PASSAGES

FROM

THE LIFE OF A PHILOSOPHER.

BY

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"I'm a philosopher. Confound them all—
Birds, beasts, and men; but no, not womankind."—*Don Juan.*

"I now gave my mind to philosophy: the great object of my ambition was to make out a complete system of the universe, including and comprehending the origin, causes, consequences, and termination of all things. Instead of countenance, encouragement, and applause, which I should have received from every one who has the true dignity of an oyster at heart, I was exposed to calumny and misrepresentation. While engaged in my great work on the universe, some even went so far as to accuse me of infidelity;—such is the malignity of oysters."—*"Autobiography of an Oyster" deciphered by the aid of photography in the shell of a philosopher of that race,—recently scalloped.*

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DEDICATION.

TO VICTOR EMMANUEL II., KING OF ITALY.

SIRE,

IN dedicating this volume to your Majesty, I am also doing an act of justice to the memory of your illustrious father.

In 1840, the King, Charles Albert, invited the learned of Italy to assemble in his capital. At the request of her most gifted Analyst, I brought with me the drawings and explanations of the Analytical Engine. These were thoroughly examined and their truth acknowledged by Italy's choicest sons.

To the King, your father, I am indebted for the first public and official acknowledgment of this invention.

I am happy in thus expressing my deep sense of that obligation to his son, the Sovereign of united Italy, the country of Archimedes and of Galileo.

I am, Sire,
With the highest respect,
Your Majesty's faithful Servant,

CHARLES BABBAGE.

PREFACE.

SOME men write their lives to save themselves from *ennui*, careless of the amount they inflict on their readers.

Others write their personal history, lest some kind friend should survive them, and, in showing off his own talent, unwittingly show them up.

Others, again, write their own life from a different motive —from fear that the vampires of literature might make it their prey.

I have frequently had applications to write my life, both from my countrymen and from foreigners. Some caterers for the public offered to pay me for it. Others required that I should pay them for its insertion; others offered to insert it without charge. One proposed to give me a quarter of a column gratis, and as many additional lines of eloge as I chose to write and pay for at ten-pence per line. To many of these I sent a list of my works, with the remark that they formed the best life of an author; but nobody cared to insert them.

I have no desire to write my own biography, as long as I have strength and means to do better work.

The remarkable circumstances attending those Calculating Machines, on which I have spent so large a portion of my

life, make me wish to place on record some account of the past history. As, however, such a work would be utterly uninteresting to the greater part of my countrymen, I thought it might be rendered less unpalatable by relating some of my experience amongst various classes of society, widely differing from each other, in which I have occasionally mixed.

This volume does not aspire to the name of an autobiography. It relates a variety of isolated circumstances in which I have taken part—some of them arranged in the order of time, and others grouped together in separate chapters, from similarity of subject.

The selection has been made in some cases from the importance of the matter. In others, from the celebrity of the persons concerned; whilst several of them furnish interesting illustrations of human character.

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CHAPTER XXIX.

MIRACLES.

Difference Engine set so as to follow a given law for a vast period—Thus to change to another law of equally vast or of greater duration, and so on—Parallel between the successive creations of animal life—The Author visited Dublin at the first Meeting of the British Association—Is the Guest of Trinity College—Innocently wears a Waistcoat of the wrong colour—Is informed of the sad fact—Rushes to a Tailor to rectify it—Finds nothing but party-colours—Nearly loses his Breakfast, and is thought to be an amazing Dandy—The Dean thinks better of the Philosopher, and accompanied him to Killarney—The Philosopher preaches a Sermon to the Divine by the side of the Lake.

AFTER that portion of the Difference Engine which was completed had been for some months promoted from the workshop to my drawing-room, I met two of my friends from Ireland—Dr. Lloyd, the present Provost of Trinity College, and Dr. Robinson, of Armagh. I invited them to breakfast, that they might have a full opportunity of examining its structure. I invited also another friend to meet them—the late Professor Malthus.

After breakfast we adjourned to the drawing-room. I then proceeded to explain the mechanism of the Engine, and to cause it to calculate Tables. One of the party remarked two axes in front of the machine which had not hitherto been performing any work, and inquired for what purpose they were so placed. I informed him that these axes had been so placed in order to illustrate a series of calculations of the

the machine was set, be ordered to reappear, after any desired interval.

Thus we might suppose an observer watching the machine, to see a known law continually fulfilled, until after a lengthened period, when a new law has been appointed to come in. This new law might after a single instance cease, and the first law might again be restored, and continue for another interval, when the second new law might again govern the machine as before for a single instance, and then give place to the original law.

