vast increase of members, and considerable accessions of most brilliant lights from France, Germany, etc. The great advantage of this parliament of the scientific world, who are brought together at these meetings, is to take care that those who come ready and willing to enter the road to knowledge shall start from the proper point and in the right direction, shall not scramble over broken ground when there is a causeway parallel to their path, nor set off confidently from an advanced point when the first steps on the road are still doubtful, but shall have pointed out to them all even glimmerings of light through the screen that divides us from the next bright region of philosophic truth.

"A great advantage afforded to young aspirants like your humble friend, is that they have an

opportunity of seeing, hearing, and even, perhaps, familiarly conversing with those masters of science with whose minds they are already familiar from their works. Seeing and hearing these great men also reminds us that they are but men, and arouses within us that spirit of emulation which so much conduces to advancement, while it helps to repress feelings of conceit and self-sufficiency, by clearly pointing out how humble is the rank in which we must place ourselves.

"On the whole, I think the week spent at the meetings of the Association has been the most delightful of any I can remember. It is common to call our school-days the happiest of life; but this I am certain thousands would object to. That existence must surely have been very wretched of which the time passed at school has been the happiest part!"

The impression produced on Mr. Brunel by the kindness, the professional enthusiasm, and the intelligence of his youthful host was so favourable, that he at once offered him employment on the works of the Thames Tunnel, on which he was then engaged. This offer was, of course, gladly accepted, and Mr. Gordon may be said to have thus reached his first resting-place on the scientific ladder.

In his work at the Tunnel he had the eminent advantage of being under the superintendence of

Mr. Richard Beamish, with whom, until the death of that gentleman in 1874, he continued on terms of almost filial affection. In a letter from Mr. Beamish to his wife, dated February 1, 1835, there occurs the following notice of his young assistant:—

"Since I wrote last I have been joined by my first assistant, a Mr. Lewis Gordon from Edinburgh, a gentlemanly, intelligent, and educated young man, —too young, I fear, for his own prospects,—only nineteen. An expansive forehead and small posterior part; a contradiction exists in the physiognomy, mouth too small, chin too bony and projecting, nose without force. Sweet expression of eye, with a corresponding gentleness of manner. Coronal surface elevated and capacious. On the whole I am well pleased."[1]

[1] Mr. Beamish was an ardent phrenologist, and is said to have had an intuitive power of reading the characters of men in their countenances, although when unfavourable these estimates were seldom uttered. He was born in Ireland in July 1798, and died at Bournemouth on the 20th November 1873. He entered the army in 1815 as an ensign in the Coldstream Guards, served for a time in France and Belgium, but at the age of twenty-six years devoted himself to the study of civil-engineering, and in June 1826 became assistant to Mr. I. K. Brunel in the works at the Thames Tunnel. With the Messrs. Brunel he continued from time to time to be pleasantly connected until the close of his engineering career in 1850.

Mr. Beamish was a man of high and varied intellectual culture, fascinating manners, and such genuine warmth of heart that he attracted and retained the affection of all who came

Among his fellow-workers on this great undertaking may be especially mentioned the late Mr. Thomas Page, whose name has since become widely known as the architect and engineer of many remarkable bridges on the Thames, at York, and elsewhere, and who, so long as the bridge at Westminster stands, will be held in honoured memory. While engaged in the Thames Tunnel he also secured the friendship of Mr. Joseph Colthurst, who retains a vivid and affectionate recollection of their intercourse at this time, and writes as follows, on September 18, 1876 :—

"My acquaintance with Lewis began at the Thames Tunnel in the month of February 1835, where he arrived a day or two after myself, each of us having been appointed as assistant engineers to the works which were then being recommenced under the direction of Mr. Brunel (afterwards Sir Marc Isambard Brunel), and of Mr. Richard Beamish as resident engineer. I was much struck by his appearance on his arrival. Tall, thin, and pale, with a general air of delicacy and refinement, he did not appear well calculated to endure the unavoidable hardships of the duties he had undertaken to fulfil; yet nevertheless he continued to discharge

within his influence and were capable of appreciating his excellence. That of Mr. Gordon was uninterrupted and devoted throughout life.

them for a longer period than many others—myself included—whose *physique* appeared to fit us better for the service.

"A fast friendship was soon formed between us, which lasted, as you know, to the end of his life. Before the close of the first year I was invalided, and our constant daily intercourse necessarily ceased; but on my becoming connected with the works on the Great Western Railway he was my occasional visitor, while my visits to the Tunnel were frequent, and so our intimacy was continued as well as distance and other circumstances would permit."

Lewis remained steadily at work in the Thames Tunnel until early in the year 1837, when, having been unsuccessful in an application for the appointment of Engineer in charge of the works for deepening the Tyne, he determined to devote himself to the study of practical mining at the celebrated Freiberg School of Mines, which he entered in the autumn of 1838. Of his stay at Freiberg we shall find interesting details in a future chapter. Among other advantages derived from his stay in Germany, were a thorough knowledge of its language and an extensive acquaintance with German literature, for which, as well as for the character and genius of the nation, he always retained the highest admiration.

CHAPTER II.

Kindly humour successfully manifested—Jenny Lind—Independent opinions—Sabbath obligation: is it binding?—The Lord's day—Religion a daily duty—Religion and Theology—Patience—Resignation—Sympathy.

SOME persons have the gift of charming even by their eccentricities: from them, remarks which uttered by another might sound impertinent, come with so pleasant a tone that they are translated into complimentary notice. The secret of this power is *love*, which we know may speak truth at times when other voices should keep silence, and Lewis Gordon possessed the gift in quite an unusual degree. His intercourse and written correspondence with his sisters often brimmed over with playful fun, and what we may call the insolence of affection; but his wit was like the summer lightning, that brightens all and injures nothing,—as different from the brusque, though withal not unloving *tirades* of some other brothers we have known, as the advances of Esop's spaniel were to those of Esop's donkey.

Throughout his life, in family and friendly inter-

course he used entire liberty of speech, and if, when frankly conversing with a new acquaintance of the other sex—and he was invariably a favourite with such—the lady misunderstood, or affected to misunderstand him, and exclaimed, "Where did you learn your manners?" or something similar, he would turn playfully to his sister and say, "Mary, bring my prize!" When brought, he would point, with a look of extreme self-complacency and satisfaction, to the first page of the volume, which bore the inscription—*For uniform gentlemanly conduct*, and reply, "What do you say to that?" His humour was of the same genial kind as that of Dr. John Brown and the late Lord Cockburn; and although it may seem strange to illustrate the wit of one man by giving a sample from the *répertoire* of another, the following anecdote explains my meaning. A lady who was a dear and intimate young friend of Lord Cockburn relates that on one occasion his Lordship said to her, "There are waur folk in the world than you, Corney my dear; mind ye, I never saw them, but I *believe* it!" Some persons there may be who cannot see fun in this, but impenetrable by a joke as Scotchmen are declared to be, these must I believe be sought for south of the Tweed.

A striking instance of the effect of genuine kindly humour in overcoming difficulties I find in a letter from Lewis to his sisters, written after a night spent

in a mail-coach with seven other passengers, small and great. He thus describes the occasion :—

"A splendid illustration occurred of the guard's being descended from the great family of which Mary is the *Urgrossmutter*, the family of the '*Spillers.*' The guard opened the door quickly, and out *spilt* a child. The child roared, as was natural; and was not hurt, which was fortunate. There were four more inside with their mother, besides a Cornish gentleman, who protested that the coach was full, and that I could not get in unless the woman and children should go out.

"In I got, however, in the midst of his discourse, and told the guard to shut the door. *I* shut the window, as there was pouring rain and blustering wind. The Cornish man's jawing tacks were therefore under hatches, and his threats to inform on the guard spoken to me only, and to the woman who was quieting her still bawling child. Order being restored by the boy going to sleep on his mother's knee, and a little girl on mine, and the cantankerous fellow soft-sawdered by the assurance that it was all right, and that he would be none the worse that day next week; in fact, put down by sheer impudence, and the shame of his proposal to put out the weans. Well, the weans and I had great fun. I made them roar and laugh alternately till they fell asleep, as often as they awoke, and so we got

safe to Glasgow, where the mother gave me her blessing, and the Cornish man vowed I was the most good-natured fellow in the world!"

Lewis was deeply moved, as many others have been before and since, on hearing for the first time the "Swedish nightingale." He writes:—

"Jenny Lind is beyond compare. Not the grandeur of Grisi and Schroeder-Devrient, not the impassioned genius of Malibran and Unger, not the sweetness of Persiani and Löwe, can rival the inspiration that seems to have lighted upon this gentle Swedish maiden. Never I believe was singing like hers heard till now; a consummation of nature—in contrast with which all art, or the memory of it, is poor indeed.

"The opera was La Sonnambula, perfectly cast, and Amina was given as it surely never has been given before, whether in acting or singing. The house was filled to overflowing, the audience—high and low—were enthusiastic; even the apathetic aristocracy rose, waved their handkerchiefs, and *shouted* applause. Many times was she encored; many times called for between scenes, drowned in bouquets, and at the end she gave

'Ah! non giunge uman pensiero
Al contento ond 'io son piena'

three times, and the last so enchantingly, that it

rings round my heart still, and must fill every musical ear that heard it for weeks to come."

It is interesting here to note—and any delineation of the life and character of Lewis Gordon would be very incomplete without the notice—that from his early manhood, and while apparently engrossed in the pursuit of science, the spiritual element was strong and active within him. On all subjects, however, he was an independent thinker, and was not to be deterred by the fear of being reputed heterodox from controverting generally received opinions on points concerning Christian doctrine. He occasionally manifested youthful rashness in the maintaining of his views, and in dealing with those of persons of confessed authority; but truth was always the object of his search, and He who desireth truth in the inward parts taught him in His own time and way to know heavenly wisdom.

The readers of this Memoir need not apprehend a succession here of theological disquisitions; but the following letter to his sister is so remarkable as coming from a youth of twenty years of age, whose studies had lain in such a different direction, that it seems necessary to the completeness of the work to give it nearly entire :—

"THAMES TUNNEL, *March 29th*, 1836.

"I AM sorry I have not been able sooner to reply to your last letter, and feel constrained once for all

to set you right on an important subject. I shall, I think, show you that the Lord's day and the ancient Sabbath are not the same institution, and ought not to be confounded. I have read the work of Archbishop Whately on the subject, and very nearly agree with him. I feel, however, that it is one that ought to be left entirely to the calm consideration of individuals.

"Before Moses, not one precept is given in relation to the Sabbath, nor a hint of its unchangeableness to the end of the world. The question of its perpetuity is to be settled by the teachings of Jesus the Great Prophet, who alone is authorised to determine how far the institutions of religion which preceded Him are binding on His followers. Remember, we are followers of Christ, not of Moses. The Gospel is the Christian's rule. Nothing in the Old Testament binds us any further than it is recognised by the New. Does the New Testament—does Christianity—impose on us the ancient Sabbath?

"The distinguishing feature of the institution is *rest*. *Sabbath* means *rest*. Whoever reads the Fourth Command will see that no mode of setting apart the day to God is there prescribed, except in imitation of His rest. So essential was *rest* to the hallowing of the ancient Sabbath, that Christ says,[1] 'On the Sabbath-days the priests in the Temple

[1] Matt. xii. 5.

profane the Sabbath.' Rest was the great distinction of the day, and very likely the chief stress was laid on this circumstance because the Sabbath was intended to answer a humane as well as religious end —that is, to give relief to slaves and brute beasts— a provision very much wanted in an unrefined and barbarous age. The Jewish nation regarded the Sabbath as a joyful day, a festival. Christ was bidden to the feast on the Sabbath and accepted the invitation.[1]

"Now, such an institution as the ancient Sabbath, you will not deny, is not by the faintest hint enjoined in the New Testament. And again, the Christian world, so far from finding it there, have by their practice disowned its authority. You say you think it very natural to remove it from the last to the first day, but this change of days is subversive of the ancient institution. The end of the ancient Sabbath was to commemorate God's resting from His work. Now, to select the first day—the very day on which He began His work, and to select this in commemoration of another event—of Christ's resurrection,—is a literal as well as virtual abolition. Again, not a word is said in the New Testament of this change of what some call a universal and perpetual law of God. That early Christians knew nothing of this *substitution* we have most complete

[1] Luke xix.

evidence. There are many more arguments; one I shall select, viz., Paul commands the Colossians[1] to disregard the censures of those who judged or condemned them for not observing the Sabbath. This passage is very plain; and that a Christian after reading it should judge brethren for questioning or rejecting his particular notion of the Sabbath is a striking proof of the slow progress of tolerant and liberal principles among men.

"I regard the Lord's day altogether as a *Christian* institution—as having its origin in the Gospel—and the proper observation of it is to be determined wholly by the spirit of Christianity. In the New Testament there are no precise rules for spending the Lord's day, as to the mode of worship and teaching, as to the distribution of time not given to public services. Ay! and this is like all other parts of the Gospel: which gives great principles, broad views, general all-comprehensive precepts, and intrusts their application to the individual. It sets before us the perfection of our nature, the spirit which we should cherish, the virtues which constitute 'the kingdom of heaven within us,' but it leaves us to determine for ourselves, in a great measure, the discipline by which these noble ends are to be secured. Let no man bind what Christ has left free.

[1] Col. ii. 16.

"One reason of the neglect and the limited influence of this institution is that, as now observed, it does not correspond sufficiently to the wants of our times. I reverence the Lord's day, but I think it a more important day, and consecrated to nobler purposes, than the ancient Sabbath. Neither can I acquiesce in the distinctions drawn between the Sabbath and other days, for they seem ungrounded and pernicious. We hear often that Sunday is *set apart* from our common lives to religion. Are not all days equally set apart to religion? has religion more to do with Sunday than with any other time? Is there stronger obligation to holiness on one day than another? Is it more holy to pray in church than to pray in the closet, or to withstand temptation in common life?

"The true distinction of Sunday is that it is consecrated to certain *means* or *direct acts* of religion. But these are not holier than other duties. I fear you have the common superstition on this point, but such is unworthy the illumination of Christianity. The enlightened Christian 'esteemeth every day alike.' Think not that I mean to disparage the offices of the Lord's day. It is often a delightfully peaceful season, well fitted to allay the anxieties of active life, to cherish self-communion and communion with God, and with the world to come. In its duties of meeting to pray and hear the Word of God, to retire for a time to meditate on great truths

with more continuous attention, there is assuredly fitness, excellence, happiness."

The views here expressed show a mind alive on the most important subjects,—ready to give a reason for the faith he entertained. I know not in how far his views on the subject of Sabbath-obligation may have altered as the years rolled on, but it is certain that while his respect for the Christian liberty of others never faltered, his own delight in and reverence for the day of rest steadily increased, and that he recognised in it the universal heritage of man, a "joy of the whole earth."

In another letter of these earlier years, written to the same sister, he says, "If I were eloquent, if I were gifted with the power of expressing what I feel, I should write a book to point out the difference between *theology* and *religion*,—to prove that religion is a matter of individual feeling, the essence of which is *faith* in whatsoever is good; while theology is a method more or less refined of teaching us to *feel* the benefits of being religious, and which—according as the nature of religion and humanity has been appreciated—has resulted in an artificial system more or less complicated and mystified."

In a letter to his younger sister he writes as follows:—

"Less indulgence of our own feelings and notions, and more consideration for the prejudices and experience and feelings of others, would much ameliorate the conduct of us all, and tend greatly to smooth our ordinary path in life. A little more *self-crucifixion* would teach us *patience*, the virtue nearest kin to heaven."

Patience, which was in after life to "have her perfect work," was already the object of his heart's desire; and his sympathetic nature was always roused to tender and serious thought by the afflictions of his friends. With reference to the death of one in whom he appears to have felt a peculiar interest, he writes as follows to a sister:—

"I heard a discourse at Kenmore last Sunday, the text of which was, 'Let me die the death of the righteous, and let my last end be like his,' and every time it was repeated and illustrated I could not but think of the pure-minded girl for whose removal even the glorious assurance, that 'of such is the kingdom of heaven,' did not bring sufficient consolation to my rebel spirit. Let me live the life of the righteous, that my end may be like *hers!* In her life everything good was done,—because it was good. Was she not an utterly unselfish being, and had she not intellect and feeling giving life to her pure religious ideas? It is only now that I can think with pleasure, and could talk of the spirit that's

gone; for some weeks, till very lately—till *now*—I could not find patience to ease me of the yoke of disappointment; but I have now found something, or feel something, that relieves me altogether from this, and in the single idea of the goodness of God I find—what *religious* people *always* find, I suppose, when they are tried or afflicted—a rational plea for patience, which is the very soul of peace—the virtue nearest kin to heaven."

His favourite virtue, and along with it the sister-grace of *resignation*, grew within him side by side. A few years later—July 1846—we find the following sentences, written after hearing of the death of his brother John, to whom he was tenderly attached:—

"How wonderful it is that we take so long to be *sure* that it is a Christian's *privilege* to suffer bereavements and griefs and trials, and that patient and prayerful suffering is the very soul of peace. I fancy I have made vast progress under our present most grievous trial, in uttering from my very heart 'Thy will, my God, be done on earth, as it is in heaven;'—but I dare not be certain. I am thankful I have occupation for the mind at my command, and that I get plenty of leisure just at present to *think* beyond myself and my own concerns. . . .

"I have thought many times over the advantage of going out to Suez to meet Millie and her boys, now that I am certain there would be time; for the

idea of going to meet her struck me the moment I thought of her bereavement. I am only afraid that the expense will preclude my doing what my heart dictates would be kindest, and likest him we mourn; —not the absolute expense, but the rational and prudential consideration that the money may probably be much more advantageously applied. I have written for an estimate of the expense, however, and shall decide on nothing as yet. I shall remain here[1] certainly for a week longer. If I decide to go to Egypt, I shall not return to Scotland, I think; but if I do not go, I shall return about that time, and remain there till it be time to go to Southampton.

"I was with you all on Sunday, and deeply prayed that your aching hearts might cease to *suffer*, well assured that they would not cease to *feel* the loss of such a son and brother. It is delightful to think that we loved each other so sincerely, and that under the weaning influence of such distant separation he could and did recur to the affections of our childhood as the type of his manly love and reverence for those at home."

[1] He writes from Whitby, July 15.

CHAPTER III.

Gustav Thost—Arrival at Freiberg—Energy in study—Subjects of study—Progress of the Sciences—*Das Studentenleben*—Professor Mohs—Tour in Hungary and its results—Quicksilver mines—Article on Werner.

HERR GUSTAV THOST, a most highly-valued and affectionate friend of Lewis Gordon, who had been one of his fellow-students at Freiberg, contributes a deeply interesting and singularly graphic record of the time they spent together there. This record he transmitted to Miss Gordon, along with the following letter :—

"ZWICKAU, *August* 25, 1876.

"MY DEAR MISS GORDON, . . . I have scrutinised my memory, and fervently have reported on what you wished me to report. I find that stylistically I have much lost in the English language, and I think you will have to translate *my* English into English proper, before handing it to Mr. C., to whom I send my best respects, if he yet remembers me.[1]

[1] God bless you, Gustav Thost! you are now safely lodged in my heart,—a far securer place than my memory.—ED.

"I truly may say that the theme given me by you had my most serious—even my holy—attention, and I have tried to the best of my recollection to give my narrative in the adequate mood. I always thought of myself as standing at his grave to make a last speech, as if he were to hear my words, and the truth thereof; and I fancied, after having ended, that he said: 'Thanks, my dear Thost, you meant it well and truthfully with me!' . . .

"Believe me, my dear Miss Gordon, to be most faithfully ever yours, GUSTAV THOST."

"Lewis Gordon came to Freiberg in September 1838, to study those sciences which at that time were taught there by Professors whose names were known throughout the world by all engaged in mining, or in undertakings connected therewith.

"Mining one hundred years ago was merely a rough and mechanical searching after and working at mineral deposits, without any scientific basis. The great Werner was the first who at Freiberg opened the way for the study of Mineralogy and Geology. The sciences of Chemistry, Metallurgy, the assaying of metals, and the doctrines of Mathematics were already somewhat more advanced; and foremost in these branches stood the Mining School at Freiberg, where such eminent men as Scipio Breislack, G. Bischof, Berghaus, Burmeister, Sir

Charles Lyell, Alexander von Humboldt, D'Aubisson de Voisins, Brongniart, De la Beche, Ansted, Élie de Beaumont, P. Mantell, J. Phillips, etc., had, partially at least, acquired their knowledge.

"Students came from all parts of the world: the Russian Government in particular sent yearly their best and most learned engineering officers to this seat of the sciences. From other distant countries young men flocked for the same purpose, and Freiberg thus became a rendezvous for students of all nations.

"Lewis Gordon, on his arrival there, found that his knowledge of the German language was insufficient to enable him to follow intelligently the lectures of the Professors, and at once took a bold, manly, and energetic way to mend his deficiency. Leaving his masters, his friends, and his lodgings, he went to live in the house and with the family of Dr. Runde, an eminent man, equally energetic as himself, and a proficient in modern languages. Gordon had given no hint of his intention, and we were as much surprised as if we had seen a flash of lightning issue from a clear sky, when, after a month's absence, he resumed student-life and reappeared among us speaking fluent German. It was always a characteristic trait in him, that what he recognised to be right and useful *must* be done, at any cost, by both hands, by both feet, with heart and mind. If a

particular doctrine, or even a part of it, was the object to be conquered, *at it* he was from morning till night, dismissing from his mind all other earthly thoughts. When he felt the need of something he did not possess, he would disappear for a time, and when he reappeared he invariably had it as a clear and distinct possession.

"In such a spirit he applied himself to his studies under Professor Breithaupt in Mineralogy, Carl Naumann in Geology, Reich in Physics, Lampadius in Chemistry and Metallurgy, Gätschmann in mining operations, Plattner in the use of the blowpipe and the assaying of minerals, and specially under Julius Weisbach to the study of Mathematics.

"Such instructors could not fail to absorb the mind, soul, and heart of a young man of Gordon's stamp, particularly as almost every one of these Professors opened new, and until then unknown, paths into the labyrinths of science. A fresh era as to these branches of learning had set in at Freiberg; before that time they had been a mere conglomerate; they now started forth in scientific arrangement, and became separate sciences.

"The paths, to be sure, once opened, widened rapidly, and it was Gordon's great and useful work as a pupil to help this widening. Mathematics especially, in its broad and vast delineations, in its lengthened argumentations and demonstrations,

became under the eminent Weisbach a well-defined and logically rounded science, with divisions and subdivisions, by *thesis* and by *praxis*. Weisbach was the first person who scientifically applied Mathematics to Mechanics, writing two volumes on the subject, which Gordon afterwards translated into English. These embodied new principles and applications, as well as new and shortened ways of arriving at practical results.

"Time and the sciences, however, are ever rolling onwards, so that old ways and means, in the course of time, do take their place more and more in the background. Thus it has come to pass that the translation, as well as the original itself, after nearly forty years, is wellnigh forgotten, even as children sometimes fail to be interested by the doings of their great-grandfather. Weisbach and Gordon, master and pupil, became intimate friends.

"I need not dwell longer on the earnestness with which Gordon pursued his studies in those days, but this I may add, that, whenever we have met since then, on Swiss or English soil, our favourite topic has been the agreeable remembrance of our days of youthful aspiration in Freiberg, and our masters in the sciences there. The lectures extended over nine months in each year. During the short recesses at Christmas and Easter, and the longer vacations in July, August, and September, Gordon gave his

attention to the practical bearings of his studies, visiting the mines and smelting-works in the neighbourhood, or travelling to the Harz, to Silesia, Bohemia, and even into Hungary.

"While, however, he was indefatigable in the pursuit of professional knowledge and experience, he was equally conspicuous for his pleasant, playful, kind-hearted, and even childlike disposition in all social intercourse. I had the good fortune to know him well, and at Freiberg I was one of his first friends. We met daily, and in the college we sat side by side. Student-life [*das Studentenleben*] was then somewhat wilder than at present, but young and healthy men as we were, there were few of us who abused the privileges allowed to us by the common consent of society.

"Lewis Gordon joined us on our evenings set apart for beer-drinking, and was as merry as any of the party, but was the earliest to disappear; he took to smoking, and prided himself on having a larger pipe than any of his companions, but ere long gave up the practice. He gave himself energetically for a time to the broadsword exercise, and on an occasion was even one of the witnesses at a duel, but after the combatants had scratched each other, and one of them, who had been severely wounded, fainted from loss of blood, *Gordon fainted also.* We all knew that the cause of this was tenderness of

heart, and it was the only occasion in which he gave countenance to the barbarous custom. Occasionally he would join a whist party, but when it lasted longer than he liked, he either played abstractedly, or so badly that he was allowed to leave the table, and would then—even in his own room—take up a book, while his friends continued their amusement, with a *dumby*. Sometimes he had a fancy to drive in sledge or carriage, and when the proprietor allowed it, took the reins. Oh how fast he drove, and for how short a time! The ball-rooms of Freiberg were not left unvisited, and it is believed that he was not insensible to the charms of the lovely A. von S——. He carried with him to his native land the love and high esteem of all who had the privilege of his acquaintance, whether friends or teachers.[1]

"With Professor Weisbach he continued to correspond with reference to the works he had undertaken to translate; and in the autumn of 1849, about ten years after he and I had parted in Freiberg, when in charge of the engineering department of Lord Breadalbane's mines in Perthshire, I found that Gordon had several years previously held the position there of Inspecting Engineer. He was then

[1] When, after an interval of thirty-six years, Mr. Gordon's son followed his father's footsteps to the School of Mines at Freiberg, he was received with open arms by some who still remembered him, and found a son of Professor Weisbach occupying the Chair of Mineralogy in the Institution.

a Professor in the University of Glasgow, and I wrote him a few lines, to which I received an immediate answer, in which I was addressed by the sobriquet which, in virtue of my ardent nationality, had been mine at Freiberg: 'You, too, my dear Deutschland! Well, I might have taken it for granted that the political struggles in your country must have implicated *you*. Be welcome, then, upon British soil!'

"While acting for Lord Breadalbane, I had many opportunities of conversing with his Lordship, and with the Marchioness, who delighted to speak of Gordon; but it was only about twelve years later, when—having left Scotland—I was living in his house in London, I learned that he had at once written to Lord Breadalbane to say what he thought and knew of me. His report of the refugee in Britain must have been a favourable one; and it was in direct opposition to his will and advice that I left England to settle in Switzerland, where we afterwards often met. 'Will you,' he said, 'bite your nails in Switzerland? you cannot go to your disunited reactionary country. Will you, by doing nothing, sin against God and your family? Say but a word, and I can assure you of many a good and suitable appointment. I *will* not let you go!' Indeed, I had to leave his house abruptly, that I might carry out my intention.

"Shall we draw observations and make deductions from these *facts*, comprising the mutual relations of two friends during nearly forty years? No, we will not! Gordon's character comes out through these facts, carefully gathered, and truthfully reported. Manliness and kindness in his deeds, and virgin-like purity in his mind, photograph the picture of Gordon's life! Sacred, sacred be his memory!

'Ave, pia anima!'"

Mr. Thost alludes, in his interesting record of the life at Freiberg, to the expeditions made by his friend during the intervals of leisure afforded by the temporary cessation of lectures. That which was apparently undertaken in the Easter recess of 1839, in the company of Mr. Evans, of the firm of Evans and Askin, Birmingham, was interesting, and had important results. The present commercial representative of Mr. Evans informs me that it was this expedition, and the consequent discovery of *cobalt*, that led to their firm dealing largely with Hungary ever since.

From Vienna Mr. Gordon wrote, *en route*, as follows:—

"VIENNA, *March 27th*, 1839.

". . . Yesterday I was for nearly two hours with Professor Mohs, the celebrated mineralogist. I went without any other introduction than that I was a miner, and from Edinburgh, and, as I say, I was

two hours with him. He is now an old man, but very little the worse of the wear in *the exterior*, the interior also seems still in excellent order, for he talks like *twopence*, as we used to say at school. The great source of interest to me in his conversation was his criticism of the present schools of Mineralogy and Geology, with which he has no sympathy, although well acquainted personally with the founders of them, and with their written works. Of course I did not forget that he is an old man now, and that it is very very difficult for an old man to lay aside opinions which when young he imagined he had deduced logically from the observation of nature, and which had been admired by many of his contemporaries of the highest scientific eminence; but even holding this consideration constantly in view, I was much struck with the *deep cuts* he made in the splendid theories of modern geologists."

A month later, to his father:—

"FREYBERG IN SACHSEN,
April 27th, 1839.

"MY DEAREST FATHER,—I wrote to my mother immediately on my return from Hungary, but merely a few lines, to announce that I was safe and sound again in Freyberg, and since then I wrote to my sisters, sending a parcel, containing some remembrances, by my friend Mr. Evans; but I am anxious

now to send you some account of the five weeks I spent with Mr. Evans, or at least of the results.

"As you know, we went to seek for *nickel*, or rather to find an ore of nickel in a part of Hungary indicated by a young Hungarian now resident in Freyberg. From Vienna we passed down the Danube to Pressburg, from thence steered our course direct to Schemnitz, the greatest mining town of Hungary, the seat of a Direction of Mines and of a mining school. We were received by the chief with the utmost hospitality, and had some hopes inspired by the information we received from various hands that we should find the object of our search. We left Schemnitz with the intention of returning that way, and therefore I saw nothing. We were there on Easter Sunday and Monday too, which was an additional obstacle to my visiting any of the establishments. We then went by Neusohl and Rosenberg to Leutschau, which is in the neighbourhood of the mining town Dobschau, where the nickel ores were said to present themselves. Arrived there, the Director of the mines soon convinced us that there was no nickel ore saving the ores of cobalt, which contain a considerable percentage of nickel. Evans made the best of a bad bargain, and we collected specimens of all the ores which are there prepared and sold as Saflors for the fabrication of Smalt or Blues. If these ores are really rich, they

are so cheap that Evans imagines he can make a great business with them in England. I have assayed all the ores, and find some of them very rich, but from the great difficulties attendant on the separation of cobalt and nickel we cannot immediately tell their real commercial value. Evans has taken with him sufficient specimens of ore for the English smalt-refiners making their commercial assay, and that being done, he can enter on the business or not as he finds it a good *spec* or no. So much for Mr. Evans's share of the profits of our journey; and now for my profit. I have been in Prague and Vienna, in which last I made some very valuable acquaintances, amongst others Mohs, as I formerly mentioned. In the trip through Hungary I heard of the enormous extent of the mining and smelting operations, and made also some valuable acquaintances; saw a curious country, varying in outward appearance from very commonplace to the sublime and beautiful; learned much of the manner of going about business in a business way, from a most straightforward honest man, as Evans is; and lastly, spent some weeks in making myself useful to others—I may say *very useful.* Our journey was too hurried; and I was so anxious to get back to Freyberg time enough not to lose any of particular Lectures, that on the whole my personal profit was very small. I have, however, a great desire to

return for some six weeks to the Schemnitz district in summer, and if I do so, my experience lately gained will be of material service. Amongst other information I acquired there was the fact that there exist in the neighbourhood of Dobschau quicksilver mines, which however were abandoned some sixty years ago, from their becoming too deep, and the value of mercury being at that time too small. The tradition is they were very rich, and the only reason they have not been looked after, either by private individuals or the Government, is the combination of indolence, want of skill, and want of capital, which oppresses nearly all the mining operations of Hungary. The fact that the mines of Idria have lately become *drowned* may excite the Austrian Government to look to these I allude to. In passing through Cracow and Silesia I heard so much, that I have almost made up my mind to spend the month of July in studying some of the great iron-works there, and the methods of working the thirty feet coal-beds (!) in the neighbourhood of Gleiwitz. If I go to Silesia and to Warsaw, I shall certainly return to England in August. If I go to Hungary, I shall not be able to return before the end of September, and then taking my course by the Harz and through Belgium will occupy till the end of November. If I return home, I shall have to work hard during the winter and spring on

the two books I am ambitious to translate, and on which I have already done a great deal of the most essential preparation.

"Mr. Napier's proposal as to Werner I accept, provided the article is not required before next spring, which is more than probable. My nearly six weeks spent with Evans has made a great difference in the manner in which I must now dispose of my time."

CHAPTER IV.

Chair of Engineering—Chair relinquished—Glasgow Water-supply—Wire-ropes—Herr Albert—Marine cables.

AFTER completing his Engineering studies at the Royal Mining Academy of Freiberg and at the École Polytechnique at Paris, Lewis Gordon returned to Scotland, and in partnership with Mr. Laurence Hill commenced practice as a Civil Engineer.

Our Government having decided in the year 1840 to establish a Professorship of Civil Engineering in the University of Glasgow, Lewis became a candidate, and so high were his recommendations that he received the appointment. He writes to a sister while the matter was still undecided—"Have you heard the news? I am (perhaps—*par parenthèse*) to be Professor in the University of Glasgow! Pensez à cela, ma sœur! pensez qu'il faut toujours dire *Monsieur le Professeur!* I begin now to indulge the thing as more than a hope; but 'there is many a slip between the cup and the lip,' as the old adage hath it. Yes, my dear Mary, but there

is a chance that I may have the honour of professing Engineering and Mechanics to the Glasgow students, and that they may have the honour and advantage of hearing me profess to them! Oh Mary, dear, if I am made Professor, how excellently content I shall be! Absurdity laid aside for ever *then*—as it is *now!* Eh, Mary!"

At so early an age—not yet twenty-five years,—and with the strict sense of duty which ever animated him, he felt the task of organising the new Chair to be one that called forth all his energies. No man could be more fully alive than he to the importance of his new office, or knew better the large amount of knowledge, scientific and practical, that was required of its occupant, and his sensitive mind felt very keenly the responsibility he had undertaken; but he had a spirit that was not easily daunted by difficulties, and, stirring himself up to his appointed work, he produced the Syllabus of a course of study embracing a very wide field of Engineering, under the following general heads:—

The Mechanical Effect produced by Forces, and its Measure.
Physical and Mechanical Properties of Materials.
Results of Experiments on the Resistance of Materials.
Friction.
Doctrine of Mechanics.
Animal-power and its Recipient Machines.
Water-power and its Recipient Machines.
Steam-power and the Steam-Engine.

After delivering his lectures he had the satisfaction to find that he had got through the first session with comfort to himself and profit to his pupils.

The skeleton Syllabus of his opening course of lectures he afterwards matured and published in 1847, under the unassuming title of *Engineering Aphorisms and Memoranda*, and ultimately in 1849, with further additions, under the title of *A Synopsis of Lectures on Civil Engineering and Mechanics*.[1]

He knew, however, that he had to *make* his professional character as an engineer, and that this was not possible were he to give all his energies to his professorial duties; during the time therefore that he occupied the Chair, he was accustomed, when the session was completed, to devote himself to the practice of his profession as an engineer, at first in connection with Mr. Laurence Hill, and latterly with Mr. Charles Liddell and Mr. R. S. Newall, with whom he also entered into copartnery.

Finding ultimately, as his engineering business increased, that he could not discharge the duties of his Chair to his own satisfaction,[2] in the year 1855

[1] R. Griffin and Co., Glasgow and London, 1849.

[2] It had indeed for some years been very difficult for him to give the necessary time to the duties of his professorship, in consequence of the great and constant increase of English and foreign engineering business; but his father showed so much regret when he spoke of resigning, that he did not do so until after his father's death, in March 1855, nor even then, until he had made it certain that a fully qualified successor, the late

he resigned the Professorship, in which he was succeeded by the late Professor Macquorn Rankine—an appointment which had his warm approval and zealous support.

During the time of his first partnership, with Mr. Hill, the firm was employed in general engineering business in Scotland, and I may refer, in particular, to the investigation made by them in 1845 for the water-supply of Glasgow, the result of which they state in the following terms:—"We have examined the levels of various lochs, viz., Loch Arklet, Loch Chon, Loch Katrine, Loch Ard, and we have ultimately arrived at the conclusion that the nearest adequate supply of fine water that can be brought to Glasgow by gravitation is what is afforded by the overflow of Loch Katrine." The prospectus of this scheme, under the title of the "Glasgow Loch Katrine Water Company," with Messrs. Gordon and Hill as engineers, was produced in 1846, when an influential committee took it up; but the time for carrying out so thorough a measure had not arrived. The scheme for supplying Glasgow from Loch Katrine was unsuccessfully revived in 1852 by Messrs.

distinguished Professor Macquorn Rankine, would be appointed in his place. Professor Rankine writes as follows:—"Lewis Gordon is one of my truest friends. I am in a great measure indebted to him for my success in obtaining the Professorship, which he resigned this year."—*Extract from Note-book* (1855).

Macquorn Rankine and John Thomson,[1] and was ultimately, as is well known, carried out by Mr. J. F. Bateman.

Among other works, Messrs. Gordon and Hill were employed to advise the Marquis of Breadalbane in his mining operations at Tyndrum,[2] and in constructing the great chimney for Messrs. Tennant's works at St. Rollox, which measures 447 feet 6 inches in height from the foundations, and was at that early period considered to be a work as bold as it proved successful.

But it was in connection with Messrs. Newall and Liddell that most of Gordon's engineering work was done. Liddell and Gordon were engineers for several railways in England and Wales, and designed and executed many iron bridges, among which may be mentioned the Hereford, the Usk, and especially the Crumlin Viaduct in South Wales, consisting of ten spans of 150 feet—a structure of marvellous lightness, and withal of requisite strength and rigidity.

Their firm was also rendered famous by the introduction of wire-ropes, which Gordon had seen in use at the mines in Germany, and which he introduced into England in 1840, under a patent taken out in connection with Messrs. Newall and Liddell.

[1] "First proposed in 1845-6 by Lewis Gordon and Laurence Hill, junior, to whom Thomson and I were indebted for the greater part of our information."—*Extract from the Note-book of the late Professor Rankine.*

[2] See *ante*, p. 34.

The employment of wire-rope has now become of such importance and world-wide advantage, that it is fitting in the biography of him who first made the discovery known in England, and who did so much towards perfecting its construction for general use, to give some account of the circumstances under which he first witnessed its application, and of the ingenious and noble-hearted man to whom the world owes its original device.

It was in the year 1838, in one of his vacation tours from Freiberg, that Lewis Gordon visited the Government mines at Clausthal in the mountains of the Harz, then directed by Ober Berg-rath Wilhelm August Julius Albert, a distinguished engineer, and a man on all accounts worthy of respect and admiration. By Herr Albert he was courteously received and hospitably entertained, and permitted carefully to examine and to note the numerous and important improvements which that gentleman had devised and adopted in the regulation of his subterranean works.

After many experiments with ropes and chains of various construction, for underground carriage of the ore, and for its conveyance to the upper air, Herr Albert was led by the comparative inefficiency of all of these to construct a rope of untwisted wire, which he found to be infinitely superior. For this invention, which was exclusively his own, and

which saved to his Government at least £1100 a year, he neither claimed, nor, we are assured, ever would accept, any personal remuneration, but freely communicated it for the general advantage of humanity. Though greatly to be honoured in those days of self-seeking and hasting to be rich, it might have been well had he considered more the interests of his family, and secured for them a pecuniary benefit that need not have hindered or even retarded the general usefulness of his discovery.

The original invention was very materially improved upon by the ingenuity and scientific experimenting of the English patentees, who, in the year 1850, evinced their gratitude to Herr Albert, then deceased, by sending to his widow, by the hands of Mr. Gordon, a handsome large and massive silver vase and stand, ornamented with elaborate and appropriate devices. The vase bore on one side the following inscription :—"A tribute to the genius and worth of Wilhelm August Julius Albert, the inventor of wire-ropes, from the Patentees in Great Britain of this eminently useful invention," and on the other the salutation offered to each other by German miners—"Glück auf!"

The use of these ropes in connection with mines and shipping, and for other purposes, was at once recognised as highly important, and when they were ultimately largely employed in protecting the electric

wires for submarine cables, a new and wide field of enterprise was opened up for the firm, which was designed "R. S. Newall and Company of Gateshead."

They executed for Government the interesting and difficult work of laying the cable between Varna and Balaclava, and Balaclava and Eupatoria, for the use of our forces in the Crimea, and they manufactured and laid upwards of 2000 miles of cable in different parts of the world, including the English and Irish Channels, and the Firths of Forth and Tay, as well as in Holland, Malta, Singapore, the Levant, the Red Sea, Denmark, and other foreign countries.

Of other marine cables which the firm manufactured, but did not lay, extending to about 2500 miles, may be specified the first half of the Atlantic Cable, and that between the Dardanelles and Alexandria.

CHAPTER V.

Marie—Marriage—Paternity—Electric union—Letters to a partner—Buda-Pesth—Drenkova to Orsova—General Chesney—Constantinople—Comparisons—A Greek Marriage: the trousseau—Colonel Biddulph—A picnic—M. Dadian—St. Stephano: the dinner: the dance.

THE years between 1840 and 1850, like all the years of his active life, were busily and profitably employed by Lewis Gordon for himself and for others, although unfortunately there does not exist any written social and domestic record of the period.

The marriage of Lewis Gordon and Marie Glünder, *née* Heise, was one of true hearts, and gave entire satisfaction to the friends of either party. Each accepted and was accepted by the relatives of the other with cordial affection, a sentiment which was confirmed and strengthened by kindly intercourse as the years rolled on, and which enables the survivors now to mourn, as if one family, for the loved ones whose union has now been consummated in heaven.

Lewis and Marie first met in London in the autumn of 1848, at the house of Mr. and Mrs. Beamish, Marie being then on a visit to Mrs. Beamish, who was her cousin. She could speak no English, and as dear friend and perfect German scholar Lewis Gordon was invited to meet her. Even then the impression she made on him was one of perfect loveliness, but he did not see her again until the following year, when, along with his father and his sisters, he visited Mr. and Mrs. Beamish at Newnham-on-Severn.

Father and sisters all fell in love with the sweet German lady, and made her promise to visit them in Edinburgh before her return to Hanover. She did so in 1850, and was for three months the guest of Mr. and Mrs. Gordon, winning every heart. It was about this time that Lewis and she discovered that they could no longer be happy apart, and felt convinced that they *must* be happy if together. He wrote as follows to his father:—"I am very *one-idea-ed*, and it is of no use for me to begin my Glasgow winter's work till I have got my wife!"

His declaration called forth a favourable response, and on the 18th of September he wrote as follows to his sisters:—

"I cannot express to you how filled my heart is with new emotions; but the old pulse still beats with the same strength for my parents and sisters

and home-treasures. There is a new pulse supplied, giving strength for feeling and expressing our new gratitudes to God for His blessings."

His sisters both accompanied Marie to Hanover, where, from the house of her stepfather, Sir Julius Hartmann, the marriage was to take place. The wedding-day was fixed for the 23d of November, and on the 22d we find him already in Hanover, along with his father,—who to the joy of all parties had accompanied him, and writing the following farewell to bachelorhood:—

"My dearest Mother,—The day before my marriage I write to offer you anew my filial duty, and to assure you that, married or single, my mother is my mother still, the holiest thing alive." Neither in love nor in friendship was Lewis ever known to fail, and the home in Porchester Terrace became a centre of attraction not only to the members of her husband's family and social circle, but to the numerous visitors of literary or scientific culture from other lands to whom its host and hostess were ever ready to offer cordial welcome.

Engineering work of various kinds continued to increase, and the happiness of family-life attained completeness, on the 3d of November 1851, by the birth of a son, who received his grandfather's honoured name, of Joseph Gordon. To his father Lewis wrote as follows, twelve days later:—

"24 ABINGDON STREET,
Nov. 15, 1851.

"MY DEAR FATHER,—Marie bids me write to you to thank you for accepting our son as a name-son, and for confirming the choice by gift of silver spoon, etc.

"I am in considerable doubt about going to Glasgow at all this year. I have not advertised nor taken any trouble in the matter, nor do I at present intend doing so. But I am not quite certain about this being the correct thing.

"We are exceedingly busy at present preparing working-drawings for the Newport, Hereford, and Abergavenny Railway works, the contract for which has been let. This is new work to me, and quite *absorbs* my time, which must account for not scraping my pen towards home oftener than I do. We expect other work, but are uncertain about it. However, we have business for a year or two, in a moderate way, in hand.—Your affectionate son,

"LEWIS D. B. GORDON,
Paterfamilias."

Between this date and August 1856 there is a disappointing dearth of available correspondence, though evidence exists that time was both profitably and pleasantly employed. On the 2d June 1852 Lewis tells of the union by submarine cable of England and Ireland, and on the 6th May 1853 I

find a telegram to the following effect:—"Union of Belgium and England completed twenty minutes before one P.M."

In the year 1856 a Company was inaugurated under the designation of "The Danube and Black Sea Railway and Free Port of Kustendjé Company," whose operations were to be conducted by his firm, and which gave occasion to the following correspondence with his partners and his family:—

TO HIS MOTHER.

"DRESDEN, *August* 31, 1856.

"MY DEAREST MOTHER,— . . . Here I am at Dresden! It is fifteen years since I was here last,—nineteen years since I passed through it on my way to Freyberg, and now I am not very far off the mark at which I then aimed,—an independent career of usefulness. Besides, I have lived a good deal, and had a curious extent of experience of men, of the world and its ways,—and I heartily rejoice that I took time to educate myself as I did in 1837."

TO C. LIDDELL, ESQ.

(*Same date.*)

"IF the Vienna people respond completely to the suggestion of their friends in Paris, our funds then become sufficient to make a complete engineering examination of the country. The most important

point is of course an exact determination of the cost of making the line from Czernavoda to Kustendjé, and of improving the port, so as to enable an extensive trade to be carried on."

TO THE SAME.

"VIENNA, *Sept.* 4, 1856.

". . . The rumours in the Paris papers as to the loss of the cable are said to require confirmation. . . . Boutoux's account of the resources of the countries, of the traffic that is *certain* to choose our line, and of the traffic which may be *brought to* it, more than confirm all our anticipations. He is also of opinion that any capital we can spare should be devoted to the *port*, and to the establishment of convenient means of transhipment at both ends. Erichsen seems to think that *all* will depend on the *port*. If we can make Kustendjé a good and safe port, he says the importance of our railway line can hardly be estimated.

"We start for Pesth on Saturday morning, from thence on Monday morning at 9 A.M., and on Monday week we hope to be in Pera!"

TO THE SAME.

"PESTH, *Sept.* 7, 1856.

"SINCE I announced to you from Vienna the successful result of our mission, so far as having

secured the co-operation of the French and Austrians, we have made a day's journey down the mighty Danube to this fine town, built on a site worthy of the capital of an empire. The weather has completely changed, and is glorious, and the united cities of Buda and Pesth have greatly interested us. The suspension-bridge exceeds, in reality, what we knew of it by books and drawings. I was on it while 3000 cavalry, infantry, and artillery passed over it this morning; there was no undulation, only a slight oscillation (vertical) and some tremor. . . .

"We have made the acquaintance of two Hungarians, both deeply implicated in the rebellion of 1848. One is a doctor, the other a hussar. Both were wounded,—the doctor by a stray shot, while going to the hospital, of which he was chief,—the other by a rifle-shot. We have been all round this place with them, and have learned the facts of the brilliant way in which the rebels took the fort from the Imperial troops. Very interesting, but alas! alas! it has only led to the whole district being hemmed in by a chain of forts like the fortifications of Sebastopol, three tier high, casemated towers and bastions on the surrounding hills,—some completed, others in progress. My present impression is in fact that Austria is one vast barrack, and, excepting a few churches, nothing is conspicuous but new and old fortifications! I telegraphed

to Biddulph to-day to tell him we were coming, and asking him to let us know where we shall find him."

TO HIS WIFE.

"*Sept.* 11, 1856.

". . . The passage of the Danube through the Carpathians from Drenkova to Orsova is majestic in the extreme. The Rhine from Bingen to Bonn sinks into insignificance compared with it, whether in richness or in grandeur. Great is the pity that such a river and such a country belongs to the Austrians! What struck me most in winding this mountain-pass was the number of eagles and vultures we saw,—one hundred at the least; what impressed me most was the endless traces of the old Romans still to be seen or to be heard of. Even the languages are half Latin. This part of Roman history was always unintelligible to me till now, but I shall re-read it with intense interest, and be able perhaps to interest my son in one of the great periods of the world's story.

"The Wallachian ladies and gentlemen are handsome, rather free and easy, but, after the French, most agreeable *compagnons de voyage.* Amongst the English on board is General Chesney, the celebrated general of artillery and traveller, who is now going out with a staff of English civil engineers to survey the line between Seleucia and Aleppo and

Rakka, on the Euphrates, with a view to establish a railway which shall communicate with the Euphrates and the Mediterranean. He is a fine old man, and we have become great friends. He writes his journal something in the style in which Humboldt is said to do, seated on a chair with his writing materials on his knee. He writes a very small hand, neat and clean."

TO LADY HARTMANN.

"VARNA BAY, *Sept.* 14, 1856.

". . . As I sat on deck last evening beside General Chesney, the subject of our conversation was the education of the English army, especially that of the officers, and very naturally led to my stating what I knew of German soldiers, and to the naming of my honoured father-in-law. General Chesney spoke with the greatest respect and esteem of his 'old friend Hartmann,'[1] who, with General Dickson and Colonel Fraser, took always the largest and clearest and most enlightened views of the subject under discussion, as regards the education and organisation of the corps of engineers and artillery.

[1] General Sir Julius Hartmann died at Hanover, on the 7th June 1856. He served with the German Legion throughout the Peninsular war; was made K.C.B., and had so strong a predilection for his English title, that he preferred to be addressed by it. He was for many years commandant of artillery, and received a patent of nobility from George v. of Hanover.

Chesney was not in the Peninsula; he was kept at home, long in Guernsey, but he knew General Hartmann in Portsmouth and at Woolwich, and has pride in calling him his friend, and in remembering his distinguished service to England."

On the morning of the 15th the party reached Constantinople, "knocked up a little by a rough night in the Black Sea and want of sleep," but otherwise pretty well. On the 17th Lewis writes to his mother of his recovery from a short but sharp attack of the Danube fever, and that he is just about to leave Constantinople for the finer air of Therapia, in order to be near Lord Stratford, Fuad Pacha, and other officials, with whom he had business to transact.

To Mr. Liddell he writes:—"I have been twice up and down the Bosphorus, and last night spent several hours on the water, visiting the Asian and European shores from this towards Anatoli, Kanak, and Runulikaver, and down by Buyukdere. It is a mighty pleasant place, no doubt; the constant fresh breeze here from the Black Sea is very agreeable; but as to scenery, the Bosphorus is not comparable in grandeur, variety, or general outline to the lower Clyde and the Kyles of Bute. The view from the hill above Greenock excels by far the view from the heights here. I am prepared to find the prospect

from Scutari, embracing the towns on this side, overwhelmingly grand and interesting, but as a natural situation the Bosphorus has only its climate as yet to boast of!

"I am distressed by the sham grandeur of the palaces and houses of wooden boards, with painted wooden columns to represent marble, even in their mosques. My impression is, that an exodus of the Turks and an entrance of *any* northern nation into the Bosphorus and its towns and villages would be a glorious move. I partly guess, and partly hear from others, that the lower classes of Turks would soon become Christians and northmen in everything but their worship. . . . I must say that the *cleanliness* of the Greeks has removed much of my prejudice against them; but they have an unpleasantly cunning look that is not attractive."

On the 29th September he writes from Pera:—

"My dearest Mary,—I have not yet got reconciled to this country, and if it were not for Biddulph, who is one of the excellent of the earth, and the interest of learning the language and seeing the varieties of people and some of their customs, I should faint with ennui for the first time in my life.

"The beauty of the Bosphorus is a fable. The weather lends enchantment to a scene inferior to a hundred in the West Highlands, on the Danube, on the Rhine, in Switzerland, and in Wales.

"Yesterday we were in the Princes Islands, in the Sea of Marmora, at Prinkipo, a town entirely Greek in population, and therefore in organisation of houses and streets; the place is far superior to any other village on the Bosphorus where we have been, and the habits and customs of the people, though not so new or picturesque as in the purely Turkish villages, are remarkable enough.

"We went to this place to be present at the marriage of M. Jancho, Biddulph's interpreter. He is of respectable rank in life, a bookseller and interpreter, etc. etc., and his bride is the daughter of a rich bourgeois proprietor of hotels and houses in Prinkipo, said to be worth £20,000, or about three millions of piastres!

"His daughter had a tocher of £1000, which she brought to her *fiancé* on Saturday afternoon in a bag of gold!

"There are many preliminary ceremonies, such as visits of friends and parents, which last about a week, with feasting and present-making without allowance; but it is on Sunday morning after the marriage that the bride walks in procession with her new husband to his house, and finds her *trousseau* displayed in her new apartments. This is the husband's gift, together with a grand feast to his bride and her relations and his chosen friends. Colonel Biddulph was the great man of the feast, and we

the next most honoured. There were one or two rather *distingué* people, especially one very pretty ladylike girl and her mamma, with whom, as she spoke French, we were able to converse, to whom *il Colonello* paid the most conspicuous attention, and I did my best to get in a word edgeways now and then. The ceremony was performed in the bride's father's house, by a bishop assisted by four priests in full canonicals, and lasted about an hour.

"The Greeks do not marry with a plain gold ring, but with one jewelled. They marry also by *both* being crowned with wreaths of orange; and the bride displayed several wreaths variously ornamented with ribbons, but always of orange blossom. She changed her dress five times during the evening, evidently meaning to display her *trousseau*. I shall tell you more about the whole affair hereafter. The men very soon got screeching drunk, and then took coffee and got sober. The music was worse than that of the Hindus you hear going about in the streets of London. The dancing was of the most wonderfully slow description, etc.,—all to be told some fine day after I get home."

TO C. LIDDELL, ESQ.

"THERAPIA, *Oct.* 4, 1857.

"THE order has arrived out here that the telegraph establishment is to be broken up immediately,

all the staff sent home, and the line to be handed over to the Turks. Biddulph, prepared as he is for any contingency, is very much vexed at this determination of the Government. He had made up his mind to be here for the winter, and to visit the Crimea again before he returns to England. This indeed he will do. He is young enough to have his clear head and courageous yet gentle heart overpowered by a holy love, and it is almost certain that he would not return to England with Katherine."

"*Oct.* 6.—Biddulph deems it essential that I should go with him to the Crimea—to Yalta,—and he is so earnest about it that I have consented."

On the same day Lewis wrote to a beloved niece as follows :—

"My somewhat monotonous life here has been enlivened by a very pleasant picnic party, of which I shall attempt to give you an account.

"Colonel Biddulph and Major Brett, having business to transact for the Turkish Government at St. Stephano, on the Sea of Marmora, applied to the admiral for a gunboat, or rather despatch-boat, to take them down. The noble admiral ordered the 'Wrangler' for the duty. This was about six o'clock on Friday afternoon. Colonel Biddulph, Major Brett, and Mr. L. Gordon, thought it a pity that such a fine boat should go down with so few people ; so Col. B.

and Mr. G. went to Buyukdere, where all the 'swell' Greek and Armenian families of this district live. The houses are on a sort of parade running for half a mile along the edge of the bay the Bosphorus makes there. The families sit out before their houses till quite late in the evening. Colonel Biddulph hoped to find some one with whom he had acquaintance sitting thus *al fresco*, but was disappointed. He and his companion, however, claimed acquaintance with a young lady with whom the Colonel had danced at a ball last winter. The young lady introduced them to her mamma, and the result was an invitation to some fifteen young ladies and gentlemen, and their mammas and aunts, to go down to St. Stephano in the 'Wrangler.'

"Mrs. Brett did her part in Therapia, and collected ten more; so here, at ten o'clock at night, were some thirty people pledged to go. Now for the commissariat: to feed thirty people for a day of picnic is no joke; but the landlord and landlady of our hotel soon relieved us of all anxiety. Their cook was to be aroused at two in the morning, and by eight o'clock there would be abundance of everything ready, packed for going on board. We were punctually under way at eight o'clock. Captain Marryat of the 'Wrangler' was delighted at the frisky ploy, for he had just returned from a long cruise in the Black Sea, and was charmed to see a

little muslin on board. We got to the powder-mills near St. Stephano by half-past ten. There were some half-dozen 'swell' Pashas to meet Colonel Biddulph and Major Brett on the *business*, and we were detained for about two hours, during which those of us who were not on business inspected the powder-mills, drank a little champagne, ate some fruit provided by the Pashas, and afterwards played round-games—the ring on a string, in which one Pasha joined, forfeits, etc., and passed the time amusingly enough.

"The proprietor of these mills is an Armenian of immense wealth. He had heard of our picnic party that morning, barely in time to get on board, but the young people of his family could not manage to get ready, which was a great pity, as the young lady of the house is very beautiful, and the mamma and family generally are reputed highly ornamental. The sequel will prove that this family not coming was very malapropos.

"From the powder-mills we continued our journey to St. Stephano proper. The servants had laid out our repast, for it was now half-past two o'clock; but when Dadian the old powder-miller saw it he entreated us to let it be removed, or reserved, as he had 'a little bit of dinner' to offer in his house at St. Stephano. Knowing the old gentleman's reputation for wealth and hospitality, this was agreed

to, after sundry snatches at legs of chicken, cold beef, etc., just as it were to keep up our appetite.

"Arrived at St. Stephano, M. Dadian led the way, first into a beautiful garden, small, but filled with every variety of rare and lovely shrubs and flowers. Arbours surrounded by fountains, green-houses with ottomans and sofas all around, a summer-house with a beautiful view of the sea,—through these, admiring everything, our long procession moved up to the house, which consists of two buildings joined by a verandah sort of passage, at the back of which are the servants' apartments, the kitchen, and, I suppose, the stables.