This property of a mere piece of mechanism may have a parallel in the laws of human life. That all men die is the result of a vast induction of instances. That one or more men at given times shall be restored to life, may be as much a consequence of the law of existence appointed for man at his creation, as the appearance and reappearance of the isolated cases of apparent exception in the arithmetical machine.

But the workings of machinery run parallel to those of intellect. The Analytical Engine might be so set, that at definite periods, known only to its maker, a certain lever might become moveable during the calculations then making. The consequence of moving it might be to cause the then existing law to be violated for one or more times, after which the original law would resume its reign. Of course the maker of the Calculating Engine might confide this fact to the person using it, who would thus be gifted with the power of prophecy if he foretold the event, or of working a miracle at the proper time, if he withheld his knowledge from those around until the moment of its taking place.

Such is the analogy between the construction of machinery to calculate and the occurrence of miracles. A further illustration may be taken from geometry. Curves are represented

by equations. In certain curves there are portions, such as ovals, disconnected from the rest of the curve. By properly assigning the values of the constants, these ovals may be reduced to single points. These singular points may exist upon a branch of a curve, or may be entirely isolated from it; yet these points fulfil by their positions the law of the curve as perfectly as any of those which, by their juxtaposition and continuity, form any of its branches.

Miracles, therefore, are not the breach of established laws, but they are the very circumstances that indicate the existence of far higher laws, which at the appointed time produce their pre-intended results.

In 1835, the British Association visited Dublin. I had been anxious to promote this visit, from political as well as scientific motives. I had several invitations to the residences of my friends in that hospitable country; but I thought I could be of more use by occupying apartments in Trinity College, which had kindly been placed at my disposal by the provost and fellows.

After I had enjoyed the college hospitality during three or four days, I was walking with an intimate friend, who suggested to me that I was giving great cause of offence to my learned hosts. Not having the slightest idea how this could have arisen, I anxiously inquired by what inadvertence I had done so. He observed that it arose from my dress. I looked at the various articles of my costume with a critical eye, and could discover nothing exaggerated in any portion of it. I then begged my friend to explain how I had unconsciously offended in that respect. He replied, "Your waistcoat is of a bright green." I became still more puzzled, until he remarked that I was wearing O'Connell's colours in the midst of the Protestant University, whose guest I was.

I thanked my friend sincerely, and requested him to accompany me to my rooms, that I might change the offensive waistcoat. My travelling wardrobe was not large, and, unfortunately, we found in it no entirely unobjectionable waistcoat. I therefore put on an under-waistcoat with a light-blue border, and requested him to accompany me to a tailor's, that I might choose an inoffensive colour. As I was not to remain long in Dublin, I wished to select a waistcoat which might do double service, as not too gay for the morning, and not too dull for the evening.

On arriving at the tailor's, he placed before me a profusion of beautiful silks, which I was assured contained all the newest and most approved patterns. Out of these I selected ten or a dozen, as best suiting my own taste. I then requested him to remove from amongst them any which might be considered as a party emblem. He took each of them rapidly up, and tossing it to another part of the counter, pronounced the whole batch to appertain to one party or the other.

Thus limited in my choice, I was compelled to adopt a waistcoat of all work, of rather gayer colours than good taste would willingly have selected for morning use. I explained to the knight of the thimble my dilemma. He swore upon the honour of his order that the finished waistcoat should be at my rooms in the college punctually as the clock struck eight the next morning.

During the rest of the day I buttoned up my coat, and the broad light-blue border of my thin under-waistcoat was alone visible. My modesty, however, was a little uneasy, lest it should be thought that I was wearing the decoration of a Guelphic knight.

I rose early the next morning: eight o'clock arrived, but no waistcoat. The college breakfast in the hall was punctual

at a quarter past eight; 8·20 had arrived, but still no waistcoat. At last, at half-past eight, the squire of the faithless knight of the thimble arrived with the vest.

Thus equipped, I rushed to the hall, and found that my college friends had waited for my arrival. I explained to the Dean* that I had been detained by an unpunctual tailor, who had not brought home my waistcoat until half an hour after the appointed time. We then commenced the serious business which assembled us together. The breakfast was superb, and the society delightful. I enjoyed them both, being fortunately quite unconscious that every eye was examining the artistic and æsthetic garment with which I had been so recently invested. I thus acquired for a time the character of a dandy of the first water. It has not unfrequently been my fate in life to have gained a character for worth or worthlessness upon grounds quite as absurd, which I have afterwards seldom taken the trouble to explain.

The Dean, however, quickly saw through the outer covering, and before the meeting was over I felt that a friendship had commenced which time could only strengthen. One day, whilst we were walking together, MacLean told me that he had heard with great interest from one of his colleagues of some views of mine relative to miracles, which he wished much to hear from my own lips.

I remarked that the explanation of them would require much more time than we could afford during the bustle of the Association; but that I should afterwards, at any quiet time, be delighted to discuss them with him.