"In one house we were led by two grand staircases to an anteroom about forty feet long and thirty wide, from which there were side-doors admitting to four apartments fitted up like continental bedrooms, while from the end there ran a passage in both directions leading to other apartments, each of which had a small *salon* and dressing-room.

"In this grand anteroom there was a piano. Mademoiselle Louise—I do not know any names except the Christian ones—opened it, and to the music of a waltz there were instantly eight or ten couples in full swing,—even your poor old uncle was hurried along, and played the gay Lothario to Mademoiselle Catherine. Dancing had continued some twenty minutes when the old gentleman ap-

peared, and invited us to the other house, which was richer and grander than that which we had left.

"The Sultan visits M. Dadian every year, and in this house are his Highness's apartments, very *fine*, but tawdry. There are also many other really comfortable rooms, furnished in a style half French, half Oriental. The divan, or ottoman, is a necessary article, and the most conspicuous one, of the furniture of rooms in this part of the East.

"At length we entered the dining-hall, where a feast was set out that reminded me of those of the Lord Commissioner of the General Assembly, which we used to go to see in Edinburgh when we were children. Here were pyramids of fruit, and cakes, and sweets, in crystal vases, surrounded by flowers, which concealed an inner glass, while gold fish swam about in the outer one. Other singular and barbarous devices, approaching the descriptions in the Arabian Tales, but all very fine, indicated that we were in the house of a great man.

"M. Dadian was kind and friendly and hospitable,—and '*handsome* is that handsome does.'

"The dinner was an astonishing one to have been prepared so quickly. There were many varieties of fish, several good meats, and all well cooked. The wine was neither good nor abundant, but Easterns are not used to wine, and therefore few of the company missed it. Many varieties of liqueurs

were served with the coffee after dinner, which lasted only an hour, as all seemed eager to resume the dance. Healths, of the Sultan, and of the Queen of England, of M. Dadian, and of Captain Marryat, were drunk with all the honours, and the whole affair was very jolly.

"By this time it was half-past four o'clock; we marched in procession to the dancing-room, and danced for about an hour. The striking characteristic of the dancing was that it was very good, and the Polka Mazourka danced by the Greeks and Armenians was picturesque as a ballet. By six o'clock we were on board the 'Wrangler,' the procession back to the boats being attended by the inhabitants of the neighbouring villages.

"The shades of night soon began to draw around us; lamps were lit under the awning, tea and supper were spread out, eating and drinking slightly recommenced. Singing was well sustained by several voices—Greek and Italian melodies—and the two hours' steaming home passed away right merrily. All present parted with 'Good night,' '*Bon soir*,' in five or six languages, and I have commemorated the day by this scribblation to my beloved Josephine."

CHAPTER VI.

Constantinople—Turkish Post-Office—Pera—Champs des Morts—Distance lends enchantment—From Varna—Vintage-time—The Dobrudscha—A friend indeed—Madame Mavromichali—Reward of constancy—Letter from General Biddulph.

To his wife Lewis writes from Pera as follows on the 10th October:—"Biddulph has asked me to defer for a month my journey home, and to accompany him to Balaklava and Yalta. The truth is, the romance of the Lady of Karani is not yet ended, and I am going with my friend to help to consummate the story of devotion and love and honour of which I now know the whole, and which I shall be able to tell you when we meet.

"You will not, I know, do otherwise than approve of my devoting so much time to Biddulph. The happiness of the remainder of his life depends on his marrying Katherine, and from all I hear, her happiness depends on his return to claim her hand. So much true love and devotion men seldom exhibit, and Biddulph has so wound himself into my best affections that I cannot refuse this strong token of

my friendship which he so earnestly urges, as being not only expedient but necessary. He must, he thinks, have with him a friend of grave bearing and good standing, to assure the relations of the lady that he has wherewithal to support a wife, and for other reasons that form no ingredient in that love and devotion whose truth and purity have in his case been amply demonstrated."

On the following day, October 11th, he writes again, from Constantinople:—

"MY DEAREST WIFE,—In your letter of the 18th September, which I got only yesterday, you ask me to write an 'interesting letter.' This I never could do, but I think I can write you a long letter of complaint and dissatisfaction with the ancient capital of the world, present tip of the tail of European civilisation, and a dead weight dragging downwards whole districts of country, whose inhabitants are capable of making the same strides towards regeneration as the Scotch have done in the last seventy years.

"You mention that you do not know my address in Constantinople;—no street has a name, no house has a number, no person knows who his next neighbour is more than in London. There is no such thing as an address. All post-offices are *Postes Restantes*, or the embassies of the different nations. There is a French and an Austrian post-office. There

is a mail for each once a week. If you send to the post-office, the chances are that the clerk does not take the trouble of looking, and tells your messenger, 'No letters.' If you go yourself, the chances are against you unless you speak French and German, and persuade the clerk to let you look through the letters on your own account. Yours to me was among German letters. The clerk looked at me, saw I was a 'beefsteak,' then looked among English letters, and said there were *none*. I said, 'Bitte, suchen sie zwischen den Briefen neulich aus Hannover gekommen,' and he instantly brought me your letter, which had been lying there for eight days at least! This is a miniature picture of every detail of business I have tried to transact in Constantinople. Time is of no value. No appointments are kept; if they *are* kept, the business appointed is deferred, and this continues for several times, till at last, by some happy chance, real business is got transacted, and events occur as elsewhere. Of the twenty-seven days I have been in this country, twenty-three were spent at Therapia as headquarters. From May to December Turks and Christians who can afford it quit Stamboul and Pera for country quarters in the various villages which line the Bosphorus from one end to the other. Therapia is one of these villages, about twelve miles on the European side, towards the

Black Sea, and in the immediate neighbourhood of Buyukdere. In these two villages all the 'swell' Greeks, Armenians, and all the ambassadors of European nations have their country houses and palaces. Both villages are beautifully situated, chiefly on the margin of the water, which, like very few other waters, is deep close up to the houses, always clear as crystal, and quite salt. Splendid for bathing for those who can swim, and for those who cannot there are good bathing-rooms so arranged as to have a floor at a convenient depth.

"To and from Therapia steamers run four or five times a day, and the telegraph to Pera was always at my command. I had therefore a right to suppose that no letter could escape me; yet yours did so for more than a week, as a consequence of the delightful confusion and indifference at the post-office, mentioned above. There will be another post here to-morrow or Monday, and I shall hope to find something from you then.

"My first impression of the town of Pera, as given in my letter to your mother, is only confirmed by better acquaintance. Mrs. Smith's description and experience is quite consistent with mine. By the bye, the English embassy, which Page's friend built, is a heavy, costly, uncomfortable, but grand house. There are other much better specimens of his architecture here, and his name is well known

and respected among the Turks, Armenians, and Greeks.

"The principal boulevard or promenade in Pera is along the Petit Champ des Morts—the small burial-ground. The Grand Champ des Morts is their Hyde Park.

"The dead—rich and poor—are carried in state through the streets on a *bier*, and only put into a *thin* coffin at the churchyard. The grave is only two feet, or two and a half feet deep. A flat stone is laid on the top. In a few weeks dust has returned to dust, and although the tombstones set over the rich remain in a pretty good state for a time, in six or eight years the most elaborate monuments are demolished, and are scattered piecemeal about the place—carried away afterwards for building-stone, or to form part of a new monument. There is nothing sacred in the graveyard—nothing of the reverent sanctity attached to it by Western Christians,—a striking characteristic of this Eastern people, and one to which I find it impossible to become reconciled.

"The Hôtels d'Angleterre, both here and in Therapia, are excellent—rather expensive, according to the notions of most travellers, but to our English ideas they are not at all extravagant. Twenty shillings a day for each person pays every expense, including the little extravagances of a bottle of

champagne now and then, and good wine of some kind every day. But hotel-living does not agree with me, and I am tired of it,—all rational people become so. I have made it recently a subject of inquiry, and find my ideas agree with French, German, English, Greek, Russian, and American travellers with whom I have spoken, all of whom are of opinion that the *table-d'hôte* being made eternally a specimen of the French *cuisine* is a mistake, and that the hotel-keepers ought to return to the primitive notion, and give only three *plats* and dessert.

" Stamboul, the city of the Turks, is even worse than Pera,—the streets as narrow, tortuous, and dirty,—the houses as mean, and more sombre. It is true that looking over to Stamboul from Pera, above the arsenal, the view of the town is exceedingly picturesque. The great mosques with their minarets —five or six, each with four minarets,—the Seraskier's tower, the residences of the Pashas, the Golden Horn, laden with fine vessels of all nations, as a foreground, and the city, interspersed with cypresses and acacias, sycamores and other graceful trees, compose undoubtedly a most beautiful picture. But enter the mosques, within the precincts of the town, examine the apparently fine houses, and the first impression will be swept away, giving place to unmitigated feelings of despair for a people that can live contentedly in such a town.

"I have been to the bazaars;—vast collections of booths such as you see, or used to see, at the great fairs in the market-towns of England, only that the wares exhibited are barbarously ugly and coarse and in bad taste,—manufactured expressly for this market in Glasgow, Manchester, Mühlhouse, and Brebançon, or in Birmingham, Sheffield, and Paris, or in Lyons or Genoa. Few Eastern products, comparatively, are to be found. Brocessa gauze, Persian silks and shawls, are certainly very pretty, but they are exorbitantly dear, and the merchants are ten times worse than Jew pedlars in their habit of demanding three times the price they intend to take if you bargain with them long enough. Time is, in this case, of value to the purchaser, and a little stubbornness a great advantage."

From a letter dated Varna, the 17th October, the following is an extract:—"I was obliged to finish in a great hurry my attempt at an 'interesting' letter, begun on the 11th and ended on the 13th inst. Biddulph and I started as we intended, and as in the meantime I received your letter of the 1st October, I was in the best of good spirits and real contentment of mind, for I love Biddulph very much, and all bade fair for a prosperous and unusually interesting journey.

"The wind blew stormily from the north, the Black Sea was very rough, the boat a slow one,

and rolled about excessively. I was horribly sick, Biddulph was unwell and *feverish*, and we did not reach this place till yesterday at two o'clock. On landing, and getting ourselves made comfortable, Biddulph felt still very poorly, the wind continued to howl, and the chances being strongly against our getting to Galatz in time to catch the steamer going up the Danube, we resolved to land our baggage and reach the Dobrudscha overland.

"The Consul here undertook to get us arabas and horses, so that we might have started to-day, but from the roguery of his servant or *cavasse* we have been unable to do so, and I have sent on a courier to inform the Barkleys of the circumstance. Such a courier costs £1, and as the distance is nearly eighty miles, this is not dear: yet arabas and horses are very expensive to hire. For six horses and two arabas, and passports, I have paid £13, 10s. to go to Russova. We start to-morrow morning at nine o'clock. But for Biddulph's illness we should have gone to-day to a grand picnic given by the French Director of Telegraphs to the 'swells' of Varna.

"This is the vintage-time; the horses and carts are coming in laden with splendid grapes, many of the carts dressed with green boughs, and with a Constantinopolitanischerdudelsackspfeifergeselle playing before them. It was intensely droll to hear the bagpipes, but still more wonderful to find these

played by a Bulgarian peasant, to the great delight of the villagers.

"From the windows of this house I overlook the scene of disaster and sorrow to our troops which landed here three years ago. . . .

"It is now getting late on Friday night, the 17th of October. What think you I have been reading? *Kenilworth!* That Walter Scott was a great romance-writer. Would that he had lived to hear and write the story of the Lady of Karani!"

TO HIS WIFE.

"S.S. PESTH, NEAR GALATZ, *Oct.* 30, 1856.

"I HAVE enjoyed my trip in the Dobrudscha thoroughly, with the single drawback that Biddulph suffered from ague nearly all the first week, and is only now perfectly recovered, and his active energetic self again.

"My impressions of this district it would be difficult to write down. I am enchanted with the country, and, were it not subject to the Turks, should advise immediate extensive emigration to it in preference to any country I have heard of or read about. It lies beautifully, and is covered with the richest soil, producing—wherever turned over and sown—luxuriant crops of every kind. The climate is dry, the air is bracing, and the Bulgarians are a fine race of people, though rather miserable from

the ravages of war, detestable misgovernment, and their own wretched superstition and bigotry.

"To tell you of our travels, of our night-quarters, of our commissariat, of our fine breakfasts and better dinners, of our oceans of tea, of our eight and ten hours' hard rides, and our health and appetite, improving every day, till at last we alarmed our cook —for we travelled with a French cook—would take a volume, and you must be content to draw it out of me in the winter nights at home.

"Biddulph is now on the wings of love, and my anxiety about the result of the journey is almost as great as his. I trust no Russian passport system or other such mishap will befall us, for certes he will do something desperate if his way be stopped here. If all go well we shall be in Yalta, on the south coast of the Crimea, on the 4th of November, in Vienna on the 22d, and with you by the end of the month. When you receive this we shall be perhaps on an excursion to the Baidar Valley, or to the field of Inkerman, or to the Monastery, or to Sebastopol, or to Woronzoff's palace, or somewhere else in the beautiful but wasted Crimea."

"GALATZ, *Oct.* 31, 1856.

"BY strange good fortune, Biddulph, who is now quite well, has found here the aunt of his lady-love, Madame Mavromichali, a charming Greek lady,

who was in Sebastopol as a nurse until the end of the second great bombardment. She is the proprietor of Tchergonne, which was the headquarters of General Marmora. We shall find Katherine with her sisters and her father, Colonel Stamati, at Balaklava.

"Madame Mavromichali thinks much of me for my sacrifice to friendship in making this journey, and is pleased to say that it is because I am a Scotchman and a Gordon! These Greeks think as much of nationalities and of names of families as the Scotch themselves *used to do*, and as the Hanoverian noblesse still *does*."

It was indeed a "sacrifice" that he made in thus accompanying his friend, in which he obeyed the dictates of his generous heart without perhaps due consideration of his personal interest or that of those with whom he was commercially connected; but he justifies, or at least palliates, it in the following passage from a letter to one of his partners:—"I could not by any reason have controlled Biddulph's passion, and as his whole system was evidently suffering under the excitement of an unsatisfied craving to know that the girl loved him, I yielded my reason to my sympathy, and made the long and painful journey to see Biddulph's devotion rewarded by the complete acceptance of it by the sweetest gentlest creature in the world, a girl as

full of character as himself, and as artless as a child. The father's consent was not so easily won, but all difficulties are now smoothed, as I shall tell you some winter evening when you are in a soft enough mood to listen. Forget any inconvenience I have occasioned you, and expect to see me with some little *useful* information picked up *en route* to compensate for the four or five weeks of unnecessary trouble you may have had."

The 'romance of the Lady of Karani' receives additional elucidation from the following interesting letter addressed to me by Major-General Biddulph, now in India, and of which he kindly allows me to make use :—

"RANI KHET, *Aug.* 17*th*, 1877.

"MY DEAR MR. CONSTABLE,—Twenty-one years of constant change and of separation from my friend Lewis Gordon have effaced, in part, the accuracy of my recollection of the scenes in which for a time we moved together.

"Our late friend came out to Turkey prepared to know me through the representations of my earlier friends, Charles Liddell and William Newall, and in addition to our common interest in the schemes of railways or telegraphs, he was full of the new enjoyment of moving in scenes of great natural beauty and historical interest,—scenery set in all

the vivid colours of the East. He never tired of excursions and rambles, and I was charmed to have such a companion, to whom I might show all the beautiful spots of the Bosphorus and Constantinople.

"I was at that time meditating on making a journey to the Crimea. I had taken the step of engaging myself to the daughter of Captain Stamati, our prisoner of war, of whom Gordon had heard through Charles Liddell. There were serious difficulties in the way of our union, and Lewis Gordon, feeling a very keen interest in the happiness of his friend, agreed to accompany me. It was a great relief to me to have such a companion on such a mission, and soon after the determination was come to we commenced the long journey.

"I cannot now recall all the details of the way. It was altogether a delightful time, and in the end the results were highly satisfactory. I returned after my engagement had been renewed, difficulties having been smoothed, with a settled plan for the future.

"It must have been with my friend I visited Kustendjé and studied the capabilities of the port and the suitability of the country for a line of railway to connect Tchernavoda and Kustendjé. We rode over the heights, noted the line the rail should take, and I pointed out where the batteries should be to cover the terminus and harbour. We made our way over the rolling plain of the Dobrudscha, down the long

valley parallel to Trajan's Wall, and came upon the grand stream of the Danube at Tchernavoda.

"My memory here fails me, but we must have dropt down with the stream, and reached Galatz, and here the mode of conveyance would be changed.

"Yes, here began the long post-journey on wheels. What a wild, galloping business it was!

"We travelled in the ordinary post-carts, each having his own conveyance, drawn by three horses abreast. The harness and fittings were of the rudest nature, and an uncouth driver sat upon almost nothing on the edge of the forepart of the cart. As for ourselves, we sometimes sat on a portmanteau or were jostled helplessly, as fatigue came on, down into the loose straw at the bottom of the cart. However rude the appliances, the effect as to getting over the ground was marvellous. Each driver did his stage as he best could: sometimes Gordon was first, sometimes Biddulph. A puff of dust on the horizon was one—a column against the sky was the other. Occasionally we met at a station and congratulated each other. There was something exhilarating in the air of the steppe, and though there were no features but the plain and the sky, the effects of the sunrise and sunset I remember to this day.

"We reached Odessa, and put up in the magnificent hotel there, well pleased to linger a day to make the acquaintance of the talented Katherine Mavro-

michali, a relative of my *fiancée.* I well remember the charm of that visit for my friend, and how he enjoyed conversation with so cultivated a woman. Madame Katherine readily gave her influence to bring about the union, and furnished letters for the Crimea, which were of great value.

"Again over the wide wide steppe by day and night for more than two days continuously we were travelling. At Simpheropol we made a halt, and were hospitably entertained by Madame Elise, another relation of the Stamatis. How welcome the day of rest, especially to my friend, whose length of limb found but sorry comfort in those confined carts!

"Once more *en route.* And now the interest to Gordon became extreme, for we passed through scenes famous in the struggle just over. By Mackenzie's Farm, down the steep to the valley, and we were on the battlefield of the Tchernaya, where, after the fight, I had tried to help some poor wounded Russian soldiers. I pointed out the spot where I had passed the remainder of a night of marching when the army first reached thus far. On our right hand lay Inkerman and the heights above Sevastopol, on our left, in the gorge, and closed in by the hills, the country residence of Katherine Mavromichali. This lovely spot had been, in 1853, a happy retreat. Now, in 1856, devastated by war, it was a ruin. Madame had visited the place once since she had

been forced to flee from it, and was so shocked with the wreck that she left it for ever.

"From the Tchernaya we rose and passed over the path of the charge of the British light cavalry, and then through the heights on to the Balaclava plain. Every hill had its history, and the events were so recent that one wondered at the desolation, —expecting at every turn to see again the throng of armies.

"Karani was in sight, far up on the hillside. How well I recall the first time I saw that village!

"Gordon was already in such close intimacy with me—he was a brother—that I freely told him the tale of my first meeting Katherine Stamati.

"In 1853, soon after our arrival before Sevastopol, we were out on the heights, my Colonel and I, reconnoitring the country and looking over this wide plain over which the army had marched. We could see the neighbouring hills of Balaclava, but the port and the picturesque Genoese castle were shut out from view.

"Turning my eye along the hills, I noticed a village on the hill-side, and our artillery-horses being insufficiently provided with forage, I was ever on the look-out to supply what the commissariat failed to furnish. This village seemed to be well provided with hay, and I obtained the permission of my Colonel to proceed there to negotiate the

removal of some of its store to our camp. Such was the business which led me to Karani, and in the verandah of the principal house of the village I first saw Katherine!—Such may have been my narrative as Lewis and I drove up to the door of the home we had come so far to see.

"Captain Stamati, with his five girls, now received us with a hearty greeting, and we were at once installed as intimate friends and relations.

"It would at any time, and under any circumstances, have been interesting to be thus received in a strange and distant land into the intimate relationship of family life, but the circumstances which had brought us here were for me of a thrilling nature, and were scarcely less interesting to Gordon, so capable was he of entering into the feelings and interests of his friend. We remained here several days. The family and the villagers were recovering from the effects of the war—vineyards and fields were being cultivated, copses and trees beginning to grow up afresh.

"Gordon was taken by Stamati and me to see all the positions around the city we had so long besieged. We wandered whole days, describing the incidents as we passed, reproducing the scenes and the camps and the bustle and throng which had passed away.

"How depressing was the aspect of the desolate plateau where all had been life! An intense long-

ing came over me to recall those who had been here ; but many of them lay here in cemeteries scattered along the heights and in the dingles, and those who still lived all were gone, some one way, and some another, into far distant lands.

"We visited the field of Inkerman, and looked down the steep up which the Russians came, and I showed Gordon where the thin red line of British troops stood so long the brunt of the attack. Back by the Malakoff and the Redan, and home to the modest family away in the village in the hills.

"Another day we went to the Monastery of St. George. It stands under the edge of the cliff of the southern shore, sheltered from the north wind, and it looks down on an exquisite view of bay and headland of the Black Sea.

"On the left a high promontory juts far to seaward, then a sea-horizon sweeps round to the cliffs and points of the bay, and then the ancient Chersonese is nigh on the right hand, a scarcely-to-be-traced outline on the bare shelving plains which stretch to the western shores.

"The monastery, nestled among trees, with its detached buildings and chapels, is situated on plateaux cut out of the cliff. Successive ledges and slopes have been worked by the monks into gardens and vineyards, which, mingling with other verdant clothing, reach the white sands far below, and are in

delicious contrast to the devastated plains above, to the fantastic rocks, and to the deep blue sea.

"The monastery escaped almost entirely the ravages of war, which wrecked every homestead where the camps lay. This place was always thus a marked contrast to the scenes of strife and destruction in which we daily lived, and there was a charm in making an excursion to this peaceful and beautiful spot to pass an hour. The scene changes so suddenly, one is filled with sensations of wonder and delight. Gordon was in raptures.

"The Archimandrate, principal of the monastery, and the monks, welcomed me back to my old haunts. I introduced Gordon, and they received him as my friend. Stamati and the girls were of the party, and we made it quite a gala-day.

"The last time they and I had been together at the monastery they were there as captives, with a French Zouave before their door; and in those days there was no thought of ever meeting their English friend again when the existing order of things should have passed away.

"Service was being held in the chapel. The chime of bells floated on the breeze, the sonorous chants were wafted out over the murmur of the waves, and there was now no booming of the guns of the siege. It was a day to be remembered by Gordon for its strange beauty and associations, by myself as one

also full of hope for a future which promised the greatest happiness which can be given to man on earth. Gordon saw and felt all this, and I know that it was a day imprinted deep in his memory.

"Our last day in the Crimea was spent in the ruined city, partly with friends, partly in visiting the signs of the havoc produced by the iron hail of the allied armies. At length we embarked, and Gordon and I waved our adieus to the little group as we made our way down the Sevastopol harbour. We had gained the open sea, and Sevastopol was glittering in the rays of the setting sun ere our talk resumed its accustomed ways.

"Two years passed by. We were now married, and when my bride and I reached England, of all those who welcomed us on arrival, none were more hearty or more genial than Lewis Gordon, his wife, his mother, and his sisters.

"There are passages of our life which can never be effaced: Gordon shared intimately in such of my life, and he had the wonderful power of losing self in sympathy with his friends.

"Wishing you all success, and with my love to the family, believe me, my dear Sir, yours very sincerely,

"M. A. BIDDULPH."

CHAPTER VII.

Red Sea Cable—Wreck of the 'Alma'—Address by passengers—His sister's marriage—Again at work—Fellow-passengers—Question and Answer—Scanty fare—Mahomedan festival—Point de Galle—Ceylon: its great beauty—An excursion—Penang—Singapore.

HERE, alas! another gap occurs in our correspondence, of fully two years' endurance; and as neither memorial nor written record of the period appears to have been preserved, we must step at once from the 31st of October in 1856 to the 24th of November 1858, when we find the earliest mention of the laying of that Red Sea Cable, which was to have so disastrous a result for some of those employed in the work, and for no one more so than for the subject of this Memoir.

The contract for the submarine line from Singapore and Banca to Batavia was also entered on at this time, as will be seen from the following extracts:—

"BIRKENHEAD, *November* 24, 1858.

". . . We are just about to sign a contract for

laying a line for the Netherlands Government from Singapore to Banca and Batavia. This cable is to be the same as the Red Sea Cable."

Dec. 2.— " . . . If the Netherlands Government gives us the order to go on with their Singapore line at once, we shall ship it in the last of the three ships, and so go direct from the Red Sea to Singapore. The 'Bahiana' will be ready to do the Austrian line if we get *bona fide* orders to go on with that in time, and thus we shall do immense work in the next twelve months! I wish we may —successfully,—and then return!"

Dec. 17.—" The Singapore-Banca-Batavia line will be executed as soon after the line is laid to Aden as the ship with the cable can reach Batavia, say in July. . . . If all goes on as regularly as has been the case for the last month, the 'Imperador' and 'Imperatrix' will be loaded and ready to leave Birkenhead on the 22d of January. In seventy days they should reach Suez, and at once commence laying the cables."

After the completion of the Red Sea Cable, on the 11th of June, Mr. Gordon and his partner, Mr. Newall, with Mr. Werner Siemens and Mr. Francis Gisborne, left Aden in the Peninsular and Oriental Company's steamer 'Alma,' with the intention of

an immediate return to England, but before they had been many hours on board, and in the middle of the night, the vessel struck a coral reef, where, although passengers and crew were all landed without loss of life, they would probably—but for the intrepidity and presence of mind of Mr. Newall and Mr. Gisborne—have perished from exposure and starvation.

As it was, the seeds of disease were laid in many a constitution, and it is certain that Lewis then received his deathblow, though many years were to elapse before the fatal issue. The exposure to the sun no doubt injured him, and as he remained at Alexandria for a month to complete some arrangements there, he had no opportunity for a thorough rest, which immediate return to England might have given him. The account of the disaster given in the *Times* of July 7, 1859, is so graphic and complete, that it will be found entire in the Appendix,[1] but an extract from a letter of Mr. Newall on the subject will also be read with interest:—

"It was a narrow escape for all of us, but by keeping cool, every person was saved without damage. The cause of the wreck was simply that EVERY ONE on board was asleep! no one keeping a look-out. I was asleep on deck, like many others, but immediately realised our position, and after

[1] See Appendix, p. 211.

getting the ladies and children out of the cabin, which was soon filled with water, we got all on shore, and set the men to work to save provisions, water, and *clothes;* for those who were undressed had no time to dress, and many of the children were naked. I remember dropping one little fairy into a pillow-case, and tying it round her neck before I landed her! and, compared with some others, she was not badly dressed.

"I lost my baggage, and got no thanks from the P. & O. Company for all the trouble I took. That, however, signifies little. I look back on the event with satisfaction, knowing that I did promptly what others might have thought twice about.

"The wreck occurred shortly after the massacre at Jeddah, and I was not certain how I might be received at Mokha, but on reaching it, being hailed in English 'where I came from,' I thought the best reply would be 'H.M. ship Cyclops—has she been here?' 'No,' etc., and I got the speaker to take me to the Pasha, to whom I told the fact of the wreck, and got him to send off three boat-loads of water, which, however, had not yet arrived two days later, for I found only four gallons left for 400 people. I had got ready in the Cyclops quantities of tea, which proved most acceptable to my shipwrecked friends."[1]

[1] When the 'Alma' was got off the reef, some eighteen

The lively gratitude felt by the passengers in the 'Alma' on this occasion is feelingly expressed in the following letter, addressed to Messrs. Newall and Gisborne :—

"RED SEA, *June* 23, 1859.

"GENTLEMEN,—The passengers of the 'Alma,' while they feel deep gratitude to all those who lent a helping hand for their safety and succour, and in various capacities assisted in those arrangements which enabled them to pass through such scenes of distress with every possible mitigation, feel it due to Messrs. Gisborne and Newall to select them for their special and most thankful acknowledgments.

"To the promptitude and courage of Mr. Newall, and his mission to Mocha and Aden, they owe, by the arrival of H.M.S. 'Cyclops,' their early redemption from the coral reef upon which they were thrown; and to the admirable measures of superintendence taken by Mr. Gisborne, to whom the distribution of supplies was wholly confided while on that barren island, they must mainly attribute—under God—the alleviation of their sufferings, and even the preservation of their lives. Justice towards all was attended by every consideration for the

months later, among other articles found, were Gordon's watch and chain. The watch had belonged to his brother Clunes: Lewis had the works renewed, and gave it to his elder sister in remembrance of both brothers.

peculiar claims of the helpless, the weak, and the suffering, and the confidence placed in your guidance was not only never shaken, but ratified and confirmed by the experience of us all."

To this document were appended the signatures of all the passengers of the ship.

Lewis reached London on the 22d of July, somewhat broken in health, but quite unsubdued in spirit, and was able to be present on the joyful occasion of the marriage of his younger sister to Mr. C. William Siemens, which had been delayed in consequence of the anxiety felt both by the family of the bride and by that of the bridegroom, whose brother, Mr. Werner Siemens, had also been engaged in the laying of the Red Sea Cable. The satisfaction felt by Lewis in this alliance was great, and is well expressed many years later in the following extract from a letter written after a visit paid by Mr. and Mrs. Siemens to the Château de Bossey:—

"Anne's visit was indeed a great blessing to me, and perhaps even more to Marie, and William's sojourn also was a very great delight. Both are enormously agreeable, and they are much improved by each other. We were very sorry to part with them, but could not press them to stay, as I felt that a complete diversion of ideas was most desirable for William, and *I* could only entertain him by sucking out of him all the information, and scien-

tific and engineering gossip, for which my solitude here gives me a greedy appetite, not otherwise to be satisfied than by such personal intercourse."

It had, perhaps, been well that the retirement so soon to be enforced by completely shattered health should have at least been partially entered on at this earlier period; but work was plentiful and pressing, he believed that his unpleasant symptoms would pass off, the Singapore-Banca-Batavia Cable wanted to be laid, and on the 29th of September 1859 we find him writing as follows from the steamship 'Vectis:'—

"P. & O. Co.'s STEAM-SHIP 'VECTIS,'
Sept. 29, 1859.

"DEAREST WIFE,—We got to Marseilles on Wednesday morning, and passed the day very quietly there. The weather was lovely; the heat like summer. Marseilles looked clean and prosperous. Everywhere new buildings going on. I got your letter written at Rehburg in the end of June last! Also letters from Mary, my mother, and others, welcoming me from the dangers of the wreck of the 'Alma.' Old as they were, they affected me much. One would need to be very careful not to become vain of so much love and affection. Your mother's few words touched me deeply. I am not sufficiently grateful to her for that she loves me.

"The 'Vectis' is a new steamer of great speed,

and the saloon is adorned with panels enclosing landscapes of the Isle of Wight, Cowes, Ryde, Newport, Osborne, Shanklin, Alum Bay, Blackgang Chine, etc., so that I must often think of my dear mother, and hope she is enjoying her Pomona villa.

"We have a number of passengers, of all nations —at least Germans, French, Spaniards, English, Irish, Scotch, and other foreigners. The Germans are going to Calcutta, to look after rupees, and for other suchlike scientific explorations; of the French, some are going to China, some to the Antilles; the Spaniards are going to Manila; and the others distribute themselves variously,—several railroad engineers are on their way to help to crush down the barbarism which the chariot-wheels of Juggernaut have kept flourishing since the days of Vishnu. Lord Glenelg and a part of his family are on board. They are going to Egypt for the winter. He was an acquaintance of my father's. . . . Our passage, so far, has been fine; I am writing tranquilly in the saloon, almost as if I were at home—that is, on *terra firma*, for it is rather too much in the circumstances even to *think* of home. . . .

"I should like to do more in the way of sketching some of the characters on board: one young man, with a neat, not over-grown moustache, had been paying a little—the very slightest—attention

to two ladies on deck last night, when the conversation turned upon shipwreck, which it appeared the young man had recently suffered. One of the ladies asked, 'Which of us would you save if you were put to the trial now?' She was much the older of the two. The young man naïvely said, 'I think you know how to swim, do you not?' and added soon after, 'The stewardess is a neat, pretty little woman!' Conversation languished, and has not since been resumed. Another man has his hair curled every morning, and although I took him for a *friseur*, I find that he is Her Majesty's consul at Hong-Kong, and to Hong-Kong he may go for me.

"We passed through the Straits of Bonifacio this morning. I was up at sunrise, which was lovely to behold, and the curious wild rocks of Sardinia and Corsica made a grand and picturesque foreground to the gorgeous scene. We are now careering on at the rate of twelve knots an hour, and hope to be in Malta to-morrow afternoon, where I shall resume this diary, if the sea be smooth, and at all events post it there."

TO THE SAME.

"ALEXANDRIA, *October* 6, 1859.

"DEAREST WIFE,—Writing at sea I could not accomplish, but after a very smooth and pleasant passage, I am delighted to greet you with love and

blessings from the land of Egypt. We arrived yesterday in seventy-six hours from Malta.

"The only incident worth mentioning for these three days is the important general one, namely, that the great P. and O. Company calculate on most of their passengers being *ill*, and therefore do not provide enough to eat and drink in the event of their all continuing in good health. The food supplied was very scant, and became daily worse in quality, which is disgraceful conduct in so large and wealthy a Company as the Peninsular and Oriental, though I am not quite sure that scant living is not healthier at sea than very full living. Besides, it gave abundant occasion for grumbling, and the witty were of course *very* witty.

"Newall and Liddell left Alexandria on the 24th of last month, and expected to have been back about this time, after accomplishing their task. They have not yet appeared, and I advance on my journey less joyous than I otherwise might have been. We proceed to Cairo to-day, and to Suez to-morrow or the day after. Our vessel is the 'Bentinck,' a fine large vessel, but slow."

TO THE SAME.

"CAIRO, *October* 7.

"WE arrived here in the midst of a Mahomedan religious festival, and spent an hour last night in

looking on at the most grotesque and humiliating exhibitions of religious fanaticism it is possible to conceive. . . . The Mahomedans—most of them pilgrims returned this season from Mecca—by dint of excitation from a dervish chaunting parts of the Koran, work themselves into paroxysms of hysteria and exhaustion. This is done in large, splendidly illuminated and ornamented open tents. From rapid evolutions and genuflexions, and the attitude of prayer, they get into the wildest dancing and screaming, those who fall down exhausted being drawn off, and restored and refreshed with coffee and a pipe. There were at least fifty open tents in which this ceremony was going on, some with many, some with only a few spectators.

"In other tents there was profane music and dancing and singing—the dancing by boys dressed as girls, and the singing by Coptic women—very horrible to hear as music, and very curious to witness as something that interested and amused the people of the country. But, after all, Highlanders like *the bagpipes!* The bagpipe and the kettledrum were the chief musical instruments in the processions and dancing-booths we saw last night.

"To-day I have had a long walk into the great thoroughfares of the town. It is delightfully cool, and I have quite enjoyed gazing at the details of this truly Eastern city. The houses, the people,

the manners, the customs, are infinitely picturesque and interesting.

"During this morning I have heard several details as to the wreck of the 'Alma,' and its consequences, which render me doubly thankful for the merciful interference of Providence in guiding Newall aright to the 'Cyclops!' The expedition that went to Mocha to bring provisions to the island was nearly lost, and all the provisions were destroyed by salt-water before they reached it, six days *after* we had left. Had the 'Cyclops' not come, we should probably all have starved. But enough of that sad remembrance!

"The locket with your miniature and my darling boy's is open before me. I like to look at them, though it is not your sweet face, my beloved, but only something like it. Kindest love to all. My blessing to my boy."

TO THE SAME.

"POINT DE GALLE, CEYLON,
Oct. 26, 1859.

"BELOVED ONE,—Though somewhat wearied by a long walk after our ten days' indolence on board the 'Bentinck,' I cannot resist telling you of the strangely delightful impression the scenery and vegetation of this place have made upon me. It seems as if all my young enthusiasm for Asiatic

splendour and grandeur were awakened, after having slept for years, and having been stifled by disappointment at the dreary beauty of the Bosphorus, the swampy grandeur of Egypt, and the unmitigated repulsiveness of the shores of the Red Sea and of Arabia.

"Since we left the valley of the Rhone we have seen nothing to remind us of what is glorious and lovely until this afternoon, excepting only the rising and the setting sun, which we have seen daily declaring, in unmistakeable language, the glory of God. But come in sight of Ceylon! you see hills and mountains clad with trees, and a coast of softest outline fringed with palm and cocoa-nut to the very verge of the constantly surging breakers, the foam of which seems to rush up to the trees in fury, and then suddenly to retire, as if its boisterousness had been but sport. Come into the harbour, and see the wonderful canoes skimming along the waves, supported as it were by magic; get the pilot on board, and anchor in an almost landlocked nook surrounded by a landscape of perfect beauty, of gorgeous colour, and of such limited extent that the eye and the mind can easily embrace it. The old Dutch forts are on the left—some of the old factories rising above the level of the forts; bungalows peer out from amidst the groves of palm and cocoa-nut, and figs and limes, and other trees of most

luxuriant foliage. Feast your eyes upon all this, and you forget the weariness of the twenty-eight days that have passed since you saw verdure and healthy vegetation in the valley of the Rhone.

"It is not, however, till we get on shore that the truly exquisite presentment of God in nature is fully realised. The face of the ramparts, many of which are cut in the solid rock, is covered with creeping fig-trees, vines, and a kind of ivy, with here and there a grand palm growing perforce out of a mere crevice, spreading its broad rich green leaves to the setting sun, which, at the moment I now allude to, tinted the whole picture with a wondrous soft golden hue, such as Titian sometimes paints, such as Millais and Hunt and Lewis have often painted, and been therefor declared to paint what nature never showed. Yet have I seen these very hues this night ten times repeated in various landscapes; and then the scenery is enlivened with strangely picturesque specimens of humanity. The Cingalese are nearly naked, and are of a savage picturesqueness, but there are Parsees, and Malays, and Hindus, and Coolies, and these wear clothes—more than mere aprons; and the inhabitants are numerous, so that the landscapes, at least in the foreground, teem with life.

"*October* 27.—We went on shore at daylight this morning, when the rising sun threw even more en-

chanting light on the landscape than he had done last night in setting. Many passengers had slept on shore, and there was a great bustle in the principal hotel—a very nice clean house, to which we went to get a carriage. The carriages are neat little square boxes, holding two *vis-à-vis*, and a little pony from Australia took us along at a good pace to a celebrated *point de vue* called Wok-wallek. The road lay through groves of palm, cocoa-nut, plantain, bread-fruit, and other trees; in the hedges were camellias, tree-verbenas, convolvuluses, splendid ferns, and innumerable flowers and plants of which I know not the names.

"From time to time we passed paddy-fields, either already prepared and irrigated, or being prepared; then by sheds in the midst of a swamp, but surrounded by cactuses, prickly pears and custard apples, where the natives were making rough pottery, and tiles of all kinds for roofing and building. These, I believe, are dried only in the sun; we saw no drying or baking kilns. Fancy driving for five miles through the palm-houses of Kew or Chatsworth, with the gloriously clouded blue sky for your only conservatory! From the summit of the hill which was our destination we had a glorious view; northwards a valley of great extent, bounded by a conical hill called the Haycock, behind which towers Adam's Peak. All around there are lovely

hills. In the trees hard by we saw monkeys in plenty, but they were very shy, and would not let us come near them. I hope to bring home one for my darling Joeykins. We gathered flowers of glorious colours—bouquets *not* to be had in Covent Garden—and collected specimens of flowers and seeds, taking back a huge bundle to the ship. But alas! where vegetation flourishes so wonderfully it decays most fleetly, and our souvenirs of Ceylon drooped and withered before we had lost sight of the island.

"On our homeward route we made several side excursions and visited some native huts, which we found clean. The people seemed to have plenty, and to be content. The children are very pretty, and all of them had flowers ready to offer us, for which they expected and received some pence, or *pice*, as the small money is here called. Galle is an old Dutch town. The houses are all bungalows in gardens, and look very nice. The place is fortified, and our people are *now* increasing the strength of the seaward fortifications. I have the most delightful recollection of my visit to Galle and the neighbourhood."

TO THE SAME.

"ON BOARD THE 'OTTOWA,' OFF PENANG,
Wednesday, Nov. 3, 1859.

"THIS is my boy's birthday. I have prayed all

the morning that God may bless him, and that he may have a patient, contented, unselfish mind and heart, loving

'Only what is pure and good and noble.'

"The island of Penang is even more lovely than Ceylon; but it is small, nothing grander than the scenery of the Isle of Wight, but the Eastern vegetation as wonderful as that I have attempted to describe of Ceylon, near Galle. The town here is chiefly inhabited by Chinese. They are the merchants, the artificers of every kind, and have the principal stalls in every market; a strange people—clean and sober and industrious. There are innumerable joss-houses of the smaller kind; these are open, like coffee-houses; the altar is lighted, and the picture above it. The altar is always the same—a fat good-looking mandarin with a sword, and a great satanic devil on his left shoulder. See any Chinese fan or bowl, or other Chinese pictorial work, for a representation of this great Prophet of Joss or Boudha. The Chinese completely overrun the east of Asia; throughout the Archipelago we shall find them the predominating industrial race. Curious and new to me.

"We got tea from one Chinese family, and we bought fruit from another,—four splendid pine-apples, of about four pounds' weight each, for one

shilling. Curious radishes, very nice; also tough salad, bad mangos and unripe mangusteens, and primelans, or forbidden fruit, as I think it is called in England. The chief produce of the island is spices; the only permanent souvenir I have brought away is what is called a Penang lawyer, which I shall bring home for my son."

On the 14th of November he writes from Singapore as follows to his mother:—

"I was enabled to write almost immediately after our arrival here on the 5th inst., at which date, however, the 'Bahiana' had not yet come in, which she did on the 9th, all well. She had a severe passage round the Cape, and was detained there and elsewhere, so that she was ten days longer on her passage than we had calculated on.

"Since my arrival here I have been pretty busy and have put off writing until the time of our departure for Java. We got the end of the cable on shore early this morning, and were to have started at seven or eight o'clock, but were disappointed, and cannot leave now till five o'clock to-morrow morning, for there are parts of our track so bad that we are most anxious to pass them in daylight."

CHAPTER VIII.

Laying a Cable.

THE following letter addressed to his partners details Gordon's actual experience in this cable-laying expedition. The solution of the problem had not then been so well worked out as in recent times, but, as the result showed, it was eminently successful.

"15*th Nov.*—At 5 A.M. we unmoored; at 5.30 up anchor, and steamed slowly out of New Harbour. Tide just turned, and very moderate current with us. At 6 A.M. abreast of Peak Island—about 2 cables' length from it, and we were moving at the rate of about 5 knots, or 30 revolutions of the drum, although the engines were still going 'dead slow.' The current had increased to more than 3 knots in our favour. About 6.30 the splice went overboard. The brake was adjusted to the light cable. Our visitors left us. The 'Mirapi' of H.M. navy joined company, and led the way. We were now

going 36 and 37 revolutions, and engines still dead slow; but the water was only 10 fathoms to 15, and as we were paying out with 4 to 5 cwt. strain on the cable, we knew that all was right. About 8 o'clock the current had moderated, and we had the speed reduced to 6 knots, at which we continued steadily till 10 o'clock P.M., never altering the brake in any way.

"At 10 P.M. we observed the 'Mirapi' haul suddenly to the westward; we ported the helm, and followed. Speed reduced to about 4 knots. Finding the 'Mirapi' continuing westward at midnight, we made the agreed signal—two guns and a rocket—for her to come alongside.

"At 12.30 spoke the 'Mirapi.' She had found herself running on rocks and islands which were four miles to the westward of our true course. She had been diverted westward by strong currents.

"Resumed our course, shaping S.S.W.; at 2 A.M. speed was again 5½ knots, and soon after we were steady at 6 knots.

"About midnight I altered the strain to 3½ cwt., and I allowed this to continue till about 6 A.M. of the 16th Nov. On laying down the courses made during yesterday, we found that our set to the westward had involved us in an additional length of 8 knots. To the best of our measurement and reckoning we had at noon paid out 164 knots, and had

made only 156 knots of distance, 8 knots of which distance was, as above mentioned, out of our course. The loss in paying out appeared to be nearly $5\frac{1}{2}\%$. With the adjustment of the brake adopted this is quite unaccountable, and we shall see that with exactly the same adjustment we paid out 300 miles, with not more than 2% loss. I however restored the strain from $3\frac{1}{2}$ cwt., to which it had been reduced, to about $5\frac{1}{2}$.

"At mid-day our course was E.S.E., and then was changed to S.E. by E. $\frac{1}{4}$ S., and continued so till we sighted Muntokin Hill, behind Muntok, on the island of Banca.

"At 8 P.M. we were nearing Frederik Hendri shoals. The 'Mirapi' advised us to anchor for the night. We anchored in 9 fathoms, and veered away 40 fathoms cable. Swung to the current, which we found setting N.E. by E. $\frac{1}{2}$ E. about 2 knots an hour.

"17*th Nov.*—Up anchor at 5.30 A.M. Proceeded at first slowly, as we had to turn nearly right round, the ship having swung to the tide. Our cable had been carefully handled, kept pretty tight, and clear of the screw; but the form of the *saddle* proved itself faulty, and quite inefficient for tidal work when the ship swings so as to bring the cable even to 35° with the axis of the ship. We have altered and improved this after the cable had slipped twice

out of the saddle, threatening great damage, and *doing* some. Of this hereafter.

"9 A.M., passed Frederik Hendri shoals. Brake as before. Speed 6 to 6½ knots. All serene. 10 A.M., slowed; 10.10, stopped. Lowered second cutter. Passed her astern under cable. Cut cable. Insulated it, and left end in cutter. Proceeded to landing-place. Let go the anchor at 11.30, abreast of landing-place, about ¾ of a mile from shore; and now began a series of misfortunes and mismanagements.

"Soon after mid-day we ran a grass rope on shore. About 1 o'clock it was found that the anchor was coming home, and we were in a very awkward place. While steaming ahead to a fair berth the *tide* turned, and then we found not only that we had strong currents, but very *irregular ones*, to work in.

"We got down all boats about 2.30. Landed shore end at 3.30. The 'Mirapi' left us an officer and two well-manned boats to assist, which they did *well*.

"As we were getting up anchor to steam out to second cutter with shore end, about 3 miles out, Loeffler came to say that shore end was faulty. Cut it away, after by exhaustive tests proving that the fault was about half-way between ship and shore. Night came on, and we could do nothing till

"*Friday, 18th Nov.*—At 5.45 a line was on shore ready to land shore end. At 9, boats left the ship with shore end. Almost as soon as end on shore the tide unexpectedly turned. Ship swung, and gave us infinite trouble.

"At 1 we weighed anchor, and proceeded out with shore end. Scarcely ¼ of a mile paid out, when the most extraordinary and ludicrously appalling accident in the annals of submarining occurred. In testing for the fault, we had cut the cable at about 3 miles from the top or end on shore. The cut ends were temporarily joined, and put in their original position apparently; *but*, when the cable came to the coils next the cone, it took hold of *both* ends of the cut place, and up came three ends of cable instead of *one;* before we could stop dead, these three ends had passed three times round the drum. We got all stopped, however, and the drum cleared, and were within ten minutes of being ready to *start*, when the tide *turned*, the ship swung. We could not pay out cable. We could not hold on, the tide was too strong; so again we had to cut the cable, but not till after it had *slipped* out of the saddle, and threatened destruction to our machinery!

"Daylight was gone when all was again serene, the ends spliced, and all tested and ready for joining up at the second *cutter*, which was waiting all this time about 2 miles off!

"*Saturday, Nov.* 19.—5 A.M., cable connected with Singapore, and exchange of messages, and explanations of the delay of 48 hours. First section of our work completed.

"At 6.45 brought up anchor in Muntok Bay. During yesterday and to-day we land about 6 miles of cable, to make the land lines from Muntok station to the coast for Singapore, and for the Batavia and Muntok, and Muntok-Palembang lines. This was completed at 6 P.M. Siemens and Loeffler[1] got the station nearly ready, so that on Monday evening we shall be ready to start for Batavia.

"*Sunday, Nov.* 20.—A day of rest and meditation.

"*Brake.*—The alteration of the Bahearn Brake was a complete mistake. It took a weight of 3 cwt. to produce the friction to counterbalance a strain of 5 cwt. on the indicator. If we had left it as it was, 1 cwt. on brake would have had the same effect.

"*Shore ends.*—In tideways, and in almost any circumstances, it is ridiculous doing this work with the big ships. A small steamer absolutely necessary for despatch and economy.

"*Commanders.*—The most intelligent seaman, the

[1] The electricians. Walter Siemens, a younger brother of C. William Siemens, was afterwards Consul for the Caucasus. He died in 1868, his horse having reared and fallen upon him.

most conscientious man, and most indefatigable in his duty, is not all that is wanted. A man who can *handle* a big screw steamer must have a practical tact—only, I suppose, to be gained by experience. G. is not very experienced, and is *timid;* and a good deal of our delay may be attributed to the last qualities, although he has all the first qualities above specified.

"The end result of our reckonings is, that we made a course 245 nauts long, and used 255 nauts of cable. There is an unknown error of 3 miles in the position of Muntok, which would be in our favour. *I do not believe* that we paid out 5°/₀ more than the total distance run.

"*As to electric tests.*—While paying out the cable no sudden change of any kind occurred throughout the voyage. The insulation underwent such slight changes as, I believe, always take place where dry gutta-percha is immersed in water. The tests made on the forenoon of the 17th, after 251 miles of the cable were laid, gave the following results :—

Resistance per 100 knots of the copper-wire, ... 824·0 units.
Do. do. gutta-percha, 190,000·0 „
Which gives a loss of $\frac{824{\cdot}00}{190{\cdot}000} = 0{\cdot}43°/_{0}$.

This is a considerably higher loss than when the

cable was dry, but a perfectly satisfactory state of the cable itself.

"I may here mention that when we returned to Muntok a fortnight later (Dec. 4) the tests were as follows, from station in Muntok to station in Singapore :—

Resistance—copper-wire, . .	837·0
Do., gutta-percha, . .	180,840

or a loss of 0·46%.

"These tests were not made in exactly similar circumstances, of course. The first was deduced from measurements made through the 251 knots + 129 knots still in the forehold. The second was made on the line joined up to the station at Muntok. The difference of 0·03% is not looked upon as of any effect, and might even be allowed as error of observation, etc. etc.

"*Monday, 21st November.*—The *Resident* or Governor of Banca came on board about 11. A very nice fellow; we went to his soirée last night. He gave me a great deal of information about gutta-percha, and is to make a collection of various *gums* of the same class, which he thinks might be made available.

"At 1.30 up anchor, and to landing-place of Batavia cable. Got within 400 fathoms of the shore. Put that length of cable in a large *proa*,

and towed that on shore, paying out from the proa, and keeping the cable quite taut by means of gear fitted in the proa. Landed the cable with great success, and had all boats up and ready for sea at 3.30.

"At 9 P.M. ship swung. Had hard watching of cable, but kept all straight.

"At midnight the rain, which had poured in torrents since 6 o'clock, ceased; the weather cleared.

"*Tuesday, Nov.* 22.—At 2 A.M. H.N.M. ship 'Mirapi' joined company. Up anchor, and proceeded after her. As ship had swung, we had to make an awkward round turn to get into course. Nothing of the least interest happened during the run. We went steadily at 6 or 7 knots. Once we increased to 10 knots; but the motion of the cable *everywhere* was alarming, and we soon gave it up.

"5.10 A.M. entered Leucipara Channel. Only one vessel visible, loaded with Hadjis from Mecca.

"5.10 P.M., Leucipara Island, *East* (true). Shaped a course S. by W., following 'Mirapi.' M. Groll was growling at Grindle for not keeping more in-shore. Grindle followed 'Mirapi.' I wish Groll had told me what he wanted. Grindle is fearfully cautious, and afraid of shoal water, even with a muddy bottom. We passed close by the Hadji vessel, and all eyes were on us, and peering at the cable.—10 A.M., squally weather, with rain.

"*Wednesday, Nov.* 23.—Found that the condition

of the Muntok-Batavia cable, according to the tests made on the voyage out, gave—

Resistance of copper, . . 816·0 units.
Do. gutta-percha, . 346,933·0 „

which indicates a loss of 0·24°/₀, while paying out up to

"Noon. To-day no sudden change whatever has occurred; but there is the slight difference of a wet and dry cable constantly manifested, increasing as the length paid out increases. At present the loss appears to be about 0·29°/₀. At 1.20 passed the North Watches, paying out fully 7 knots per hour. All serene. Great trouble with the *telegraphists* at Muntok, who sleep on duty, and otherwise keep Siemens constantly in the station. Same complaints from Singapore, with which we constantly exchange messages, etc. etc. 6.30 P.M., anchored for the night, as we have a most intricate navigation to go through to-morrow.

"*Thursday the 24th.*—3.30 A.M., up anchor, and proceeded ahead slowly. 4.15, rounded Pojany Islands. 6.20, passed between the 'Jouk' Bank and 'Agenieten' Islands; a very close shave indeed. 6.50, anchored to connect the heavy cable or shore end. For this heavy cable was laid at that part of our course here which is subject to anchorage, and not, properly speaking, as a shore end. Groll reserved 8 to 9 miles of cable for this purpose. 9.40, up anchor,

all splices being complete. Tests quite perfect. Paid out about 8 miles of heavy cable. Anchored—cut —spliced, and at noon up anchor, and proceeded into Batavia Bay. A jolly scene it was. A small steamer came off, and kept on the three-fathom line. The 'Mirapi' followed her as close as possible, and we followed the 'Mirapi;'—a regular chase through fishing-stakes by the score, stopping the screw as we crashed through each line of stakes, as a hunter takes up his legs during a leap.

"3.55, anchored in 3½ fathoms. Had scarcely anchored when a pleasure steamer with about sixty merchant dons from Batavia came alongside, presented an address to Groll, congratulated us, etc. Messages were sent to the Governor of Singapore by the Governor-General of Netherlands, India; from the merchants of Batavia to the merchants at Singapore, etc. etc. All tests were completed, and preparations made for landing the end of the cable. We were one mile and a half from the shore, one mile of which was in water from 3 feet to 2 feet deep, over deep mud!

"Here I got the message, 'The Alexandria cable broken, 70 miles from Alexandria!' I cannot tell you my feelings.

"The end result of our Batavia-Muntok line was, that the course run and the cable paid out were within 1% the same! The balance of cable in

hand proves to be very nearly 154 miles; that is, including 6 miles delivered at Muntok for making land lines.

Electric tests—

Resistance of copper, . . 833·0 units.
Do. gutta-percha, . 259,584.0 „
Percentage loss, = 0·32.

Tests made on the 4th December from Muntok, *after* the two breaks by anchors (hereafter detailed) had been repaired, gave the

Resistance of copper, . . 837·0 units.
Do. gutta-percha, . 180,840·0 „

or a loss of 0·46%; which small increase, after those mishaps of the cable and its repairs, proves the excellent state of the cable as it now lies.

"10 P.M., *Thursday, 24th Nov.*—Got the end of the small cable on shore! amidst some discontent of the crew at being kept out so late. Great fun too with the good-natured ones, who, knowing there were plenty of alligators about, made many jokes with others more timid.

"*Friday, 25th Nov.*—Mr. Condamine brought off our letters. Nothing of interest or importance, save that, thank God, all were well at home on 8th October.—Employed in getting line completed to station in Batavia; ¼ mile up a river; ¾ mile across country in a trench. Got it all but finished, and went on board.

"In passing up the river we saw multitudes of apes and parrots, and ibises and waterfowl, of beautiful plumage, and vultures and miners; and, above all, six or seven crocodiles; and also with these some interesting scenes of *baulk* in their sly attempts to seize apes fishing, and birds standing apparently half asleep in the water.

"*Saturday, 26th November.*—On shore by 9 o'clock to see all joined up. Loeffler had the station ready, and about 12 o'clock the splice in the river was made.

"By 4 P.M. we had proved incontestably that the cable was broken about 189 miles from the office! When I say incontestably, I mean with the greatest probability. Horrid disappointment! but courage and patience, soft heart!

"We immediately determined to make one final test on Sunday morning, and to get away to Leucipara on Monday at daylight. Groll had been up to the Governor-General to Buitenzorg as to Palembang line, and as to shortening our time of probation. It was at once determined to lay the Palembang line, but no shortening of time of probation will be allowed. I agreed to lay the Palembang line for cost price—not more than £500—as soon as we had repaired the fracture.

"*Sunday, 27th.*—Time for meditation and reflection.

'If on our daily course our mind
Be set to hallow all we find,
New treasures still, of countless price,
God will provide for sacrifice.'

"*Monday, 28th Nov.*—5.30 A.M., hove short. 6.10, weighed anchor and proceeded. 10.30, made North Watcher.

"*Tuesday, 29th Nov.*—5 A.M., made Leucipara. 8.20, took a position Leucipara Island, East (true). Crept to westward for cable. 8.30, cable grappled. Connected from ship. It was the Muntok end. Siemens greatly rejoiced. Under run. Found end broken at ¾ mile from spot where taken up, and within that distance of the test indications. The cable was evidently broken by an anchor which had ridden upon it for a long time, almost wearing through the wires! 2 P.M., hauled to westward and crept for Batavia end. Found it immediately, though deep in the soft mud. Tested, and found that since Sunday morning the cable has been broken at 110 miles from Leucipara, that is, near the North Watcher! Very trying; but courage and patience are virtues. 9.45, finished repairs at Leucipara, excepting final join up by splicing in ¼ of a mile found damaged where the ship had been traversing backwards and forwards.