After the meeting of the British Association terminated, I made a short tour to visit some of my friends in the North of Ireland. On my return to Dublin I again found MacLean,

* The Rev. S. J. MacLean, Fellow Trin. Coll., Dublin.

and had the good fortune to enjoy his society in a tour which we took to Killarney.

One fine morning, as we were walking together, it being Sunday, MacLean, looking somewhat doubtfully at me, asked whether I had any objection to go to church. I replied, "None whatever," and turned towards the church. Before we reached it an idea occurred to my mind, and I said, "MacLean, you asked me, in the midst of the bustle at Dublin, about my views respecting miracles. Have you any objection to take a walk with me by the side of the lake, and I will give you a sermon upon that subject."—"Not the least," replied my friend; and we turned immediately towards the banks of that beautiful lake.

I then proceeded to explain that those views of the apparently successive creations opened out to us by geology are in reality the fulfilment of one far more comprehensive law. I pointed out that a miracle, instead of being a violation of a law, is in fact the most eminent fulfilment of a vast law—that it bears the same relation to an apparent law that singular points of a curve bear to the visible form of that curve. My friend inquired whether I had published anything upon these subjects. On my answering in the negative, he strongly urged me to do so. I remarked upon the extreme difficulty of making them intelligible to the public. Reverting again to the singular points of curves, I observed that the illustration, which in a few words I had placed before him, would be quite unintelligible even to men of cultivated minds not familiar with the doctrine of curves.

We had now arrived at a bench, on which we sat. MacLean wrapt up in the new views thus opened out to his mind, remained silent for a long interval. At last, turning towards me, he made these remarks: "How wonderful it is! Here

"am I, bound by the duties of my profession to inquire into "the attributes of the Creator; bound still more strongly by an "intense desire to do so; possessing, like yourself, the same "powerful science to aid my inquiries; and yet, within this "last short half hour, you have opened to me views of the "Creator surpassing all of which I have hitherto had any con-"ception!"

These views had evidently made a very deep impression on his mind. Amidst the beautiful scenery in the South of Ireland he frequently reverted to the subject; and, having accompanied me to Waterford, offered to cross the Channel with me if I could spend one single day at Milford Haven.

Unfortunately, long previous arrangements prevented this delay. I parted from my friend, who, though thus recently acquired, seemed, from the coincidence of our thoughts and feelings, to have been the friend of my youth. I little thought, on parting, that one whom I so much admired, so highly esteemed, would in a few short months be separated for ever from the friends who loved him, and from the society he adorned.

CHAPTER XXX.

RELIGION.

"Before thy holy altar, sacred Truth,
I bow in manhood, as I knelt in youth;
There let me bend till this frail form decay,
And my last accents hail thine opening day."

The *à priori* proof of the existence of a Deity—Proof from Revelation—Dr. Johnson's definition of Inspiration—Various Meanings assigned to the word 'Revelation'—Illustration of transmitted Testimony—The third source of proof of the existence of a Deity—By an examination of His Works—Effect of hearing the Athanasian Creed read for the first time.

THERE are three sources from which it is stated that man can arrive at the knowledge of the existence of a Deity.

1. The *à priori* or metaphysical proof. Such is that of Dr. Samuel Clarke.

2. From Revelation.

3. From the examination of the works of the Creator.

1. The first of these, the *à priori* proof, is of such a nature that it can only be apprehended in a high state of civilization, and then only by the most intellectual. Even amongst that very limited class it does not, as an argument, command universal assent.

2. The argument deduced from revelation is advanced in many countries and for several different forms of faith.

When it is sincerely adopted it deserves the most respectful examination. It must, however, on the other hand, be submitted to the most scrutinizing inquiry. As long as the believer in any form of revelation maintains it by evidence or by argument, it is only by such means that it ought to be questioned.

When, however, professed believers dare to throw doubt upon the motives of those whose arguments they are unable to refute, and still more, when, availing themselves of the imperfections of language, they apply to their opponents epithets which they can defend in one sense but know will be interpreted in another—when they speak of an adversary as a disbeliever, because, though he believes in the same general revelation, he doubts the accuracy of certain texts, or believes in a different interpretation of others—when they apply the term infidel, meaning thereby a disbelief in their *own* view of revelation, but knowing that it will be understood as disbelief in a Deity,—then it is at least allowable to remind them that they are richly paid for the support of their own doctrines, whilst those they revile have no such motives to influence or to mislead their judgment.

Before, however, we enter upon that great question it is necessary to observe that belief is not a voluntary operation. Belief is the result of the influence of a greater or less preponderance of evidence acting upon the human mind.

It ought also to be remarked that the word revelation assumes, as a fact, that a Being exists from whom it proceeds; whilst, on the other hand, the existence of a Deity is possible without any revelation.