"*Wednesday, Nov.* 30.—7.30, connected from ship with the ends of cable. Gave all necessary ex-

planations to both ends, and finally joined up about 4 P.M. 9.5 P.M., weighed anchor, and proceeded full speed to North Watcher.

"*Thursday, Dec.* 1.—Made the North Watcher. Hit the cable at once, and Loeffler was 5 miles out in his reckoning this time. The ship which broke the cable here has destroyed about ¼ mile of cable, in the same way as at Leucipara. Broken wires are ruffled up; places where she had ridden as worn down. The ¼ mile however *tests* well, and only the broken end came into play in the tests, to ascertain the locality. Could not finish the work to-day. There is, of course, no difficulty whatever in repairing cables in shallow smooth water. There was little or no sea on while we were at work; not enough to make me sea-sick, though Airley and Brown, one of the officers, were sea-sick in one of the boats!

"*December* 2, 1859.—Occupied all day with repairs. 4 P.M., spoke with both ends. Batavia clerks abominably stupid; the principal clerk there, Brunneker by name, has hurt his leg, and is confined to the house; keys therefore in the hands of inexperts. Such are the influences our work is subject to! 6 P.M., all work finished. Weighed and proceeded to Muntok. Groll is with us. He is a patient, good fellow—hard-working and sociable enough, though, like *all* on board, rather a silent member. Our

reunions are very like Quakers' meetings. Thank Heaven, I have a good large cabin to myself.

"Walter Scott is our standard reading. I have read Bulwer's 'What will he do with it?' and consider it as trash worthy of the days of the Mysteries of Udolfo and the Castle of Otranto, and such like books.

"*Saturday afternoon.*—We arrived in Muntok Bay. Found proas or barges ready to receive the Palembang cable. There are 60 miles of this cable in a narrow deep river; 15 miles in the course taken across the straits, to be paid out by the 'Bahiana.'

"*Sunday, December* 4.—Day of Rest: and experiments on shore, the results of which have been stated above as quite satisfactory.

"*Monday.*—Occupied in fitting up proas; in paying cable into proas, about 10 miles into each of five.

"*Tuesday.*—Still busy paying cable into proas.

"*Wednesday, 7th December.*—Still busy paying cable into proas, and getting ready for landing shore end to-morrow morning.

"*Thursday.*—6.30, to landing-place. Took up a good position. Got end on shore. In the very act of doing this the tide turned, and the ship swung. The tide, we were assured, would not turn before midday. As we were very near shore, and squalls of wind and rain were very heavy, we were in an

awkward position for several hours. However, about 2 P.M. we got clear away, making however a *disgustingly bad course* out of Muntok Bay. Groll agreed, however, that in the circumstances we did our best.

"The additions I had made to the saddle acted beautifully, and the swinging of the ship gave us no uneasiness about the cables leaving it, although we put a great strain on it to help the ship round. I simply added an angle iron ridge or stopper all round, so that the rope lay in the hollow at A, and could not come out!

"We got to opposite the mouth of the river about half-past 5 P.M., and Grindle, to prove great courage, ran us on the *mud-bank*. We were aground for two hours, because the buoy rope, put over to buoy the cable, fouled the screw when we were backing off.

"*Friday*, noon.—The last proa was loaded. Groll left us, with a fleet of eight small boats taking him in tow, with this last proa. The other four had been taken by a small steamer, which took one in tow at a time, having left them at different stations up the river, and came down with the last to join us at or near the entrance.

"Our apparatus on board the proas worked well, and when we arrived at Singapore on Sunday morning, we had telegraphic message from Palembang to

say that they had laid the line with great success. We gave them our jointer, our carpenter, and a good seaman, to superintend operations.

"My narrative is now drawing to a close. We have been here since Sunday. The lines have been working beautifully when we have been able to get the clerks to attend to their duty."

CHAPTER IX.

Singapore — Buitenzorg — Java — Fellow-travellers—Homeward—Delays—Bombay—Recollections by Mr. Lowndes—Aden—Letter from Marseilles—Another expedition.

THE cable from Singapore to Banca and Batavia was thus laid successfully, but his firm having guaranteed its efficient working for one month from the date of completion, it became necessary that Lewis should remain at Singapore until the 24th December, and on the 13th he wrote as follows to his mother:—"As I telegraphed to you, our success in laying the cable was complete, and its fracture by ships' anchors in two places within forty-eight hours afterwards, if it was a source of great disappointment and chagrin, has proved that a cable is nearly as easy to be repaired as it is to be fished up. My visit to these latitudes has been unmarked by any personal incident of the slightest interest. The hope of spending ten days or more in a tour in Java is doomed to disappointment by this accident, which has deranged all my

plans. It tried one's patience, as you may imagine, but others were more disappointed than I had any right to be: I shall, however, see little or nothing of Java, and thus one reward for having undertaken the enterprise has not been accorded to me. My intention at present is to return now to Batavia, get the money due to us on the 24th, and depart immediately for Ceylon, where the 'Imperatrix' is doubtless waiting for me about this time, or very soon will be."

On the same date he writes to his wife,—"MY DARLING MARIE,—My best thanks for your letter of the 8th October, which I received in *Batavia*, the land of your early curiosity, and a pleasant and interesting land it seems to be. . . . My disappointment is great that I cannot make a tour in Java, and so have it in my power to give you some personal narrative of the beauties of the country, its natural wonders, and its inhabitants.

"The most striking feature of Singapore, as a commercial town, is the extraordinarily influential position the Chinese have. All the streets of the town, properly so called, are occupied by them. They are the artificers and labourers of the place, and the chiefs among them are by far the greatest merchants in the settlement. The Europeans have their warehouses in a particular quarter of the town, called the Square, and it is a square—but they all

live in bungalows in the adjacent country, generally two or three miles out of the town, in the most picturesque and healthful spots, with large gardens and pleasure-grounds, cut out of the native forests, or jungle, as it is called.

"The country round Singapore is wonderfully undulating, and the bungalows are perched on the tops of the hills, so as to secure every breeze that blows, and to have as little morning fog as possible. . . . The nutmeg-tree is largely planted in the cleared places, as the harvest of these spices was formerly very profitable; but now the demand has so diminished that its cultivation is no longer so much so. When one considers that the only use *we* know of for nutmeg is to spice port-wine negus, it seems marvellous to hear that *ship-loads* are sent to Britain every year, chiefly from the Malacca Islands! The bungalows are large verandahed houses, with *no* windows, but with doors into verandahs on every side, so that night and day we live in the air, only protected from the sun.

"From the little we saw of Batavia the general arrangements of the Europeans seem to be much the same as here, only that Batavia is surrounded by a plain almost as flat as that on which stands The Hague or Amsterdam, and, consequently, there is no immediate picturesque effect. Batavia also is largely peopled by Chinese, who are its richest and

most influential merchants. Vegetation in every island of these seas is as luxuriant as you can well imagine, but the gorgeous colours of flowers and varieties of trees which I saw at Ceylon, I have seen nowhere since. . . .

"Very soon the blessed *Weihnacht* will be here. I shall be with you and my darling Joseph in spirit wherever you may be, and shall in spirit hang all the curious things I have for you and him, and other dear ones, on an imaginary tree, and try to hear you all and see you. My love and blessing to you, my Marie!"

The following interesting letter was begun at Buitenzorg, Java, on the 26th December 1859, and finished on the 6th January 1860, on board of the s.s. 'Bahiana:'—

"BUITENZORG, JAVA, *26th December* 1859.

"CHRISTMAS Eve and Christmas Day were passed in this beautiful place, and continually my beloved wife and son, and all my darlings at home, came vividly to my mind, as I gazed in new wonder and admiration on the glories of God's creation. I trust that you have had a merry Christmas, that the new year will bring us all much happiness, and oh! I hope that the next Christmas and New Year we may spend together; but above all I pray that we may be blessed with the grace to see the hand of

God in everything, and in all things to deny ourselves.

"Dearest, whatever your early imagination may have pictured of Java, you cannot, I am certain, form any conception of the wonders of nature which this tropical island displays. My first impressions, taken up at Point de Galle, where for the first time I saw a tropical landscape, have been made deeper by familiarity with it here and in Banca. The gorgeous flowers which struck me with delight at Ceylon were wanting in Batavia, and even up here the flowers are more frequent and less brilliant than at Point de Galle; but to-day I have been about ten miles further into the interior, about 1600 feet higher above the sea, in a temperature about three degrees to four degrees less than here, and there flowers are as wonderful as in Ceylon. We left Singapore on the 15th of December. We had to remain three days at Muntok, in Banca, for our friend Mr. Groll, the Government telegraph engineer. . . .

"The Bahiana arrived in the roads of Batavia on the 22d. We went at once to Onrust, a small island on which the arsenal of Java is established, where we had to deliver certain machinery and a balance of cable. I came on shore to see the authorities here, and to get their decision as to when I might leave Batavia free of all responsibility, and

with my money in my pocket. Alas! they make out that we have no right to leave this till 1st January, and although I have pleaded hard I believe they will not let us off a day sooner. We do hope to sail on Saturday, the last day of the year, and to get to Kurrachee about the 14th January, that is, a month behind time. Poor dear Mr. Newall, I pity him being detained beyond his expectations; but his expectations were unreasonable, and so he will be convinced when he hears all the causes of our delay—causes which ought to have been provided for in the time allowed one for the work.

"I mentioned in my last that we have passengers on board. The Bishop of Labuan proves a very agreeable person, and his wife and children I like very much. We are to take another family from this to Ceylon—Mr. Pryce, wife, and two children. They also seem to be very pleasant people. John Pryce knew Donald and Fanny in Calcutta, and liked them. He praises Fanny especially, as a distinguished and spirited hostess, and kind friend to all having any claim upon her, however remote.

"I went one evening into society at Batavia. It was an English reception—about twenty ladies and forty gentlemen. They proved to be nearly all English,—only two or three Hollanders. I found that the two nations do not amalgamate for social intercourse, though on the whole very good friends,

and entertaining each other at stiff and formal dinner-parties, etc. etc.

"The natives here—the Javanese—also the Malays and Chinamen, interest me exceedingly. I have got pictures of many of them, and have picked up some account of their various habits and institutions. How I regret that the unfortunate accident to our cable at the beginning deprived us of the opportunity of travelling right into the interior of this island to see these people and their native towns, and the ancient monuments of their forefathers, and the wonderful physiognomy of nature which everywhere surrounds them. I have bought books with very detailed drawings and descriptions, that we may have some little compensation for my disappointment."

"S.S. 'BAHIANA,' *January 6th*, 1860.

"SINCE the foregoing pages were written we have left Batavia, and are now crossing the Line on our way to Ceylon, which we expect to reach on Monday next. So, dearest dear, I am on my way home! Oh! I do hope and trust I may never have to leave it for long again. New Year's Eve we spent at sea, and I drank to the health and happiness of my beloved ones while passing through the Straits of Sunda. We have had very stormy weather, strong head-winds, and are making a very slow passage. The 'Imperatrix' will have had long to wait, and Mr.

Newall, Mr. Gisborne, Mr. Meyer, and all the 'Imperador' party, will no doubt be chafing with impatience at being kept so long waiting; but I could not finish my business sooner.

"We returned to Batavia on the 28th, and that day and the next I was entirely occupied in getting my business settled. This was, happily, done on the 29th; in the evening we got on board, and left Batavia Roads early on Friday, the 30th.

"I regret extremely having been disappointed of my intended tour through Java; but disappointment is the rule in these telegraph expeditions, and so one must put up with it, and be thankful they have no worse consequences than regret. I have been reading the Life of Sir Stamford Raffles, Governor of Java during the English occupation of the island. Richard Beamish was intimate with him. I intend to write him a long letter on the subject of Raffles, his government, the Dutch, their government, and generally to develop my views of how things go on in Java! I think of closing this letter now. I send it in duplicate—one to my beloved wife, and one to my dearest mother. God bless you all. We are all extremely well, and have suffered no sea-sickness.—Yours ever affectionately,

"LEWIS D. B. GORDON."

His hope of an immediate return to England was

frustrated by a communication from his partner, Mr. Newall, received on 15th January, which, Lewis says, "determined me to go up to Bombay, there to learn what progress he has made, and to proceed accordingly." On the 16th he writes: "We start this afternoon for Bombay. We shall learn there when we shall probably get home."

In Bombay Lewis met friends of his family, and writes playfully to a sister-in-law—"Now I have been to Bombay! and know all about the Fort, the Esplanade, Malabar Hill, the Club, the Racecourse, and all that sort of thing as well as you; and I know R. K.'s new wife, and M. K.'s twins, and many other novelties *better* than you." He enjoyed during his short stay the hospitality of his old friend Mr. John Lowndes, who, on being appealed to for his recollections of the visit, wrote as follows:—"I thought I might perhaps have kept some letter, or had some memorandum which would awaken my recollection on the subject, but have not been able to find any. Beyond remembering that we met with much pleasure, and that he dined with me, and sailed once I think in the yacht, and that both he and I were very busy at the time, I have no distinct memory of his visit.

"My more vivid recollection of your dear brother dates from a far earlier time, when I was a student in chambers in the Temple, and when he and others

used to come and spend an evening with me, and when we had some very good talk together, though perhaps somewhat erratic in the subjects we discussed. What struck me most in your brother's turn of mind was the very clearly-defined and practical view he took of a subject. He seemed to me to have an earnest desire to ascertain the truth of the question discussed, and he never seemed to care to maintain at the expense of the truth any view he had expressed. In other words, he did not struggle so much for victory as to be enlightened. He was a candid opponent in argument, and always willing to admit the force of any reasoning he was unable to controvert.

"I can recollect, however, that sometimes when I pressed him very hard he would laughingly appeal to the others, whether there was any use in arguing with a man whose profession it was to make the worse appear the better reason, an imputation which I used to repel with assumed indignation, as I flattered myself that I also was a searcher after truth, and that my opposition was dictated only by the desire of fully probing into the depths of the matter.

"Our arguments were usually conducted without any of the consequences that often attend them in youthful years, and I never knew your brother to be in the least annoyed or ruffled in his temper,

however much he might appear at any time to have had the worst side of the question.

"When I went out to India I destroyed all papers which I then had, and amongst the rest, no doubt, many letters from your brother.

"In those student days I recollect he was a firm believer in Phrenology, and I went, at his suggestion, to a man named Deville, where I had a cast taken of my head. I have a very vivid recollection of the unpleasantness of having my whole head enveloped in wet plaster, with a pipe to breathe through.

"I also distinctly remember accompanying Lewis into the Thames Tunnel, when he was working there under Brunel, and shortly after the water had burst through. They had again resumed work, and I remember how enthusiastic he was about that great undertaking, and how confident of its final success, at a time when popular opinion was strongly against it. He had great faith in anything that he thoroughly believed.

"Had it really been for his happiness, I could have wished that he had survived me."

On Monday, the 30th of January, Lewis writes: "We shall be at Aden on Wednesday if we go on as we have done," and on the 18th of February, "The great incident since my last letter home has

been the arrival of the Telegraph-fleet in Aden harbour, on the 13th inst., every one quite well, and of course highly delighted with their success. Newall and Mrs. Newall are looking blooming, the former none the worse for the exceedingly hard work he has gone through.

"Most *unfortunately* the very day that we might have opened communication with India, the line between this and Suez broke down; most *fortunately* our ships are here to find the fault and repair it. We go up the Red Sea, starting on Monday or Tuesday, to-morrow or next day, and hope to get to Suez by the end of the month. The great probability, therefore, is that we shall all be home about the middle of March.

"I hope, my dear mother, that in a very short time we shall wind up all these telegraphic affairs and leave them in younger hands. My voyage has of course been most gratifying, and has even removed some of my repugnance to going from home; but my nerves seem not made for the work, and I shall be delighted to get rid of it."

In his fond expectation of reaching home by the middle of March he was disappointed, and on the 3d of April we find him writing to his wife:—

"Here I am within thirty-six hours of London! My present plan is to leave Marseilles to-morrow night, and to arrive in Paris on Thursday evening.

If there is anything to detain me more than twenty-four hours in Paris, come over and spend ten days there with me! The weather here is very cold indeed; I have a touch of rheumatism, and am altogether none the better for the last six days' voyaging."

The exact date of his arrival at home does not appear from the correspondence which has been preserved, but in spite of health seriously impaired, I find letters written from Hanover in December of the same year, from Paris in February 1861, and from Kustendjé on the 1st of June. He suffered from time to time much uneasiness from his foot, but he was never a complainer, and he writes from Komorn on the Danube on the 26th May 1861 :—

"My foot continues to improve by travelling, and excepting a little *fautods* (?) I am very well."

On the 1st June to his mother :—

"My foot has not suffered by the journey, but the change of weather to considerable heat for the last two days has somewhat knocked me up. To-morrow is Sunday, and we shall have complete rest, which usually does me good."

At the same date, to his wife :—

"I have had a slight attack of fever—very slight—yesterday, but am quite well to-day, and had a long ride with Mrs. B."

CHAPTER X.

Trompeten, and Fiddlediddle—Letter to his son—To his mother—Nature and Art—At Cannes and Geneva—Château de Bossey—Life there—Letter to Mr. Colthurst—Swiss work-people—Twilight—Deepening gloom.

EARNEST at all times, and sensitive though Lewis was, there was yet, as we have already said and seen, a *merry* under-current in his nature, that bore him through or over many of life's troubles. Although impulsive and impetuous, his impulses were always kindly; and his impetuosity, if sometimes leading to results inconvenient for himself, had seldom any permanently injurious effect for others.

One instance of impetuosity may here be given. In the spring of 1862 Lewis was beginning to feel poorly, very tired of all the noise and bustle in London, and seeing in *The Times* a very charming description of a residence at Wimbledon, which was to be sold that day, he telegraphed to have it bought. On seeing the house next day his disappointment was great, and as soon as possible it was re-sold.

Lewis had an innate love for children, and became himself a child when with them. His devotion to his son was absolute and unlimited. All Joey's youthful fancies as they arose became his father's. Till he was six or eight years old his passion was for drums, of which at one time the nursery contained thirty-six specimens; and although it is said that he handled them with wonderfully artistic skill, and never too loudly for his father's ear, his dear mother sometimes found the din intolerable, and would exclaim—"Nein, Joey, ich kann es wirklich nicht länger aushalten; dies *ewige* trommeln kann ich nicht vertragen;" when the young musician would reply,—"Aber, mammy, es giebt Sachen die man vertragen *muss;* ich, zum Beispiel, mag Trompeten und Trommeln, du magst Tante und Fiddlediddle."

Lewis's correspondence with his son was frequent, and one example will not be inappropriate in a memoir of his life.

"8 PORCHESTER TERRACE,
Sunday, Dec. 22, 1861.

"MY OWN DARLING SON,—Accept my dearest love and fatherly blessing at this blessed Christmas time, when God greets us with glad tidings of immortal joy.

"My heart yearns to be near your sweet mammy and you; but I am not well enough to travel so far

at this season, and so I send you both my love and kisses in this letter.

"You will soon come home to me now; and at the end of January you will go for the first time to school. You have ever been a dear son to your Daddy, and you will be an amiable, diligent boy to Mr. Scale!

"I sent your mother some money; also some for you, and you are to beg your dear Gross-mamma to help you to choose some handsome permanent keepsake to leave as a remembrance with dear Ali and Julius. Take one exactly the same for yourself, that you may have a memorial of the happy time you have spent in Hanover.

"In the box which I sent off by Ostende yesterday there is a parcel containing a suit of very fine flannels for you, and a beautiful shawl, which you are to give to Tante Sophie, to be worn in cold weather, and in remembrance of you and your old Daddy.

"You will doubtless have a beautiful Weihnacht's Baum, and if you are good, as you generally are, you will be happy as your dear Daddy can wish you.

"Love your mother with all your heart; be obedient to her always. Embrace her and kiss her from me, and believe me to be your devoted father,

"L. GORDON."

On the 21st of May 1862 Lewis wrote from Tavistock the following letter to his mother :—

"MY DEAREST MOTHER,—It is exactly twenty-two years since I wrote to you from the very house in which I now am. It was here I went single-handed to *try* to introduce wire-ropes ! and here it was that, owing to the vanity of ignorance in the people at the mine, my experiment failed, in their estimation. I have made a fair fortune by wire-ropes, while they have lived and died in their ignorance. Such is life ! I shook the dust from my feet in leaving Tavistock, and vowed never to return till I did so to view the beauties of the neighbourhood in *my own carriage !* That was the pride of youth. Yet, so far it has been worked out as I intended, only that I am older and less strong on my legs than I expected. With these many sad changes the twenty-two years have left me to mourn over and regret, there are many blessings which I humbly thank God that I have lived to enjoy and to confer."

Although, as we have seen, Mr. Gordon conducted several important engineering enterprises after the date of the disaster of 1859 in the Red Sea, there is no doubt that the seeds were then sown in his system of that insidious disease which was to make its gradual upward progress. Had he at once decided to retire from active life, that progress

might possibly have been checked, and the fatal issue averted; but his interest in his profession, and in all the scientific and manufacturing processes connected with it, was too great to permit the adoption at the time of such a course.

In April 1862 he wrote thus to one of his sisters:—

"Next to the wonders of God's processes for producing the countless beauties of nature, which we meet at every step, the processes of art and manufacture excite my admiration. The knowledge required for the appreciation of the truly marvellous in God's Creation is more difficult to attain by far than that for a fair insight into the processes by which man subdues and converts the products of nature to his uses; but, on the contrary, blind admiration is much more easy in the former case than in the latter, and hence the utterly false notions most refined-and-ignorant people entertain of the grandeur and dignity of manufacture. My friend Dr. John Brown in the *Horæ Subsecivæ* has some observations on the *good* it does people to see a cotton mill, which are well worth reading."[1]

[1] "If you want to move, and permanently rivet, a young mind with what is worth the knowing, with what is to deepen his sense of the powers of the human mind, and the resources of nature, and the grandeur of his country, take him to a cotton-mill. Let him hear and come under the power of that wonderful sound pervading the whole vast house, and filling the air

It was not until 1862 that, under the imperative orders of physicians, Lewis gave up active work, and went with his wife to spend the winter at Cannes, during which he had with him his dear and constant friends, Mr. and Mrs. Richard Beamish, and his nephew, James Eyles Gordon. This change of climate had not, however, the good effect the London doctors had anticipated; and in the following spring, on the eve of a projected departure for Wildbad, he suddenly lost the power of one of his lower limbs, while the other also became very weak. Detained at Geneva by the illness of a servant, he consulted on his own account Dr. Theodore Maunoir, a skilful physician there, who, taking a different view of his complaint from that which had been entertained by the English doctors, recommended that instead of going to Wildbad he should rest quietly in Switzerland during the summer, and enter in the autumn on a different course of treatment.

In accordance with this advice, Mr. and Mrs. Gordon removed to the Château de Prangins, where, enlivened by visits from their son and others of

with that diapason of regulated, harmonious energy. Let him enter it, and go round with a skilled workman, and then follow the *Alpha* through all its marvellous transformations to the *Omega;* do this, and you bring him out into the fresh air not only more knowing, but more wise. He has got a lesson."—Vol. ii. pp. 376-77.

their relations, they spent the summer, returning in October to the Hôtel des Bergues in Geneva, where the painful treatment recommended by Dr. Maunoir, and approved of later by Dr. Nélaton of Paris, was begun. The disease was now declared to be not real paralysis, as had been supposed, but "ataxy of the synovia," and, indeed, his limbs remained to the last sensitive even to the touch of stockings, if these were not of the softest description.

It was at Prangins that Miss Louise Henny, whom in later years he was wont to introduce as "la petite Providence de Bossey," first became a member of Mr. Gordon's family. For twelve years thereafter—indeed until the close of his life—Miss Henny was ever ready to help by hand or head, at all times, in smooth days and rough days, in sickness and in health. She acted for several years as Mr. Gordon's secretary, and was affectionately esteemed by him and by all his family. In his last illness, along with his son and his sister, she devoted herself entirely to the care of him.

Being set aside from ordinary occupation, Lewis amused himself, when pain permitted, in reading and writing, and also took lessons in drawing, for which he had a strong natural talent.

"HÔTEL DES BERGUES, GENEVA,
Christmas Day 1863.

"MY DEAREST MARY,—It is just a year since we

arrived in Paris on our way to Cannes. I am in many respects worse in bodily health than I was then; but in some, and these the most essential, I believe I am better; my mind is also relieved of oppression from the belief that I was afflicted with incurable paralysis. The great gain, mental and bodily, is that I believe fever is further from me than it has ever been, and my stomach less irritable than for some years. It is easy to praise God for all His mercies; but it is a blessing to feel a true spirit of resignation to His will, which, with temporary aberrations, is now usually my disposition of mind and soul."

Early in the year 1864 he became convinced, though most reluctantly, that a return to the practice of his profession was not now, if indeed ever, to be contemplated. The struggle was for some years most severe, at times almost overwhelming; but when at length he realised his position, and felt that he was for ever cut off from active life, patience had her perfect work, and no one ever heard him even breathe a murmur.

A cruel incident occurred about this time. When changing trains one day at Lausanne, a villain stole his crutches! In writing of the occurrence Lewis said, "I take this as a hint that I should no longer indulge the hope of ever being again able to walk."

Believing that a prolonged residence in Switzer-

land gave the fairest prospect for ultimate recovery of health, he made up his mind to follow that course, and in the month of April bought the Château de Bossey, and entered at once with his accustomed energy on the repairing and refurnishing of the house, the rearrangement and ornamentation of the beautiful pleasure-grounds and garden, and the drainage and improved cultivation of the fields around. Those who have been privileged to see the place after his skill and taste had been applied to it, know what a home of comfort it became, and what a paradise of beauty.

The doings of M. l'Anglais excited extreme interest and admiration, and so many parties of strangers came to see his place, that Lewis sometimes said, "I think that like our neighbour, Baron Rothschild, I had better issue cards of admission."

It was on the 1st of September that Mr. Gordon and his family removed to Bossey, and during the remaining months of 1864 they had the happiness to receive visits from Mrs. Gordon, senior, and others of their family and friends. In January 1865, during the progress of further elaborate alterations, Mr. and Mrs. Gordon returned for four months to the Hôtel des Bergues, whence, though often suffering from ague, he carefully superintended all the numerous operations that were being carried on.

On the 1st of January he wrote to a beloved niece:—

"DEAREST JOSEPHINE,—It is now nine months since I purchased Bossey. The time has passed quickly, thanks to our dear ones who have visited us. The place has been improved and rendered habitable, and will be comfortable; and the doing this has been an occupation for me, working with other causes to effect a beneficial change in my health. Still, I feel oppressed from being so far away, and often wish Château de Bossey were a cottage in Kent."

In the month of June in this year he visited for a third time the baths at Aix, from which he had on former occasions derived some benefit, though this time their use produced no sensible effect. In July he had the pleasure to receive at Bossey his mother and sisters, his brother Donald with his wife and daughters, and many dear friends. The summer and autumn passed thus very pleasantly, and he became so fond of the place—which may, indeed, be said to have been his own creation,—that he resolved to remain there during winter. He found no difficulty in occupying his time: during the day in correspondence, in extensive reading of scientific German and French works, and of each new Number of the *Revue des Deux Mondes* so soon as it appeared. In the evening he often read aloud

the "Merchant of Venice," "Othello," or some other of the plays of Shakespeare, and it was a real enjoyment to hear him, for he read with power and expression.

Towards the end of March 1866 Mr. and Mrs. Gordon were induced to spend a month in the Hôtel des Alpes at Territet, near Chillon, and they greatly enjoyed their stay in that lovely spot. From thence they went for a few days to the Beau-Rivage, at Ouchy, to meet his friend and partner, Mr. Liddell, who had come there with his wife and child. On the 9th of June there occurs the following entry in his diary:—"Mrs. Liddell makes a most favourable impression, and the boy is a darling."

At Bossey all the important improvements had now been completed, and the labour and anxiety they had caused him, as well as his own estimate of the improvement in his health, may be gathered from some portions of the following extract from a letter addressed to his friend Mr. Colthurst, on the 30th of June 1865:—

"My own health has been generally very satisfactory since the end of March. I have had no fever, and the digestive organs have worked well. My legs are as useless as ever, but there is, unquestionably, some improvement even in them.

"As time runs on, however, I get older, and ambition for continuance of active work gets dead-

ened by the desire for peace and rest, which grows by the enjoyment of these blessings. And yet I often crave to be back by Liddell's side, and at work in Abingdon Street, for as yet the calm occupations of a completely country life do not satisfy me. I therefore run into extravagance in making changes and improvements, to keep up the habit of doing something, and have the annoyance of seeing things badly done, as a sort of counter-irritation.

"If you see Liddell, and have a chat with him, ask him to show you and explain his new system of lighthouses and marine telegraph-stations, and then write to me what you think of his idea. I am filled with admiration of it, and for the sake of working out that and some other notions, would be doubly thankful to be restored to working condition.

"We have still workmen in and about the house. Swiss workmen are inferior to Turks—about as advanced as the Arabs. Their tools are of the same primitive class. In gardening and agriculture they are of course much better than at building or anything mechanical, but still their *tools* are too primitive for any economical result."

In July 1866 Mr. and Mrs. Gordon visited the baths of Schinznach, where, as on first using those at Aix, his experience of their effect was favourable, although no decided permanent advantage resulted. On their return to Bossey they had the great plea-

sure to meet their son, who had come from England for his holidays, and as they desired to keep him near them, arrangements were made for his entering the Collége Gaillard at Lausanne, where he remained for some time.

In the winter of 1866-67, during an absence in India of his brother Donald, his sister-in-law, with her three daughters, spent much of their time at Château de Bossey, a period still held by all of them in loving memory.

Château de Bossey was a centre of attraction to all the neighbouring families who had the happiness to know its proprietors; Mr. Gordon's advice and assistance, and his culture—which was at once wide and deep and high—were always at their service. It was a sight to be remembered to see him sitting in his wheel-chair on a summer afternoon under one of the fine trees upon the lawn, surrounded by a party of loving friends, and to share with them his words and smile of welcome. No one who ever did so will forget the dignified courtesy of his manner, the grace and graciousness of all he said and did.

The progress of disease appeared from time to time to be arrested; and had it not been for the foreshadowing of a great affliction, these earlier tranquil years at Bossey would have had a twilight brightness of their own.

Truly the darkness of death's shadow was at hand. Mrs. Gordon's health, which had for years been delicate, began to manifest symptoms that alarmed her friends. Various remedies were tried, without effect. By advice of her physicians she had visited Kissingen in 1867, but did not seem to derive much benefit, if any, from the treatment there, and from that time her husband's anxiety on her account increased. He tried to conceal it, and strove to occupy his mind with subjects of professional interest, giving his best advice to the directors of the Suisse-occidentale line of railway, and of the Ligne d'Italie, and to many of the French engineers who came to Bossey to consult him; but the condition of his dear wife's health affected him severely, bringing back neuralgic pains, nervousness, and low spirits.

CHAPTER XI.

Bereaved—Resignation in sorrow—Death of Dr. Maunoir—Dr. Senn's opinion—The Lairds, old and young—Dr. Senn changes his opinion—Letter to his sister Mary—Letter to his sister Anne.

EARLY in June 1868 Lewis, accompanied by his son, went for the last time to Schinznach, returning to Bossey with an apparent increase of strength; but the change in the appearance of his Marie, who could not be restrained from coming down-stairs to welcome him on his arrival, gave him such a shock as at once prostrated him.

From this time the progress of Mrs. Gordon's disease was very rapid, and on the 25th of September her husband wrote as follows to his sister:—

"MY DEAREST MARY,—Marie was so suffering this morning that she could not see me at the usual time.

"I warned my mother in my last that save in God's mercy there is no hope of recovery for my darling wife—no hope in earthly remedies. Dr. Senn[1] now

[1] Dr. Senn, Lewis's nearest neighbour, long one of the most

only hopes to alleviate pain. She said to him this morning that she wished for an end to her sufferings. Her mother and Louisa read to her in the Psalms and old German hymns, and from this she gathers comfort and consolation. But the dear sufferer cannot listen much, and speaks very little. . . . I can write no more. I pray continually for trust in the love of God."

Three days later, to his mother:—

"BOSSEY, *Monday, 28th September* 1868.

"MY DEAREST MOTHER,—The dear wife I loved so truly has been taken from me. She had been perfectly tranquil since Saturday afternoon; quite conscious of everything passing around her, and speaking a few words from time to time, always of interest in others, never of complaint; she desired several times to have certain psalms and hymns read to her, and prayed that it might be the will of God that her spirit should depart without a struggle. Her death was only a slightly quicker breathing, as the vital spark returned to its Creator, her God and her Saviour. . . .

"We have all been quite prepared for this bereavement for ten days at least, although I did not know it was so very near. I knew, however, as I

eminent physicians of Geneva, had altogether retired from general practice, but for months before her death had visited Mrs. Gordon daily, and cared for her with the tenderness of a father.

wrote to you, that no human remedy could be applied. I am now bereaved of the sweet, gentle, affectionate, and sympathetic soul who has been to me a purifying influence ever since I first saw her. It was in August 1850 I declared my love, and in November we were married. . . .

"I have telegraphed to Anne, so that you will know long ere this reaches you that a daughter-in-law is no more who loved you well, and would have cared for you in all things. I am grateful to God that I can thank Him for her peaceful end, and that from my soul I can say, 'Father, Thy will, not mine, be done.'—Your devoted son, L. GORDON."

"*October* 9.

"My constant pre-occupation is now for my son. For the last year it was not possible to do otherwise for his education than has been done, nor do I believe his heart and soul could have had anywhere higher nurture than he has had in the presence of his suffering mother."

Arrangements were made that enabled father and son to remain together for a time, and the heart of Lewis, ever open to sympathy, whether to be given or received, was cheered and in a measure comforted by the presence of his boy and by loving visits from his friends. His dear niece, Annette Gordon, spent the winter with him, and left him with reluctance.

In the month of November the little family removed to Geneva for a time, where Lewis was refreshed by renewed intercourse with M. Lechatelier, whose work on Railway Economy he afterwards undertook to translate into English.[1] The society of other friends he also enjoyed on this occasion, especially that of one most highly esteemed, Dr. Maunoir, whose skill and kindness while in attendance on himself and Mrs. Gordon, had placed him in the highest rank of friendship,—a bond, alas! soon to be severed, for Dr. Maunoir died in the month of April of the following year.[2]

[1] M. L. Lechatelier, Ingénieur en chef des Mines.—His work is intituled, "Railway Economy—Use of Counter-pressure Steam in the Locomotive Engine as a Brake," and was published by Edmonston and Douglas, Edinburgh, in 1869. Mr. Gordon writes:—"I have much correspondence with my friend Lechatelier at present on some technical matters in which he is pleased to take my counsel and advice. He is going to publish, and I hope to be able to translate his work for publication in England."

[2] Of this event Lewis wrote as follows to Lady Hartmann on April 27th:—"You will be distressed to hear that my kind and excellent friend Dr. Maunoir died yesterday, after a very short illness. This is a great blow to me. One of my points of support, in my reasons for remaining at Bossey, has always been that I had Dr. Maunoir near: and now it has pleased our Heavenly Father to take him away in the midst of great usefulness. Mystery of mysteries are God's ways. Let us pray for

'Wise and thankful heart,
With God in all our griefs to stay,
Nor from His loved correction start.'"

In July 1869 Joseph left his father, that he might enter as a pupil the Royal School of Mines, having chosen the profession of a civil engineer, and Lewis was thus led to think with doubt and hesitation of his future plans.

While natural affection made him yearn for the society of those now most dear to him, the ties to lovely Bossey grew stronger rather than weaker with the lapse of time, and the advice of native and neighbouring counsellors was *of course* in favour of his choosing it as a permanent home; but the tender voices that reached him ever and anon from beyond the seas, left echoes in the heart which were not to be silenced.

"Dr. Maunoir was not alone in his strong opinion. Dr. Senn is much stronger, but he, you will say, is a fanatic for Bossey. Hear, however, what Thost says.[1] I say nothing positive; the longings may become too great for me, but I will not leave Bossey now, and I shall in no case make distant projects."

In autumn he received his friends and partners Mr. Newall and Mr. Liddell, and also M. Lechatelier,

[1] On the 18th March, in a letter to Lady Hartmann, Lewis writes:—"I have the pleasing prospect of a visit from Thost and his wife and child. They come to settle Rosa at Lausanne for a year. It will be a great pleasure to have them here for a week or ten days. They were both devotedly attached to Marie, and she loved them much. Thost has never been cheery since our Heavenly Father took their eldest daughter Marghita to Himself. She was an angelic child."

and was as vigorous and judicious in giving counsel and advice as he had ever been. A crowning comfort of this year was the visit from his niece, Mrs. Laird, with her husband and children, and the arrival of his cousins, Helen and Georgina Thomson, who kindly came to spend the winter with him.

To his sister Mary he wrote on October 5th :—

"My dearest Mary,—Thanks for your letter received yesterday to console me after the departure of the Lairds, each one of whom, old and young, have increased the breadth and depth of the place they have always held in my heart. We miss them, it is impossible to say how much and when most—Georgie misses her Johnny and I miss Annie and them all at many times, and dear John and Josephine always. God bless them now and ever."

TO HIS SISTER ANNE.

"*December* 26.

"The sun was shining on Christmas-Day afternoon, so I went to Founex and took some heart's-ease from Marie's grave. I enclose you one. The ivy I planted does not take root. The pansies and Christmas-roses have done well. The grass is clean and green, and the place is extremely orderly and peaceful. A wreath of *immortelles* we put on the cross of the memorial-stone on 28th September

when Josephine and we all went,—is still quite bright and fresh. Joey had gone out with the Thomsons, so this visit was paid alone!"

After Marie's death, and the departure of his son to London to pursue his studies there, Lewis felt that Bossey, though dear, was scarcely any longer a *home;* yet he dreaded to risk any change that might injure the health which his residence in Switzerland certainly improved. On again asking the opinion of his kind friend and neighbour Dr. Senn, the reply was, "I cannot now say conscientiously that I have any fear for Mr. Gordon's health in consequence of his return to England; on the contrary, I believe that now, morally and physically (*pour la morale et pour la physique*), he will be better among his own family and friends. For us the loss will be immense, *nous ne le remplacerons jamais.*"

On the 6th of February 1870 Lewis had written as follows to Lady Hartmann:—

"My present earnest desire is that my sister Mary should come for a month to visit me. It is now four years since we have met. As time goes on I feel more and more the necessity of opening my soul to some one, and Mary is now the only person I can think of with whom it would be of vital importance to me to discuss many private matters."

Again, on 7th April, to his sister herself:—

"You may be sure I hope and trust that now nothing will prevent your coming next month as you propose."

This visit, though all too short to satisfy either brother or sister, was a delight and refreshment to both, and tended greatly to induce a resolve, formed by Lewis not long after, we may indeed say before, the arrival of his sister, of a return to England, and a purpose of permanent residence there.

During the winter and spring—1870-71—Marie's sister, Mrs. Sophie Siemens, and Miss Augusta Wynèken, her beloved early friend, who had spent the last nine months of Mrs. Gordon's life with her, were his guests at Bossey, and they in every way encouraged him to return to England. Though sometimes wavering in resolve, it would appear, from the following extract, that his mind had been made up as early as July 9, 1870:—

"DEAREST MARY,—The return to England I consider now a settled affair, if I live to see the necessary arrangements effected, for my being with my dear mother and you, so as to be certain to interfere with neither of you in any way.

"You have seen how it goes with me from time to time, and perhaps have judged that the most essential element for my comfortable existence is quiet, and the relief from petty bother which that secures. For my pains and griefs I can resign my-

self—have done so I believe—to God's care, but the little troubles of existence, as you have seen, require very special arrangements, and even with those so carefully made at Bossey my impatient spirit is often sorely put to the test."

TO HIS SISTER ANNE.

"You write of my beloved Marie's love of flowers, and must have remarked that all flowers were beautiful to her eyes; *weeds* even she would bring home, and evidently had the same delight in the simplest as in the most gorgeous—perhaps even more; this was her character,—it was intrinsic beauty, not extrinsic beauty and value, which she cherished. And as of flowers, so of men and women. Position, outward appearance, tallness, shortness, handsomeness, ugliness, counted for nothing in the scale of her estimation. She honoured inherent goodness, kindness, gentleness, under whatever covering, and from this Christian perfection of estimate it was that she was loved by all, even by those who had only seen her beautiful soft eyes and heard her gentle voice, and seen her graceful humble mien."

CHAPTER XII.

Letter from Lady Hartmann—Estimate of Marie in letters to Lady Hartmann.

IT has already been told how cordially Lewis and Marie each accepted the relations of the other, and in the correspondence now before me there is abundant evidence that Lewis regarded the mother of his wife with the same reverent tenderness as he did his own, whom it may be remembered that on the day before his marriage he addressed as "the holiest thing alive." That Lady Hartmann warmly returned his affection will be seen from her letter to his sister, on sending the letters of Lewis to herself, from which she kindly permits selection to be made.

"HANOVER, *Sept. 25th*, 1876.

"MY DEAR MARY,—Herewith I send the letters you wished to have from our dearest Lewis, and I give them willingly into your loving hands and to your perfect discretion. Most precious as they are to *me*, I fear you will not find much in them fit for publi-

cation, though every line in them documents his noble mind and warm elevated feelings, his Christian faith, ever more deepened in his great trials, thank God. But most of them have, I believe, only *Interesse und Inhalt* for the family to whom belonged or was consecrated his warm heart. And I only can send his letters of later years, as till the death of his dearest wife she was always the correspondent, and he added usually only some words of love, and interest in all our sorrows and joys, as in the beginning he had too much to work, and afterwards, unhappily, his great sufferings prevented much writing. But from the year 1868 till to the last it was the dearest consolation to me every letter I got from him; and I hope you will find some passages in that sense you wished to have them, though he did not like to write long letters. I am sorry that some of those letters are no more in my hands, because I sometimes sent them to Helene or to Julius,[1] when they were of particular interest for them. We will write to both, to ask if perhaps they too have letters of dearest Lewis fit for publication, as he liked to be in Göttingen with the Professor, and they admired him too. I want particularly a letter which he sent me with a

[1] General Julius von Hartmann was the eldest son of General Sir Julius von Hartmann; Helene, the wife of Professor Waitz of Göttingen, was Sir Julius's youngest daughter.

favourite book, *Savonarola*, by Lenau, and told me that he *schwärmte* for it when still very young at Freiberg, and, curious to know if he felt still the same, he bought it now, and was happy to find that he liked it still as much: I think this a proof of his noble character.

"Dear Mary, I would not give you the trouble of a German letter, and yet I am sorry I can still less express my wishes in your native tongue, that the endeavours of the friends of dearest Lewis to give a sketch of his life may be crowned with a most blessed success. Then really his whole noble self, his high character, his warm and elevated poetical mind, his clear understanding, or, more, the genius in all his works, *das Geniale in seinem hohen Geist und Werben*, all this on a deep religious ground, and so full of the warmest heart-feeling, and *seltner Treue*,—all this is worthy to be kept, not only in our hearts, but also to be made known to others as a good example. Oh how thankful am I to have not only known him but enjoyed the happiness of his friendship and constant attachment! Yes, I was ever proud of our understanding each other, and miss his dear communications, oh so much! How rich and blessed was, since 1850, our life through the union of him and my darling Marie! I again lived it through now, reading all the letters from the beginning of that happy time; and a sweet consolation it is

to me, dear Mary, when your dear letters reach, and prove us that you all are the same in your hearts for us, that we keep united in the remembrance of them who were so dear to us all, and in the sympathy we have felt for each other from the beginning of those happy times. Could it be possible to see you once again here, to have this blessing once more; I want it doubly as I cannot much write!

"Pray give my kindest and respectful love to your dear mother, and pray have *Nachsicht* with this bad letter. Sophie must tell more of us, and till then she and Anna send their kindest greetings.—Most affectionately yours,

"MARIANNE VON HARTMANN."

From the 20th October 1868 Lewis maintained a close correspondence with his mother-in-law: it was continued with great regularity until 18th March 1876. The following extracts are given consecutively, and require no comment:—

"MEINE LIEBE DEUTSCHE MUTTER,—Every day I miss you, and many times a day. Your presence here was always a softening influence, and your pious resignation an encouragement and example to me, when the memory of Marie, and that she was no longer to be seen, overcame me, as it does now. When we think of her—how free she was of pride, ambition, envy, jealousy, selfishness, and how abso-

lutely true and gentle, how gracious to all, and how humble and affectionate and loving—it is hard to think how much she suffered, and how long. God be praised that we were able to alleviate her sufferings as much as lay in human aid, and that He had Himself prepared her to welcome her soul's release."

"*November* 13.

"The photographs are most beautiful; all I could desire. They represent to me my darling Marie as I almost always saw her. She was to me very beautiful, very graceful, and had something angelic in her sweetness and gentleness of expression. She seldom looked otherwise than if she were thinking how she could do a kindness or show love, and incite to goodness, generosity, forgiveness, thankfulness to God, and contentment. . . . She had more clear and persistent views of what is good and gracious in man and woman than I, and thus she was to me a guardian angel against an inclination to too worldly strivings, against worthless ambitions, and against vain regrets. Every day I miss her sweet, encouraging, playful yet loving words and ways."

"*August* 25.

"I thought to have written to you on the 10th, the birthday of my blessed Marie. I spent the morning alone, and in the forenoon went to Founex, and placed a wreath of ivy and passion-flowers,

studded with white roses and convolvulus, round the memorial stone. It was long before I could go to my guests, but at last the peace of God came to me, and 'I wept no more for her.'

'Weep not for me;—
Be blithe as wont, nor tinge with gloom
The stream of love that circles home,
Light hearts and free!
Joy in the gifts Heaven's bounty lends:
Nor miss my face, dear friends!

I still am near;—
Watching the smiles I prized on earth,
Your converse mild, your blameless mirth;
Now too I hear
Of whispered sounds the tale complete,
Low prayers and musings sweet.

A sea before
The Throne is spread; its pure still glass
Pictures all earth-scenes as they pass.—
We, on its shore,
Share in the bosom of our rest
God's knowledge, and are blest!' [1]

"I am surrounded by such blithe sprites as Josephine's children. Josephine and John Laird, and my amiable and gentle cousins, Helen and Georgina, seem to divine what is passing through my mind, and are very kind and considerate. Dear Miss Henny is, as ever, a great comfort to me.

"I think of you, *liebe Mutter*, night and morning, and pray you may have cause to contemplate

[1] From the *Lyra Apostolica*.

the period of your sufferings here last year without grief or tears, though I cannot withhold mine."

"*September* 30.

"The palm branch and myrtles arrived in time, and they are placed beside the cross on our blessed Marie's memorial stone. We all went down on Tuesday morning at 10 o'clock, and each had some beautiful flower or wreath to place on the tomb. Thank you both for these lovely living testimonies to your sympathy with me.

"I very often repeat Tennyson's lines—

> 'Forgive my grief for one removed,
> Thy creature, whom I found so fair;
> I trust she lives in thee, and there
> I find her worthier to be loved.'

I repeat these lines as a prayer, remembering the Scripture,—*He* is not the God of the dead, but of the living—for all live unto *Him*. And thus, with God's great blessing, I find peace and thankfulness in my sorrow and solitude."

CHAPTER XIII.

Letters to Lady Hartmann—The poor unhappy French—Technical education in England—The war between France and Germany—Work by Paleario—Theodore Martin's Life of the Prince Consort.

TOWARDS the end of August Lewis was refreshed and enlivened by a visit from Mrs. Siemens, his younger sister, and through the next winter he was again cheered by the society of his much-loved niece Annette, the daughter of his brother Donald.

During Mrs. Siemens' visit, on the 1st October, he wrote in his playful way to his sister Mary:—"Your sister Anne is really more charming than ever: the approach of the Prussian phalanx to carry her off is most deplorable to me. And she begins to sing so nicely, and is getting so strong and fat, and we live so agreeably together, and have such sweet talk together, I really think I like her much better than I like you. But you need take no notice of this to her, you know.

"The poor unhappy French! My heart bleeds for them. But with the Roman Catholic religion, no

popular education, a centralised administration, and a government centralised by a democratic despotism, nothing else could be expected. The French have now to try to begin from the beginning, to resume the position the Revolution had gained for them in 1792, to 1794—when that fiend in human form, the Buonaparte, came, in God's providence, to punish them, we may imagine, for the enormities of 1793, and to imprint his hellish seal of selfishness and pride on them.

"When will Christ's power have free course and bring us peace again?"

Lewis took an unfailing and most intelligent interest in all important social and political questions, which is evinced in the following extracts:—

TO LADY HARTMANN.

"BOSSEY, *February* 6, 1870.

"THERE is much discussion in England at present about technical education. There is particularly a great deal said about the necessity of giving a higher education to our *artisans* or *workmen*, in order that they may not be outstripped in the race of manufacturing pre-eminence so long maintained by them. *All* education is good, and works unperceived on the artisan's hand, stimulating his exertions and insensibly modifying his powers of production: *but*

manufacturing supremacy depends on material conditions independent of the influences of education.

"The supremacy of England in manufactures continued only so long as other nations had not had *time* to set to work at manufacturing; the last forty years, and especially the last twenty-five years, have put Belgium, France, and Germany on the same footing as England in respect of most *mechanical* trades—of nearly all trades depending on the perfection of workmen's *tools*. Education can do little or nothing for those workmen who work with *automatic tools*, and the condition of supremacy depends on the *honesty* with which the products of work are sent to market—that they be of good materials—unadulterated—cheap.

"It is supposed in England that German and French *workmen* are better educated than English workmen or Scotch workmen; especially that these workmen receive a *technical* education—a kind of *scientific* education. I am sure that there is no such difference. *Am I mistaken?*"

TO THE SAME.

"*November* 7.

"My loving thanks for your letter of the 3d instant—my dear son's birthday. I trust he may continue to grow in strength of mind, to love truth

above all things, and by God's grace to find it; and to grow in strength of body, so as to be useful in his generation to his fellow-men in such sphere as he may by his acquirements be fitted for. . . .

"I am thankful to hear of the safety of those dear to you, exposed to the fearful fatigues and dangers of the war.[1] I share with you completely your feelings of horror at the war and its consequences; and above all I have the strongest feelings of objection to the annexation of Alsace and Lorraine by the Germans. Surely some other security may be found against the incurable vanity and love of domination of the French, than the incorporation of a whole district against the will of the people!

"The French *people* are solely to blame for the present war; though, beaten and humiliated as they are, they would like it to be believed that only

[1] Miss Henny writes,—"Mr. Gordon followed with a sad interest the siege of Paris and the march of the German army in their various operations. Having been struck on hearing that Switzerland, on a few hours' notice, and even before the declaration of war had reached Berlin, had sent 80,000 men to guard her frontier, from the Jura to the Rhine, he resolved to translate into English some work on the organisation of the Swiss army, and having been advised by General Dufour to select the work of Colonel de Mandrot, he did so. Circumstances occurred, however, to postpone the printing, and his translation is still in manuscript. Notwithstanding that his sympathy was for Germany, he was very kind to the poor French 'Internés,' and gave money and all sorts of comfortable goods for their use to the different 'Comités.'"

Napoleon III. and his creatures are to blame for the first aggression. The French *Gouvernement de la défense Nationale* is entirely to blame for the continuance of the war after Sedan. These are my political views of the state of the case.

"It is impossible not to be enthusiastic in admiration of the German army, and to have pride in its hard-won victories; but it is also impossible for me to feel anything else but horror at the circumstances which render the war necessary, and its continuance so enduring.

"God be praised, there is *now* some strong hope of peace. And to think that Thiers, that little . . . . . is the messenger of peace, is very curious. I trust Bismarck *means* that the armistice is to lead to peace. But alas! politics have as yet no Christian basis, and there is no knowing beforehand what the negotiations of politicians may mean or be intended to lead to. I think your words on this subject should be written in letters of gold: '*So lange die Politik ohne christliche Grundbedingung geführt wird, werden wir wenig Ursache haben zufrieden zu sein, geschweige denn uns zu freuen.*'"

TO THE SAME.

"*January* 8, 1871.

"At last I come to greet you lovingly for the new year. God grant it may be a year of special

grace to us all, as it is indeed of sore trial to thousands and thousands beyond any year I have lived, while to you it must recall the fearful times of old, when the arch-fiend of France—the unprincipled devastater and ravisher of Germany—overran your country—the *uncle* of the *dog* of '2 Décembre,' who now sits in Wilhelmshöhe! To think of the *Nemesis* that has a second time overtaken the French and their Buonapartes! It is wonderful; it is awful to watch the flow of time, and witness God's providence manifested so sublimely.

"The longing for peace now universal will surely bring it about. The *harebrained* men who are leading the unhappy French to death and misery and inevitable destruction have much to answer for; but, as ever, the French people allow themselves to be led by the nose by those who will flatter their vanity, and only when too late will turn on these leaders, and destroy them.

"From London I have very good news generally. My mother suffers from the cold *gloomy* weather which has prevailed this winter, but writes *quite vigorously* on every subject. Of course you know that she and Annette and Josephine love and admire the Buonapartes, and wish to see Napoleon III. *restored!* Marvellous, is it not?

"Next week I expect Madame Maunoir and Albertine to come, and to spend a few days here.

Her son Léon is in Paris with the Swiss ambulance. He has kept his health and spirits; but has only *once* heard of or from his mother since the 19th September! She hears constantly from him by 'Ballon Monté' post—a wonderful institution."

TO THE SAME.

"*March* 6.

"This is my birthday anniversary, and I greet you with the assurance that my loving thoughts are turned towards you at this hour of thankfulness for the many personal blessings God has bestowed upon me; and of sorrowing recollection of the happier birthdays of former years, with my gentle blessed wife's greetings to cheer me and delight me."

TO THE SAME.

"*March* 17, 1872.

"On the *Benefit of Christ Crucified*, I have a little book of the sixteenth century, translated into French from the Italian original by Paleario. It is a memorable monument of the faith and piety of a martyr reformer. The book is alluded to in Ranke's History of the Popes, M'Crie's History of the Reformation in Italy, and other works; but the original was only found in 1855 in St. John's College, Cambridge. I cannot get a copy of the English translation; but there is a German translation published at Leipsic, with an introduction by Tischendorf. The title of

the original is, *Trattato Utilissimo del Beneficio di Geesu Christo Crucifesso, verso i Christiani.* I advise you to get it. The French is published at Lausanne, by Bridel: Traduit par L. Bonnet,—'*Le Bienfait de Jésus Christ Crucifié.*'"

"*December* 23, 1874.

"I have ordered to be sent to you as my Christmas offering a copy of Theodore Martin's Life of the Prince Consort. It is a delightful book, and I am sure you will greatly enjoy reading, so admirably portrayed, the character of that most extraordinary and most excellent man."

TO THE SAME.

"*February* 9, 1875.

"Wednesday the 24th will be my dear mother's birthday, when she will enter upon her eighty-ninth year! She has not been quite well during the last six weeks, yet though to the observant eye she may look thinner and paler than at this time last year, on her *good days* she is as bright and cheerful and as much interested as ever in all that goes on."

TO THE SAME.

"*March* 18, 1876.

"LIEBSTE VEREHRTE DEUTSCHE MUTTER,—It does not require that I do more than repeat my assurances of loving devotion to you and to the memories which link us so strongly together. You will be

grieved, I know, to hear that for the last six or eight weeks a great change has come over my health, and at this moment I feel so weak and poorly that I dare not attempt to send you more than these lines to greet you on your dear birthday.

"I am not the 'L. G.' of the enclosed *Birthday Wish*, but it expresses what I pray of good and gracious for you.

"With best love to sympathising friends, believe me yours devotedly, L. GORDON.

'To thee may this day bring sunshine and peace,
And be follow'd by many more given;
May thy spiritual blessings yearly increase,
Till they merge in the glories of Heaven.

'L. G.'"

These extracts close a correspondence that was a solace both to the writer and receiver.

CHAPTER XIV.

Leaves Bossey for Poynters Grove—Letters of sympathy—The years at Poynters Grove—Occupations there—The Totteridge poor—Deaths of friends—Letter from Mr. Matheson.

On the 25th of May 1871 Lewis left Bossey with a heavy heart, and to the deep regret of all his friends and neighbours, to whom his kind and genial nature, and above all his warm and ready sympathy, had endeared him. An old-fashioned comfortable house in Totteridge, Herts, was found for him. His mother had given up her house in London, that she and her unmarried daughter might be always with him; and when, under the care of his brother Donald, who went to Switzerland to superintend the journey, his sister-in-law, Marie's dear friend Augusta Wyneken (who accompanied him as far as Aix-la-Chapelle), and Jean, his attached Swiss servant, he arrived on the 3d of June 1871, he was surprised to find how easily he was "at home" again.

At the wharf in London he was met by his brother-in-law, William Siemens, and by his son, who both accompanied him to Poynters Grove. So delighted was he with the first view of the place, that he turned to Mr. Siemens and begged that he would at once send a telegram to his agent in Switzerland, desiring him to accept an offer which had been made for Bossey by the Comte de Grasset, adding, "I shall never go back."

He writes to Mr. Colthurst,—"London fogs do not reach us here, and by free use of Silkstone coal we keep the inside of this big house very comfortable. The tailor and my fur over-coats have made it possible that I drive out nearly every day, and my dear old mother very often accompanies me. She is on the whole remarkably well and vigorous. Her sight is the only weak point. Deafness is of course disagreeable, but no very serious loss, for she hears everything in a tête-à-tête conversation. She likes this place and the country-life exceedingly, and as we see as many people as we desire, and all friends in London come from time to time to call, and pass an hour or two, she is quite contented and happy. . . .

"My Joey is working at the School of Mines—this year chiefly with Percy on metallurgy and assaying. He is quite strong and well; as far as I can judge, he is growing in mind and body, and becoming

a very fine fellow. I trust he will yet be a useful man in his day and generation."

From Poynters Grove he wrote also on the 6th July to another dear old friend :—

"I have left my beautiful place on the Lake of Geneva. I have sold it. This was a severe wrench to the heart, but it was only reasonable to return to my mother and sisters, to brother and relations, and to be near dear old friends, since I had lost her who was the light of my life, my earthly solace, and the joy of my house. I cannot now, save in spirit, visit the tomb where she takes her quiet repose, but, praise be to God, I look upward, where I trust she lives in Him, and where she is even 'worthier to be loved.'"

He did not anticipate that, before the month of July had ended, he should have to condole with the same dear friend on having been widowed like himself. The two following letters are both expressive of his tender sympathy, and therefore given :—

"POYNTERS GROVE, *July* 31, 1871.

"MY DEAR FRIEND,—I heard with deep sorrow and true sympathy of your great bereavement, but did not venture to express to you the feelings with which your loss of the loving, gentle wife, so long the object of your earthly affections, animated me. I believe that I know by experience what you have suffered; and of this I am sure, that by God's grace

your soul is better prepared for resignation to His holy will than mine was, even after long probation.

"Now, I *know* that our Saviour will never forsake them that seek Him, and I feel the full significance of Wordsworth's beautiful summary of Christian consolation in sorrow and bereavement:—

> "One adequate support
> In the calamities of mortal life
> Exists—one only! an assured belief
> That the procession of our fate, howe'er
> Sad and disturbed, is ordered by a Being
> Of infinite benevolence and power;
> Whose everlasting purposes embrace
> All accidents—converting them to Good.
> The darts of anguish *fix* not where the seat
> Of suffering has been throughly fortified
> By acquiescence in the Will Supreme,
> For Time and for Eternity; by faith—
> *Faith absolute in God*, including Hope,
> And the defence that lies in boundless love
> Of His perfections."

"A. C. spoke of your wife when he was here last Sunday. He said, 'I loved her next to my own mother, and often went to sit with her for an hour or more, just because she was so good.'"

About the same period Lewis wrote as follows with reference to a similar bereavement:—

TO THOMAS CONSTABLE.

"MY DEAR FRIEND,—For some weeks I have yearned to write to you, to express my deep sym-

pathy with John Cowan,—to you and his sister, for I could not venture to intrude upon him in that way. I think thirty years have gone since I had any intercourse with John Cowan: but our boyhood and youth was passed in much intimacy, and as one gets old, these memories mingle with the hopes for the great future more than those of the passing intimacies of middle life; so at least I find it.

"John's soul has been disciplined by great trials, and doubtless this last great bereavement has found him ready—resigned to the will of God."

The years spent at Poynters Grove were very happy to Lewis. He gained strength *generally* in quite an astonishing degree; was able to drive out daily, and visited at great distances,—in South Wales, in Sussex, and even, in 1875, at Birkenhead. He corresponded with men of science in nearly every part of Europe, and took the greatest interest in all scientific matters, assisting by his advice in many important schemes at home and abroad.

He renewed his study of the Swedish and Danish languages, and translated Grüner's 'Phenomena of the Blast-Furnace,' which he dedicated to his friend I. Lowthian Bell, M.P.[1] The study of

[1] On hearing of the death of Lewis Gordon, Mr. Bell wrote as follows to his sister:—

"LIVERPOOL, 6*th May* 1876.

"MY DEAR MISS GORDON,—I am here to embark for America,

English was a constant delight to him, and he was keenly alive to good style in writing or in conversational expression.

Like Lord Cockburn, he admired the old Scottish language, and regretted to perceive that it is almost ignored by the present generation. He read continually, not only works of science and high literature, but every good new work of fiction, while 'Walter Scott' was very frequently resorted to as a refreshment, when some trash had been sent to him which he had good-naturedly tried to read. He was an enthusiastic admirer of the writings of George Eliot.

His intellectual interest was universal, and his energy so great, that those who corresponded with him, and those who spoke to him, forgot how frail he was, and thus his kindness in giving deep thought to the affairs of others was often overtaxed.

Occupied all day with serious work, the evenings were given unreservedly to the home circle. Light reading, cheery talk, and the game of Bésique, was the order every night. Whoever might be there, Lewie always had his mother for *his* partner, and many will long remember the peals of laughter, the shouts of triumph, *ostentatiously* uttered when he and

but I do not like to quit England without sending you a line to say how I grieve at the loss you are suffering under, by the removal from among us of one of the best and highest men I ever knew.—Yours faithfully, I. LOWTHIAN BELL."

his partner had completely the best of the game. If their opponents showed signs of displeasure at getting the worst of it, he would say in the words of Pet Marjorie—a favourite heroine—"Mother, they're getting a little *birsay*;" if, on the contrary, fortune went too much the other way, he would suddenly wheel himself round from the card-table, saying, "I'm no in the least enterteened." Full of fun, he seemed to forget *himself*, and to make those near him forget, his inability to pursue that active life which had been so dear to him.

His hospitable mansion seldom had an empty room. All his old friends flocked to see him, and to bid him welcome back among his own people. Old and young—the merest children, delighted to be beside 'uncle Lewie.' In Totteridge he found most kind neighbours, who soon became friends. Attracted at the first by Mr. Gordon's gentle manner, and by the interest awakened by his state of health, they soon discovered how fine a mind, how highly cultivated an intelligence, had come among them; and as at Bossey, so at Totteridge, all were fascinated.

In this very month of July 1877, while this memoir is in the press, a letter has been received from one of these dear recent friends, who is travelling in Switzerland, and has been attracted to Bossey, by love for its late proprietor:—

"We spent Sunday with dear Miss Henny at Founex. . . . How dear is your brother's memory to all who knew him, rich and poor! the mere fact that we had known him secured us a warm welcome. I am very glad to hear that a sketch of his life is in preparation. At Totteridge we—and others even more so—were slow to learn the full value of the character before us, as his singular power of adapting himself to all capacities showed itself, making each feel for the time the object of exclusive attention. . . .

"We first visited the quiet churchyard among the mountains, and saw the lovely cross placed beside Mrs. Gordon's grave. I think I only there realised how lovely and pleasant the pair must have been in their lives. . . . Next we visited Bossey; you never said enough of that beautiful place; it is perfect; I pictured the master and mistress in it, and all the friends I had met in your house at Totteridge, —a romance of life, talent and luxury combined,— an earthly paradise!"

The clergyman at Totteridge never found a request for advice refused, and Lewis was always ready to assist by personal interest and with his purse, in any scheme for the benefit of the parish. The poor said, when the tolling of the bell announced to the village on that April morning the event that had occurred, "It is a knell indeed!"

During his sojourn at Poynters Grove Lewis had much to grieve his loving heart, in the death of many who had actually been his guests there. Among these were Mr. and Mrs. Richard Beamish; M. Louis Lechatelier, his constant correspondent and dear friend; Professor Rankine, of Glasgow, who had succeeded him in the chair of Engineering and Mechanics; the Rev. Dr. Mortimer, formerly of the city schools; his brother-in-law, Gustav Siemens, of Hanover; his cousin, Sir Donald M'Leod, Governor of the Punjab; Mr. James Samuel, C.E.; Mr. John Laird, M.P.; and his cousin, Mrs. William Thomson. Also, the tidings of the death of Dr. Senn. These were all near and dear friends. They seemed when visiting him likely to survive him; yet they all preceded him to the grave between 1872 and 1874.

He wrote short sketches of Mr. Beamish, Professor Rankine, and M. Lechatelier, and at the time his last illness declared itself, he was engaged in a larger biography of Professor Rankine. So lately as the 21st of February 1876 he was in correspondence with Mr. Alexander Graham about the publication of Mr. Rankine's papers, and Mr. Graham says that he showed unabated energy and kindliness to the last.

Lewis was deeply interested in the success of the Japanese College, which had been brought to his

notice by Mr. Hugh Matheson, and was able to give valuable counsel with reference to its constitution, which is gratefully acknowledged in the following letter from that gentleman :—

"HAMPSTEAD, *20th January* 1877.

"MY DEAR MISS GORDON,—Having had charge of some of the first students sent to this country from Japan many years ago, I was requested in 1872 by one of the number, who had become Minister of Public Works, to assist the Government to found at Yeddo a College of Civil and Mechanical Engineering. I was to select the professors, fix the scale of their salaries, arrange a programme of studies, and procure all the necessary books and materials required for an institution which was designed to train a large body of Japanese youths for the service of their country in connection with public works.

"The commission was felt by me to be a most difficult and responsible one, but as it was conveyed in the most generous terms, expressing unbounded confidence in myself, I resolved to set about its execution. I knew that there was one friend to whom I could apply with the certainty that he would give me good advice, and I lost no time in driving over to Totteridge to lay the matter before your dear brother. He gave me the encouragement of which I stood in need; and as the first thing was

to obtain a man who could take the position of Principal, to whom the Government wished to give a good deal of authority, he recommended my communicating with the late Professor Macquorn Rankine, of Glasgow University, his own successor in the Chair of which he was the first occupant. That distinguished man was laid aside at the time by the illness of which he soon afterwards died, but he sent me several names, among them that of Mr. Henry Dyer, a young man of twenty-four, who had passed through his college course with much distinction. When I eventually received the certificates and testimonials which were furnished by Mr. Dyer, I took them at once to your brother, and will not easily forget the enthusiasm with which he gauged the character, the talent, and the attainments of the applicant, and without the slightest hesitation pronounced him the man for the post. Some doubts were at first entertained by another eminent Professor as to Mr. Dyer's fitness for the Principalship, but Lewis Gordon never wavered; the doubts also disappeared, and I am delighted to say that the appointment of Mr. Dyer has been more than justified by the result.

"He then discussed with me the scheme of study, in framing which I had also the advantage of some counsel from Sir William Thomson, and Professor Williamson of London. Some further appoint-

ments were made, and on the 25th January 1873 your brother sent me some admirable notes,[1] based upon his wide experience and thoroughly practical views, containing very valuable suggestions for the curriculum of the college, which have to a large extent been adopted and acted upon. I send you these notes to show you how heartily he went into the subject. Two years later, when I was asked by the Government to send out an additional Professor of Civil Engineering and a Professor of Mineralogy and Geology, I again ventured to trespass on your brother's kindness to aid me in the selection, and the two appointments which were then made on his recommendation have given the highest satisfaction.

"You will be glad to hear that the College is now in full working order; has a staff of nine Professors, besides teachers of subsidiary branches; 178 cadets resident in the building, with 165 pupils in a preparatory school which has been established by the Principal under efficient masters, to make up for the defective training of the ordinary schools from which at first the students were exclusively drawn. A handsome building has been erected within a spacious compound, where also the houses of the Professors stand; and it is generally considered in Japan that this is one of the best organ-

[1] See Appendix, p. 225.

ised institutions under the management of foreigners in the country. It is of course too early to speak of results, but the best hopes are entertained that it will produce men of culture and practical training, capable of doing good service to their country. Affiliated to the College is an engineering workshop, under the direction of the Principal, himself a mechanical as well as a civil engineer, with 320 workmen and apprentices. A library of technical and scientific works has been formed, and a museum of models, tools, and materials of machinery is being collected, funds having been specially set apart by the Minister for this purpose.

"In conclusion, I can never cease to be grateful to your lamented brother, for the singular kindness with which, although so great an invalid, he entered with true and deep interest into my Japanese affairs; and I have no hesitation in saying that, if the College turns out the success which it seems likely to do, much will be due to the clear decided plan which was laid down by your brother at the beginning, and the wise and invaluable counsel which he gave so readily to one so little qualified as I was to carry through an enterprise of this nature, and which gave me the confidence I could not otherwise have had in acting for a distant Government.

"May I be permitted to add how constantly I was impressed, from the first time I saw him as an

invalid at Bossey, with the sweet patient spirit which never seemed to fail him in his great affliction, and which could only come, as I know it did, from a chastened submission to the will of God. It was profitable to be with him, and I cherish his memory with true affection.—Believe me, yours very sincerely. HUGH M. MATHESON."

CHAPTER XV.

The End draws near—At rest—Letter from Theodore Martin—Lewis Gordon's boyhood—his love of literature—his courage—his close observation of Nature—his admiration of Goethe—his nobleness of character—Letter from Lord Gordon of Drumearn—Engineering works—Professional bias—Last work proposed.

UNTIL the month of January 1876, Lewis's health had seemed much in its usual condition. About that time he became very sleepless. The change for the worse was attributed to too close study and writing, and to the severe weather, which confined him to the house. No alarm was felt until the 26th of February, when he told his sister that he experienced symptoms which made it advisable to call in medical aid. This was done three days later, and the opinion expressed was such as almost to exclude any expectation of recovery.

He removed to London for a time, in order to be near his doctor, but returned to Poynters Grove on the 18th of April, that he might have the advantage of larger rooms and fresher air, and even with

some *hope* of improvement from the change. But, alas! each day brought greater suffering than the preceding one—no sleep, no ease!

Though weak and wandering, kind thought for others never left him, and it is affecting to note, that on the day before his death, in an interval of consciousness he turned to Miss Henny, saying, "There is one letter I should like to dictate,—to Mr. Matheson, because I have not yet acknowledged the last Report he sent me of the Japanese College."

The last letter Lewis wrote was to his mother:—

"7 GREEN STREET, *April* 14, 9 P.M.

"DEAREST MOTHER,—I have not slept any more than what Mary saw me struggling to get. But I go to bed with the feeling that God will bless me with a somewhat better night, and I will try to let you know as early as possible. I have enjoyed my food—a beautiful London fowl, and generally have reason to be thankful. I am sorry to have no very reassuring news of dearest Anne.—Yours ever,

"L. GORDON."

On Thursday the 27th of April, feeling very anxious about her dear suffering brother, this sister drove out to Poynters Grove. After dinner, she went to him in the drawing-room, which had been all arranged for him, and found him lying, or rather

sitting up, supported by many cushions, on his bed-couch, his head leaning much forward, and his breathing much oppressed. He took her hand, and leaned his head on her shoulder, seeming for a little time to be more comfortable and at ease.

His sister remained nearly two hours with him, and he from time to time asked about every member of her husband's family, spoke with deep interest of the undaunted courage, energy, and perseverance William and Carl Siemens had shown in regard to the laying of the Atlantic Cable, and wished them entire success. She kissed his forehead, and said she trusted he might get a little sleep. He said quickly, "You are not going away to-night!" and when told that she intended to remain, he replied, "That's well,—that's right!"

On Friday morning, before leaving, his sister looked in on him; he was in his chair, and dozing, so, fearful of disturbing him, she turned away, determined to return to him next day, along with her husband, and to remain till all was over.

When they did return on the Saturday, it was to stand by his couch, and see him laid *indeed* at rest, with a lovely expression on his noble face, as if saying to them—"The conflict is past."

His gentleness and patience never wavered; he never complained;—

"Whate'er my God ordains is right,
Holy His will abideth,"

was the stay of his heart.

On the 28th of April, with his son's hand in his, and in presence of his aged mother, his elder sister, faithful friend and servants, he breathed his last.

BLESSED ARE THE DEAD WHICH DIE IN THE LORD . . THEY REST FROM THEIR LABOURS.

I remember once, in speaking of a friend still living, to have said that I considered him an embodiment of perfected humanity, his brother not unlovingly objecting, "Ah, Henry *has* his faults, like the rest of us!" to which I answered, "It *may* be so, but they do not lie, like yours and mine, upon the surface." It was doubtless also thus with dearest Lewis; yet 'the secret of the Lord'—which is God's love—was with him; and if the plea 'quia multum dilexit' avail to secure admission to the court of heaven, his entrance was assured. And he had a yet higher warrant; he had been perfected by suffering, and was certainly one of those of whom

it is written, "These are they which came out of great tribulation, and have washed their robes and made them white in the blood of the Lamb."

The following letters, addressed to myself by two dear and early friends of Lewis Gordon, may not inappropriately close this record of his life. The first is from Mr. Theodore Martin, the second from Lord Gordon of Drumearn.

"BRYNTYSILIO, NEAR LLANGOLLEN,
14*th August* 1877.

"MY DEAR CONSTABLE,—Since I last wrote to you I have been so unwell from over-work, that I could not put pen to paper, and this must be my excuse for not sooner fulfilling the promise I then made, to write what I had to say of my dear friend Lewis Gordon. After the fullest reflection I know not what I can tell you about him, of which you must not be already aware from many other channels. It is not always those who love us best that can best describe us to others. Those who are endeared to us from long intimacy, and the perfect confidence of friendship, become so much a part of ourselves,—their qualities, good and bad, are taken by us so much as a matter of course,—that we neither store up the recollection of details, which to others would be significant of character, nor are able to analyse their character with the firmness of

hand necessary to make it stand out clearly on a written page.

"So it is with me in the present case. Gordon and I were small boys at school together. We met comparatively little through the long busy years of youth, manhood, and riper age; but our regard for each other never 'moulted a feather,' despite of years of separation, and of the rareness of our opportunities of coming together. I knew I had in him a friend who understood me. He knew that among my friends there was none whom I valued more than himself.

"And indeed I had good cause for the high esteem in which I always held him. When we first met at the High School, I was eight years old, he, I think, some years older; but being, I should imagine, of a delicate physique, he was probably later in development than most of the boys in the class. He always held a high place in the large—much too large—classes (generally over a hundred) of those days; and I remember well that we were drawn early together by the interest we both took, at an early age, in literature,—outside the range of our school studies, and also in art, of which he, David Stevenson, now the eminent civil engineer, and myself showed our nascent love by a devotion of our pocket-money to the purchase of etchings by Rembrandt, Ostade, and others,—a taste which

could be indulged in those days at much less cost than now. What one felt to be Gordon's special charm was a certain chivalrous generosity of character. Slight and slender as he was, he was brave as a lion; and he combined with this the gentleness and courtesy of a truly manly nature. He had all the qualities that go to make the gentleman—and in this, as you know, the boy was the father of the man.

"Gordon did not go to College with the majority of us High School boys, and I lost sight of him for many years, hearing only that he had adopted mechanics and engineering as a profession. I did not know, till a later period, how the force and genuine manliness of his character had been shown in the way he had entered on the preliminary studies of his future profession. I did not know that the finely-moulded sensitive boy of my acquaintance had, from the highest motives, decided to relieve his parents of the burden of his further education; nor that, with the thoroughness which he carried into everything he undertook, he donned the artisan's jacket, and worked through the practical details of mechanical engineering, till he had thoroughly learned from practice what good work is, while he was at the same time prosecuting the science of his profession in the study of the best French, German, and English writers. It was in

these early years that he made himself master of French and German. And amid all the hard toil that went to accomplishing him for the eminent position which he subsequently took in his profession, he must have kept alive his early love for literature and the arts,—for when we came together some years afterwards, I found him well read in all modern European literature, and profited greatly by the fresh and independent criticism which he brought to bear upon the topics, literary and artistic, which we were in the habit of discussing together.

"I can remember freshly as if it were yesterday, the pleasurable surprise of meeting him when I went to visit the then unfinished Thames Tunnel, where, if I am not mistaken, he was at the time employed. We had not met since we had been at the High School together, but there, as ever afterwards when we met, we took each other up as if we had never been separated, and the hours ran quickly by as he described to me the mechanical appliances by which the tunnel had been cleared of the waters, which had for the second (and last) time flooded it, and described some other achievements of Sir Isambard Brunel, of whom he spoke with the enthusiasm which he always felt for genius and high character. Nor were the chronicles of our boyhood forgotten. We fought our fights, and bickered our 'bickers' over again. And by-the-by,

not Scott's 'Greenbreeks' himself was more valiant in these stony frays than slim, delicate-looking Lewis Gordon (Puggy was our pet name for him). In those days encounters took place every summer evening between the dwellers in and about Scotland Street, London Street, and the Royal Crescent, where Gordon lived, and the roughs of Canonmills, on the vacant ground, then all sandhills, immediately below St. Mary's Church. While the stones would be flying thick and fast on either side, Gordon was sure to be in the van driving in the enemy's outposts, and cheering on the laggards on our side to chase the recreant 'keelies' (I think we called the roughs) into the lanes and closes of the hamlet of the Mills. He would have stormed a battery with the same pluck, I am very sure, if fortune had thrown the necessity for doing so in his way. And indeed I believe he on many occasions showed the same coolness and pluck in circumstances of difficulty and danger which distinguished him as a boy, and which are scarcely less indispensable for the profession of the engineer than of the soldier. But it was never from himself that one heard of his own good deeds, and I must therefore hope that you have received information on this head from others, who can give it you with more precision than it is in my power to do. I have heard of many things which showed these qualities in him, but I took

them all as so much a matter of course, knowing him as I did, that the details have not clung to my memory.

"When we had both settled in London, we were thrown a good deal together, and in 1849 or 1850 we made a tour in the south of Ireland. His character had by this time greatly expanded. He was full of knowledge of all kinds, and mainly in directions where my own studies had not led me. But he never wearied one with these things; indeed, he would not talk of them enough for me, who was only too glad to learn from one who had so remarkable a power of lucid explanation. On one point we were in thorough sympathy—the love of nature, of which he was a singularly close observer, and on the phenomena of which he brought his scientific knowledge to bear in the most delightful way. Thus, for example, few people probably have revelled more than myself in the admiration of 'cloudland, gorgeous land' from the merely artistic point of view. He was no less quick to perceive the exquisite beauties of that ever-shifting panorama. But I learned from him to read the signs of the weather through the magical painting and the varying forms of the sky; and the broad rules which I was taught by him have been confirmed by all my subsequent experience, and afford me a constant source of pleasant as well as useful observation,

whenever I escape to the country from the '*fumum strepitumque Romæ.*'

"On this occasion, too, I was struck by his wide reading and fine taste in literature. Of Goethe he was, like myself, a great lover. I had never, however, gone beyond the first Part of 'Faust.' He introduced me to the second, and he was one of the very few Englishmen, or, indeed, I may say, Germans, I have met with, who knew that work well. He infected me with some of his own enthusiasm about it, and, to please him, I translated into verse the whole of the magnificent opening scene of the poem. In acknowledgment he gave me a copy of both Parts of 'Faust,' which is one of my most treasured memorials, and which I subsequently used in making the translation of the first Part of the 'Faust,' which has been published, and also of the greater portion of the second Part, which I some years ago printed for private circulation. He was pleased to think well of what I could do in this way, and his encouragement led me to work on translations from foreign literature when I might not otherwise have made the attempt. About three years before his death he wrote to ask me to translate for him Heine's beautiful little poem, beginning—

'Ich stand in dunkeln Träumen,
Und starrte ihr Bildniss an.'

"It was only too clear whom he had in his remembrance in making this request—the dear wife, —his wooing and winning of whom followed immediately on our Irish tour, a secret I had been the first to share. She was before me as I wrote the following translation :—

'I stood on her picture gazing,
And backwards my dark thoughts ran,
And the dear, dear face before me
To live somehow began.

Around her lips there gather'd
A smile in some wondrous wise,
And tears, as of wistful sadness,
Seem'd glistening in her eyes.

And down my cheeks the tears, too,
Flow'd on in a silent stream;
And oh, that I 've lost thee, darling,
Seems only a wilder'd dream.'

"No word escaped me, when I sent this to him, to indicate that I knew what was in his mind. But his answer showed that he appreciated my feeling, and felt that it had gone into my work.

"I regret now that I have not preserved his letters. They were always admirable, full of matter, and choice in expression. Those I have preserved are valuable only to myself, for the warmth of the regard which they testify for Mrs. Martin and myself, and the cordial interest in our pursuits which they express. These words, precious when

first received, are very dear now; but they are too sacred for any eyes but our own.

"The sad physical affliction which filled so many of the later years of his life, was borne with a patience and a courage before which I could only bend with admiration. Who among ten thousand would have borne it as he did,—he so full of energy, of the eager spirit of observation and inquiry, of the ambition to be helpful to his fellow-creatures by the application of scientific skill to the uses and comforts of life? It was a priceless lesson to the most of us, who kick so resentfully against the weakness and the suffering of our mortal bodies, and the small calamities that attend this fretful life. He sought and found his strength in Him, from whose hands comes what 'is most expedient for us,' and in calm submission to His will he found that quietness of spirit, which made even the days of his weakness, and of sore bereavement, when his wife was taken away, not wholly comfortless or uncheered by useful work or invigorating study.

"His character was altogether charming. Better son, or better brother, it would be hard to conceive. He was all kindness and generosity in thought and in act,

> 'The dearest friend to me, the truest man,
> The best-conditioned, and unwearied'st spirit
> In doing courtesies.'

"Women reverenced him, for he reverenced them; and to him they feared not to show the best part of their natures, because that chivalrous heart of his could be relied on not to misunderstand them. Hospitable, cheerful, appreciative, enthusiastic, no wonder his friends loved him, or that an evening in his house was always something to remember. His gentle intellectual wife was a meet companion for him. It seemed the very irony of fate that she should have been called away before him. Her loss cast a shadow over him, which seemed to me never to be wholly absent; and I can well believe that the thoughts of his later years were strongly bent on that 'beyond,' to which he had long learned to look without apprehension, and where he hoped to be re-united with the loved and lost.

"I feel I am only writing what you know better than I can tell you; but far short as anything I can say must be of our friend's deserts, you may welcome it as the echo, however feeble, of your own convictions.—Believe me always, my dear Constable, very truly yours, THEODORE MARTIN."

FROM LORD GORDON.

"61 PRINCES GATE, LONDON, S.W.,
3d April 1877.

"DEAR MR. CONSTABLE,—I learn with great pleasure that you are about to publish some

memorials of our dear cousin Lewis Gordon. To you it will be a labour of love, to his many friends these recollections will recall pleasant intercourse, and to the general public they cannot fail to be an example of one who served his generation faithfully.

"All will recognise in Gordon a brave spirit, who worked well, and suffered patiently.

"As boys we played together in the old Edinburgh days, and after many years we met again in the south, when, under his hospitable roof, I enjoyed periods of relaxation in the intervals of hard parliamentary work, and found him—in spite of impaired health—ever the interested observer of progress in science, and of all affairs of passing interest.

"Many an old friend was welcomed at Poynters Grove, sure of finding there a ready sympathy in all his affairs. Years left his powers of heart and head untouched, and though latterly removed from more active employment, his was always a busy life.

"Doubtless a large circle will welcome the completion of your task, in which I wish you every success, and with kind regards, I am, dear Mr. Constable, yours sincerely,

"GORDON OF DRUMEARN."

Apart from his work in connection with his firm, Mr. Gordon was personally employed by the Admiralty to report on various matters referred to him regarding harbour and drainage works, and his reports on these subjects were generally replete with sound practical observations and valuable advice.

Throughout his whole life he dedicated no small part of his time to the advancement of his profession, as proved by the following imperfect sketch of his contributions to its literature.

In preparing his lectures for the Glasgow Professorship, he felt, as has already been noticed, that at his early age he had much knowledge to acquire, and gave the result of his investigations to the Glasgow Philosophical Society, of which he was a member, and to which, between 1840 and 1844, he made many interesting communications.

In 1841, in a paper "On the Determination of the Melting-points of Metals," he gave an account of the experiments of Plattner of Freiberg, and in the same year, under the title of "Dynamometrical Apparatus," he detailed the investigations of M. Morin of Metz. In a paper on "The Temperature of the Earth," he gave an elaborate account of the thermometric observations of Forbes at Edinburgh and Herr Dove at Berlin. He also made communications on "the flow of water through pipes," the "measure of impact

by pressure or weight," and other subjects of interest to the Society.

Of papers and pamphlets on subjects of general Engineering, the following imperfect list may be quoted :—

Description of the Great Chimney at St. Rollox, Glasgow, by L. D. B. Gordon and L. Hill, C.E. Trans. of Roy. Scot. Soc. of Arts. 1844.

On the Supply of the City of Glasgow with Water from Loch Katrine. 1845.

Railway Economy; an Exposition of the advantages of Locomotion by Locomotive Carriages instead of the present system of Steam Tugs. 1849.

Railway Economy; use of counter-pressure Steam in the Locomotive Engine as a Brake. Translation from M. L. Lechatelier, Ingénieur en Chef des Mines. 1869.

Translation of Grüner's Phenomena of the Blast-Furnace. London, King & Co. 1873.

Exposition of a Plan for a Metropolitan Water Supply, by L. D. B. Gordon and C. Liddell. 1849.

On the Most Advantageous Use of Steam. 1845.

Short description of the plans of Captain J. Veitch, R.E., for the Sewerage of the Metropolis. 1851.

In 1848 he translated from the German the *Principles of the Mechanics of Machinery and Engineering* by Julius Weisbach of the Royal Mining Academy of Freiberg, and as a supplement added some original appendices "On the Strength of Materials," "Tubular Bridges," and the "Rigidity of Cordage."

Lewis Gordon had no love of notoriety—he was naturally retiring and diffident, and disliked being called to make a "public appearance." He had neither the peculiar qualifications nor taste for the ordeal of fighting the battles of the Committee-rooms of Parliament, which gave him at an early period of his professional career an aversion to such exciting scenes, and led to his withdrawing from them whenever he fancied that another and apparently quieter line of pursuit was open to him. He therefore at an early date *practically* abandoned the profession of Civil Engineering, and gave his whole energies to the commercial enterprise of introducing wire-ropes for all the useful purposes to which they were at first applied in this country, and ultimately for the world-wide establishment of submarine telegraphs. But to fulfil the contracts entered into for making and laying cables in all quarters of the globe entailed an amount of anxiety and worry probably even greater than that which on giving up engineering practice he wished to escape.

But his friends did not fail to remark that though conducting this difficult commercial work he never ceased to take an intelligent and lively interest in science and engineering, as shown by his being ever willing to answer, in carefully considered letters, whatever his brethren in the profession submitted for his friendly advice, which was always promptly and ungrudgingly given.

In proof of what I may call the *disinterested interest* he took in his profession and in his professional brethren, it is pleasant to know that the latest professional work in which Gordon was engaged was a labour of love, and of regard for the memory of a professional brother.

About the close of 1875 it occurred to Mr. James R. Napier of Glasgow, and Gordon, that a memoir of Professor W. J. Macquorn Rankine, and a republication of his contributions on scientific subjects to Societies and Journals, would be a task agreeable to his friends, useful to his former pupils, and acceptable to men of science. They accordingly began to collect and arrange his numerous papers, had got the consent of Professors Tait and Jenkin to aid them in the undertaking, and had proceeded thus far in the work when the sudden serious issue of Gordon's illness terminated his connection with the project.

His last letter to Mr. Napier is dated 24th

February 1876, not two months before his death, in which, writing in full vigour, he says—"The copies of Rankine's papers, Miss Graham's property, are all corrected by Rankine (the very few misprints I mean), so that I could take the editing of many papers off Professor Tait, if he please. Pray say so to him." But his correspondence with his friend Mr. Napier, which had been going on for three months, then ceased, and the friendly desire, so like his nature, to give his time and failing strength as one of the editors of the works of his successor in the Chair of Engineering at Glasgow, was frustrated.

He was a member of the Royal Society of Edinburgh, of the Philosophical Society of Glasgow, and of the Geological Society of London.

APPENDIX.

WRECK OF THE "ALMA," FROM *THE TIMES*.

"ADEN, *June* 17.

"ON the morning of the 15th intelligence reached Aden of the stranding of the Alma on the Moosedjerah, one of the reefs, or rather islets, which form the Kharnesh group, about seventy miles to the north of Perim. The news was brought by Mr. Baker, the second officer, who, in company with Mr. Newall, the contractor for the Red Sea Telegraph cable, had volunteered to go to Mokha in one of the ship's boats to procure a supply of water. To the prudence and foresight of these two gentlemen is due the merit of having secured for the unfortunate crew and passengers the readiest relief available, and thereby of having shortened the sufferings of all, and, in all probability, of having saved the lives of many. The following account of the catastrophe, for which I am mainly indebted to one whose services on the sad occasion will long be remembered with gratitude by the passengers generally, but who does not wish his name to be mentioned, will be read with deep interest by the public at home :—

"At 6 A.M. on Saturday, the 11th of June, the Peninsular and Oriental Company's steamer Alma, commanded by Captain Henry, left Aden with about 400 persons on board, of whom upwards of 150 were passengers, many of

them invalids from India returning to England on furlough. Of these there were 30 ladies, and about as many children and infants. Captain Henry had been ailing at Aden, and had been obliged to make over his charge to Mr. Davis, the chief officer. On Saturday night he had a severe attack of fever, and only left his cabin early the following morning to see his fine vessel hard and fast upon a reef.

"The circumstances of such a disaster cannot be fairly discussed without a formal investigation, so that, although the facts, as stated in this narrative, may be fully relied upon as such, the responsibility attached to them must be apportioned by a proper and competent tribunal. It is but honest, however, to state that all concerned seem at a loss to account satisfactorily for the catastrophe. The reef is in part an island rising about forty feet out of the sea, and the night was sufficiently clear to show the outline of the rock at a distance more than ample to have enabled those in charge, had each man been on the alert, to steer clear of danger.

"Between one and two o'clock on Sunday morning, the 12th, the Alma was stopped and a sounding taken to check her position, it being supposed that she was off Mokha, where it is usual to change the course, to as to pass to the eastward of the reefs forming part of the Kharnesh group. The chief officer reported to Captain Henry a depth of twenty-three fathoms, which agrees with the soundings marked on the chart in the position in which the vessel was supposed to be off Mokha. Captain Henry thereupon desired the course to be altered, with the concurrence, I believe, of the chief-officer, and also of old Busheer, known to be the best pilot on the station, and who had accompanied the Cyclops during her late survey of the in-shore reefs and soundings for the Red Sea Telegraph Company. The weather was fine, and the moon (nearly full) had set about an hour, when a sudden but gentle shock was felt, succeeded by two others, and then

the vessel suddenly stopped, and in three minutes lay over on the starboard side, so as to cover the deck with water half way up from the stern to the funnel. It is reported that on perceiving that something had gone wrong, the engineer was about to back astern, but that Captain Henry, most providentially divining the true state of the case, shouted out, 'Full speed; go on!' Had the former suggestion been carried out, there is every reason to fear that the vessel would have gone down bodily, as, although her bows were high and dry, there were twenty-four feet of water under her stern. On the occurrence of the first shock most of those on board thought that a buggalow had been run down. The truth, however, was soon apparent, for there was the reef, as plain as the funnel itself, extending close alongside from the bowsprit along the port quarter.

"Of the 150 passengers about one-third were sleeping on deck; all of those on the starboard side, both in the cabins and on the deck, were literally washed about by the water amidst chairs, tables, benches, mattresses, and deck-gear, before they could get sufficiently on their legs to reach the saloon, or the port side of the vessel. The confusion which ensued for a few minutes can only be described as a Babel, not of tongues, but of screams. To move about on deck or in the saloon was impossible, the ship being at an angle of 45 degrees, and every one believed that in a few minutes she would founder. The native crew, consisting of some 200 Lascars and Seedees, ran forward, climbed over the bowsprit, and leaped upon the reef, and had it not been for the admirable and systematic manner in which the passengers, stewards, and four English quartermasters assisted the officers in getting the people towards the port bulwarks, and in lowering the boats, there can be no doubt that most of the Europeans would have found a watery grave, or been left to die a lingering death. Major Fane, and Captains Cooke and Russel, of Her Ma-

jesty's 73d, and Dr. Williams of the Alma, were swimming and diving for the first half hour, dragging half-drowned women and children out of their berths, and from among the débris of the cabin, where they were jammed by the flow of water rushing in through the open ports. The stairs to the cabin were very soon impassable, and a great proportion of the ladies and children were hoisted on deck from the arms of these four brave men through the skylights, and through the ports on the upper side of the vessel.

"How every one was ultimately saved cannot be explained by the passengers themselves; for there were twenty children under five years old, and at least twenty ladies so weak and ill that they could scarcely move alone, even in fine weather; and, most wonderful of all, Mr. and Mrs. Barnes, severally eighty-five and seventy-nine years of age, who were returning to England to spend their remaining days among their great-grandchildren, after a residence of more than half a century in India.

"Within half an hour every one was on deck, held or lashed to the rigging, three boats were afloat and manned by officers from the ship, stewards, and passengers, and then the Anglo-Saxon race again proved that pre-eminence in courage and determination which have won for them a moral superiority over the whole world. Silence being almost restored, a row of gentlemen lined the port bulwarks, and every lady and child was carried from arm to arm to the gangway, and there lowered into the boats with tender care and perfect safety. Nine out of ten of them were in their night-dresses, thoroughly drenched, and many of them sadly bruised in their scramble to reach the deck. Nevertheless, the behaviour of these poor sufferers was most noble; they neither screamed nor fainted, but showed implicit trust and perfect obedience to the gentlemen, who held them on the bulwarks until their turn came to be passed down the gangway. There was not a single in-

stance of a white man attempting to get into a boat until every woman and child was safe on the reef; and so far was this chivalrous spirit carried out, that Mr. Davis, the chief officer, had to order a dozen of the passengers down to help to manage the boats. His conduct, indeed, and that of the officers, without exception, after the ship had struck, was all that the most fastidious or most desponding could have wished or hoped for. Within one hour after the catastrophe not a woman or child was left on board, and by 6 A.M. tents were rigged and mattresses landed to protect them from the scorching sun and the sharp coral rocks.

"Poor Mr. Hatchet, the purser, appeared overwhelmed with his position and responsibility almost immediately on landing; and Mr. Lionel Gisborne, who was returning to England after having laid the telegraph from Suez to Aden, and who was an acquaintance both of Captain Henry and Mr. Davis, was requested to take charge of everything on shore; all the officers of the ship being fully occupied in the boats saving provisions and clothing. Not a native lent a hand until they began to feel that their own lives depended on landing water and biscuits, and even then their first efforts on board the ship were confined to plunder. The Indian officers, however, who were returning home on furlough, were too determined and energetic to permit such insubordination, and therefore, while giving the officers of the ship every credit for goodwill and the most active exertions, not one of them, we are assured, will deny that if the passengers had not taken upon themselves nearly the entire management both of landing the provisions and also of distributing them on shore, it is more than probable that numbers would have perished on the reef. Before nine o'clock, that is, within six hours after the vessel struck, a hot breakfast was served out to the ladies and children, and beef and biscuit to the men.

"But another serious danger now threatened. It was found that all the tanks, except a very small one in the

forecastle and the ice-house, were filled with salt water. Relief could not be expected for four days, at the very earliest, and even that was a chance which the most sanguine scarcely dared to hope for. As it was, there were but fifteen gallons of water to distribute among 400 persons. In addition to this, however, about ten bags of biscuit and as many of rice were saved, besides most of the live stock, some fifty dozen of beer, and eight or ten dozen of wine. Water, under these circumstances, was the first consideration, and it was immediately decided that something should be done to procure it. It was procurable at Mokha, but Mokha was thirty miles off, and the wind at this season of the year is generally dead against a return from that place, and the only means of conveying the water is by native buggalows, which it was hoped might also be obtained there. Accordingly Mr. Baker, the second officer of the Alma, and Mr. Newall, offered to go to Mokha in one of the ship's boats. They sailed at ten o'clock with a small stock of biscuit, half a bucket of water, and a dozen of beer, as a *viaticum* for the ten persons who left in the boat. It was also arranged that on their arrival at Mokha either a foot messenger, or a dromedary post, or a boat should be despatched to Aden for relief, as Her Majesty's ships Furious and Cyclops were both in that harbour when the Alma left.

"Previous to leaving Aden Mr. Newall had arranged with Captain Pullen that the Cyclops should leave on Monday, the 13th, to revisit all the stations on the Red Sea, and take some further soundings on the line of the cable. The cable is laid along the western shore, and about twenty miles in that direction from the Kharnesh group, where the wreck lay, so that it was almost hopeless to expect that the Cyclops would approach near enough to discover the disaster; besides which, it was quite uncertain when she would be in the same latitude. Messrs. Baker and Newall reached Mokha on Monday morning,

and found the Turkish Governor there most ready to render every assistance in his power, and during the same day three buggalows left, two laden with water, and the third with half-a-dozen soldiers—a kindly precaution on the part of the Governor, but one hardly necessary when there were above twenty English officers present on the reef. These boats did not arrive before relief was providentially brought by the Cyclops.

"Mokha, once the chief emporium of the coffee-trade in the Red Sea, is now almost deserted by trade and traders, and the land communication with Aden, which used to be effected on an emergency in forty-eight hours, is now nearly abandoned, and the risk of transit is so great that it is not to be depended upon. Under these circumstances Messrs. Baker and Newall determined to go on to Aden in the ship's boat, and to try and catch the Cyclops at the narrow straits by Perim, through which they knew the ship must pass. In this, however, they were unsuccessful; so, after staying a short time at Perim, the brave fellows started again towards Aden, and intercepted the Cyclops about ten miles south of the straits. Their sad tale was soon told, and it is needless to say that Captain Pullen and the officers of the Cyclops did not spare her gracious Majesty's coal in steaming towards the wreck, then distant about eighty miles. Mr. Newall returned in the Cyclops, but Mr. Baker went on to Aden, and on his arrival here on Wednesday morning, the 15th, found no steamer in the harbour, the Furious having left for the African coast on the Sunday night preceding. The people on the reef were relying entirely upon the Furious, not knowing that any other assistance awaited them, and the provisions were eked out to last till Thursday afternoon, that being the earliest day on which aid could be expected to arrive from Aden.

"On the afternoon of Monday a boat was sent to Zooghr to look for water. She returned on Tuesday evening with

a small supply, which had been obtained by digging to a depth of five feet. It was very brackish, and probably nothing but sea-water which had been partially filtered through the sand. On the arrival of this boat an attempt was made by the natives to seize it for themselves, but a dozen English officers, armed with cutlasses and bayonets, and backed by the officers of the ship, soon showed them how fruitless any such attempt would be. One of the more daring and insolent of the gang was cut down, whereon the remainder immediately took to their heels. The wounded culprit, I am happy to hear, is likely to recover. On Monday evening Mr. Hatchet, the purser of the ship, died of sunstroke. Had the ice and mustard been at hand which were procured from the ship the following day, the poor fellow's life might have been saved, inasmuch as during the four days' exposure on the reef there were eight or ten other cases of *coup-de-soleil*, probably in a milder form, which were effectually treated by the application of ice behind the ears, mustard poultices on the calves of the legs, and douches of salt water poured over the body.

"To resume the narrative. As soon as the water was safely deposited in the store-tent, where Mr. L. Gisborne acted as caterer the whole time, and with such success that the small stock on hand seemed, like the widow's cruse, to be unfailing, and to be blessed not only to the preservation of life, but of health also, it was found that the imported supply sufficed to give one pint to each person, and no more. The day previous the natives had been allowed one bottle of beer between three, and some cocoa-nuts which they had looted from the ship. To the Europeans was given a bottle of beer each, to the ladies half a bottle of claret, and to the children about a pint of arrowroot. None of them had received any water. Until midnight the chief steward of the Alma (reported on all hands to be a most valuable man, thoroughly up to his business, and who executed Mr. Gisborne's orders with the greatest energy and the most prompt

goodwill), in conjunction with Mr. Gisborne himself, and guarded by a line of sentries composed of the English officers and passengers, then served out a pint of water to every man, woman, and child, and, brackish as it was, they drank it with eagerness and heartfelt gratitude. The same night two other boats were despatched to Zooghr with thirty natives, the chief engineer, and an English quartermaster, and on Wednesday afternoon, when the party sailed away in the Cyclops, those boats had not returned. The reason of this is not known as yet, but it is suspected that the natives, who were well supplied with biscuit, and ten of whom were to remain on the island to dig fresh wells, finding themselves with plenty of food and water, and under the shade of palm-trees, refused to work, and are still comfortably located there. It is to be hoped that the Furious will soon give a good account of them. During the same night also, one of the ship's five boats was missed, and at daylight she was not to be seen. Had she drifted she must have been visible, as the wind was light, but in calling over the muster-roll in the morning, two of the Seedees, employed as trimmers, were found missing, and it is conjectured that, knowing, as they did, that Mr. Newall and Mr. Baker had gone to Mokha, they stole the boat and tried to get there also—a vain attempt, in which they will probably perish.

"These two circumstances occurring together, showed our people the possibility of all the boats being stolen, and as their last resource was to move in a body to Jebel Zooghr and dig their own wells for water, the sentries were doubled, so that there were always twenty armed men, and of the right sort, available at a moment's notice. Some few of the foreign passengers, and especially M. Gautier, a Frenchman, and an Austrian gentleman, whose name I do not remember, heartily co-operated with the Englishmen in this and other arduous duties.

"Tuesday morning found the inhabitants of the reef with

six gallons of water and about fifteen dozen of beer; but, some tins of vegetables and preserved soups having been saved, a cupful of each was served out to all the Europeans, and also a little arrowroot to the children. The effect of this meal was instantaneous; the most desponding cheered up, the sick gained strength, and the ladies, who, to their honour be it said, are reported to have borne up with quiet resignation, crowded round the store-tent to thank Mr. Gisborne and the chief steward for the best basin of soup they had ever tasted. The natives got one bottle of beer among three, the Europeans half a bottle each, and the ladies one bottle of claret among three. Thus passed Tuesday, leaving on hand about a glass of liquor each, comprising all sorts, to sustain the unfortunates on Wednesday and Thursday, the latter being the earliest day whereon they could anticipate relief. Had relief, however, not arrived on Wednesday, the party would have been obliged to repair to Zooghr; but there were only four boats available for the purpose, and the passage in a broiling sun would have been attended with the greatest danger, especially to the delicate ladies and children.

"Matters, therefore, began to look very gloomy. Thus far there had been meat and drink sufficient to sustain life, though the heat was so excessive that many doubtless suffered not a little from thirst. Now it became a question how the next twenty-four hours were to be passed without any drink at all. On Tuesday night, however, a report got abroad that two lights were visible, and as they were observed to move about irregularly, none could make out what they portended. Captain Henry, however, ordered a blue-light to be burnt and a rocket to be fired. A lantern also was hoisted on the highest tent-pole; but no friendly signal answered these demonstrations, and the hopes which had begun to arise in the breasts of many were doomed to disappointment. Several more such lights appearing during the night, they were ultimately discovered

to be the momentary reflection of the moon upon the crests of distant waves which bounded the horizon. At daylight, however, a cry rose from half a dozen of the tents that a steamer was in sight. It turned out to be the Cyclops, about eight miles off, steaming direct for the reef.

"The reaction from despair to hope which this sight afforded, overpowered several of the ladies, and Dr. Williams and Mr. Gisborne served out to each of them half a tumbler of claret (nearly all the remaining stock), to prevent hysterics and fainting-fits. A boat was immediately despatched to meet the Cyclops, and the officers and men of that vessel, and Messrs. Newall and Brunton, who were also on board, will never again hear such a cheer of welcome as they received from the 400 voices on the reef, all husky as they were with parched throats, and otherwise subdued by hardship and suffering. The Cyclops had hardly anchored when a water-boat was on shore, and the brave sailors helped, as British sailors only can help, every one who crowded round them for a draught. The second boat was appropriated to the natives, and the water brought in four succeeding ones was stored on shore for the use of the crew. Eleven gallons of soup, three of tea, and as many of coffee, were ready in half an hour, and ten minutes later all felt restored and happy. By eight o'clock every lady and child was comfortably berthed in the Cyclops' cabins, every officer readily giving up his accommodation and placing whatever he had at their absolute disposal. The remaining passengers gradually collected the few boxes and parcels which had been saved, and the quarter-deck of the Cyclops presented the appearance of a large camp where the sexes were not readily distinguishable by the form of their apparel.

"Motley indeed was the sight when they anchored in the harbour of Aden; but gratitude, deep, fervent gratitude, was in the hearts and on the lips of the rescued

towards their deliverers, and the face of every Briton belonging to the Cyclops bore a smile of satisfaction that they had, under God, been instrumental in affording such providential assistance to their countrymen and countrywomen. The passengers will doubtless bear their own testimony to the attention, kindness, and sympathy which they experienced at the hands of Captain Pullen and his officers. I understand that some document of this nature had been drawn up, and if possible I will send you a copy of it. I feel assured, moreover, that the admirable behaviour of the men as well as of the officers of the Cyclops will not be overlooked by Her Majesty's Government. Several anecdotes illustrative of the hearty and generous good-will of the sailors during this trying time, will, I hope, reach you for publication; and I have heard from many that none came near them on board who were not pressed to share in what little the brave Jacks possessed. If they were at meals it was, 'Take a bit with us, sir; it will do you good;' or, 'Take a hearty drink, sir, and cheer up.' With the same generous feelings they brought out their kit, offering to share it with those who had lost nearly all their clothes. On being reminded by some that they might not be able to return what was thus given, the reply was, 'Bless you, sir, there's plenty more among the slops.' God bless the sailors, I say, for their noble disinterestedness.

"The arrangements made at Aden to receive the unfortunate passengers were not in that state of preparation which they ought to have been. The passengers themselves will, in all probability, make known to the Peninsular and Oriental Company, as well as to the public at home, where they conceive the fault to have been. It was certainly not with the local authorities, for Brigadier Coghlan wrote to Captain Coldbeck, the acting Peninsular and Oriental agent here, the day previous, intimating to him that he anticipated the return of the Cyclops from

the reef, and offering whatever accommodation the Government premises, or even treasury, afforded, to aid him in receiving the expected guests, and in providing for their wants. The agent, however, felt convinced that the Cyclops would merely touch at the reef, there take in a few passengers and the mails (which latter, by the way, were all saved), and proceed on to Suez. Under this conviction the agent proceeded himself, in the Furious, on the morning of the 16th, taking with him a number of divers, with a view of aiding in floating the Alma. Such provision on his part was undoubtedly commendable; still, the general impression seems to be that, pending the possibility of the return of the passengers, he was hardly justified in quitting his post, more especially as Captain Osborne, of the Furious, with his officers and crew, and Captain Henry, with the officers and crew of the Alma, were on the spot to superintend any operations in connection with the stranded ship. On the arrival of the Cyclops, however, it was found that Captain Coldbeck had returned in her, she having communicated with the Furious about ten miles distant from Aden.

"Of course, under the circumstances, there was more hesitation and delay than there needed to have been had a different course been pursued; but before night most of the passengers were housed, some in what was once the Aden Hotel, others in the Government Bungalow, the Sanitarium, with the residents at Steamer Point, at the telegraph office, and at the Peninsular and Oriental Agency. The most sickly were kept on board during the night, but the following morning they had also to be provided for on shore. A few, who were very ill, were landed at once, and these being placed under the medical care of Dr. Welsh, the worthy and able surgeon in charge of the European General Hospital, could not be better cared for. All are now waiting the arrival of the steamers from Bombay and Australia, hourly expected, and it is to be

hoped that accommodation will be available in the two ships to take the sufferers on to Suez.

"I ought not to omit to mention that during the first excitement consequent upon the wreck, every box, trunk, and portmanteau come-at-able was forced open and rifled by the natives belonging to the ship. This being a well-known fact, Captain Henry requested Captain Pullen's assistance to institute a general search on shore. All hands were accordingly mustered, as if to go afloat, and a guard of twenty sailors and marines kept them together, while ten others, accompanied by Captain Pullen, Captain Henry, and Mr. Gisborne, ransacked every bundle in the place. As very little was found under this ordeal, the natives were next stripped one by one, and bags of silver and gold, watches, etc., were then brought to light. The boatswain had not commenced distributing the awards for such infamous conduct when the passengers quitted the reef; but as Mr. Mayes, the master of the Cyclops, with twenty men was left there, we doubt not that by this time the natives have been justly dealt with.

"Captain Henry and his officers remain on the reef with all the crew, in the hope of saving the hull of the vessel. The Furious, as above stated, has gone to their assistance, and Captain Pullen, on his return up the Red Sea, will in all probability co-operate in the attempt. The Alma, built by Mr. Laird of Birkenhead, is a noble ship, and of immense strength, and it is confidently believed that, with proper appliances and ordinary skill, she may be got off the reef. Brigadier Coghlan has authorised Captain Osborne to avail himself of the services of the Auckland and Lady Canning steamers, should he fall in with them in the Red Sea, and, with the united energy and perseverance of such officers and men, no effort will be left untried to rescue the ill-fated Alma. The Furious, in all probability, reached the reef during the afternoon of the 17th."

LETTER ON JAPANESE COLLEGE.

TOTTERIDGE, *January 25th*, 1873.

MY DEAR HUGH MATHESON,—In reply to your letter on the subject of the Japanese Professorships, let me in the first place say, that it was quite a pleasant relief to a first disappointment in reading page 2, to read in page 3 that Sir W. Thomson's doubts about M. Dyer's fitness for the Principal's place had vanished on second thoughts. I feel greatly interested in Dyer from his account of himself which you read to me.

As to Sir William's scheme, it is excellent, and of course the College, if it be the only source of education in exact science, must have a Professor of Mathematics and another of Physics. I should not seek to make the teaching—I should indeed deprecate making the teaching—too *high*. If the courses were carried on for forty weeks in the year, leaving thirty-six weeks of actual work = 180 days of lectures (they have only 115 in Glasgow, Edinburgh, etc. ?), the following division of labour would be my scheme :—

I. M. Dyer, Principal, or Director of Studies, and Professor of Civil Engineering and Mechanics.

a. Civil Engineering, according to Rankine's books, three hours weekly.

b. Mechanical Engineering, according to Mill-work, three hours weekly.

c. Practical examples, two hours weekly ; or eight hours of lecture-work per week.

The course to last for two years or three years.

N.B.—Dyer's practical training would allow of his illustrating the methods of construction practised in masonry, carpentry, and iron-work ; and perhaps one hour per week would suffice for this ; the sixth day in the model room might be added—the sixth day under direction of the modellers.

II. Professor of Natural Philosophy.

a. Natural Philosophy, according to the text-books of the French and German, for I know none fit for students of Engineering in the English language: Verdet, Regnault, Pouillet, Müller. Four hours.

b. Elementary Mathematical Dynamics, including Hydraulics, Aerostatics, Wave-motion, Developments of the Mechanical Theory of Heat, etc., two hours.

c. Popular Astronomy, one hour.

d. Geodesy, one hour; making in all eight hours per week.

The main courses to be of two years' duration.

III. Professor of Mathematics.

a. Mathematics, in the usual sense of the word, as taught in Edinburgh and Glasgow, but with special view to the destination of the students of Engineering and Mechanics, five hours.

b. Surveying, levelling, setting out curves, and adjustment of instruments, measuring and weighing, two hours.

c. Practical exercise in surveying, levelling, etc., often, and as long as possible.

But all this is only the science of the fundamental principles of Engineering. Such knowledge enables a man to make his profession scientific instead of merely empiric; but this does not teach the art of Engineering.

There is a vast amount of experience in engineering constructions and machines already acquired, recorded in books in all countries, and this has to be collected, selected, and methodically arranged into a body of practical science, in which there is no referring to other principles than this, namely, that up to the present time certain arrangements and methods of construction and certain machines answer best and most economically for accomplishing the objects in view.

This practical course of Engineering, embodying the

essence of collected experience, is given in all the Polytechnic Schools of Engineering in Germany, under the general title of "Course of Construction in Civil Engineering," by a man himself of practical experience, but more fitted for teaching than for practice, such as are many Professors in our great medical schools, greater as teachers than as practicians. My own leaning, as a Professor, was to this side of teaching Engineering, because I was met with much jealousy by the Professors of Natural Philosophy and Mathematics. My Syllabus of 1848 shows this. Unfortunately I have no copy, and do not know where to find one.

There is a vast body of such collected experience now well recorded in books in English, French, and German, with good drawings; and, as I have said, courses of lectures are regularly delivered on these subjects in Paris, Hanover, Berlin, Aix-la-Chapelle, Carlsruhe, Munich, Vienna, Zurich, in fact in all polytechnical schools.

Again, a special college for engineers for Japan should have Professors of Chemistry, Theoretical and Applied; Professor of Geology and Mineralogy; teachers of Drawing.

Allow me to say that I think the Professors ought to be bound, by the terms of their appointment, to teach the subjects on some fixed plan, by naming, as I have done, the first text-books.

I would earnestly recommend to M. Dyer to go to Hanover to see the museum of tools, models, and materials of machinery; constructions, such as roofs, bridges in stone and iron; rails and fastenings, etc. etc., collected there under the care of Dr. Karmarsch, the great founder of polytechnic schools in Germany, the director of the school in Hanover, and the author of a work on polytechnic schools. The collection is now worth many thousand pounds, and under the kings of Hanover about £200 a year was allowed for adding to it, besides the payment of a modeller.

And now, for the moment, I close my letter, but believe

me that as I heartily sympathise with your wish to do the right thing for the Japanese, I am always at your service with such notions as I have formed for teaching Engineering.—Yours sincerely, L. GORDON.

To Hugh Matheson, Esq.,
5 Lombard Street, E.C.

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EDINBURGH: T. AND A. CONSTABLE,
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