The first question that arises is the meaning of the word revelation. In its ordinary acceptation it is said to be a direct communication from the Deity to an individual human

being. Dr. Johnson remarks:—"Inspiration is when "overpowering impression of any propositions is made "the mind by God himself, that gives a convincing "indubitable evidence of the truth and divinity of it." it so; but then, as such, it is not revelation to any human being. All others receive it from the statement the person to whom the revelation was vouchsafed. To others its truth depends entirely on human testimony. Now in a certain sense all our faculties being directly given us by the Supreme Being might be said to be revelations. But this is clearly not the religious meaning of the word. In the latter sense it is a direct special communication of knowledge to one or more persons which is not given to the rest of the race.

Before any person can admit the truth of a revelation asserted by another, he must have clearly established in his own mind what evidence he would require to believe in a special revelation to himself.

But when he communicates this revelation to his fellow-creatures that which may truly be a revelation to him is not revelation to them. It is to them merely human testimony, which they are bound to examine more strictly from its abnormal nature.

Let us now suppose that this believer in his own special revelation offers to work a miracle in proof of the truth of his doctrine, and even, further, that he does perform a miracle. Those who witness it have now before them far higher evidence of inspiration than that of the prophet's testimony. They have the evidence of their own senses that an act contrary to the ordinary laws of nature has been performed.

But even here the amount of conviction will be influenced by the state of knowledge the spectator of the miracle him-

self possesses of the laws of nature which he *believes* he has thus seen violated.*

Granting him, however, the most profound knowledge, the evidence influencing his own mind will be inferior to that which acts upon the mind of the inspired worker of the miracle. If there are more witnesses than one thus qualified, this will to a certain extent augment the evidence, although a large number might not give it a proportional addition of weight.

It would be profane to compare evidence derived directly from the Almighty, which must necessarily be irresistible, with the testimony of man, which must always be carefully weighed by taking into account the state of his knowledge, his prejudices, his interests, and his truthfulness. On the other hand, it would lead to endless confusion, and be destructive to all reasoning on the subject, to apply the same word 'Revelation' to things so different in their nature as—

The immediate act of the Deity.

The impression produced by that act on the mind of the person inspired.

The description of it given by him in the language of the people he addressed.

The record made of his description by those who heard it.

The transmission of this through various languages and people to the present day.

We have now arrived at the highest external evidence man can have—the declaration of inspiration by the prophet, sup-

* I have adopted in the text that view of the nature of miracles which prevailed many years ago. In 1838, I published, in the "Ninth Bridgewater Treatise," my own views on those important subjects—the nature of miracles and of prophecy. Those opinions have been received and adopted by many of the most profound thinkers of very different religious opinions.

ported by an admitted miracle performed before competent witnesses, to prove the truth of his inspiration.

But to all who were not present, the evidence of this is entirely dependent on the truth and even upon the accuracy of *human testimony.*

At every step of its transmission it undergoes some variation in the words in which it is related; and without the least want of good faith at any stage, the mere imperfection of language will necessarily vary the terms by which it is described. Even when written language has conveyed it to paper as a MSS., there may be several different manuscripts by different persons. Even in the extraordinary case of two MSS. agreeing perfectly there remains a perpetual source of doubt as to the exact interpretation arising from the continually fluctuating meaning of the words themselves.

Few persons who have not reflected deeply, or had a very wide experience, are at all aware of the errors arising from this source.

There is a game occasionally played in society which eminently illustrates the value of testimony transmitted with the most perfect good faith through a succession of truthful persons. It is called Russian Scandal, and is thus played:—

One of the party writes a short simple tale, perhaps a single anecdote. The original composer of the tale, whom we will call A, retires into another room with B, to whom he communicates it. A then returns to the party, and sends in C, who is told by B the tale he had just learnt. B then returns to the party and sends in D, who is informed of the anecdote by C, and so on until the story has been transmitted through twelve educated and truthful witnesses.

The twelfth then relates to the whole party the story he has just heard: after that the original written document is read.

The wit or fun of the transmitted story is invariably gone, and nothing but an unmeaning platitude generally remains.

One very interesting case occurred a few years ago in which the wit of the original story had evidently been lost, but had afterwards been revived in a different form in the latter part of its transmission. The story at starting consisted of the following anecdote:—

The Duke of Rutland and Theodore Hook having dined with the Lord Mayor, were looking for their hats previously to their departure. The Duke, unable to find his own, said to his friend: "Hook, I have lost my castor." The Lord Chief Baron, Sir Frederick Pollock, was at that moment passing down the stairs. Hook perceiving him, replied instantly, "Never mind, take Pollock's" (Pollux).

The story told at the conclusion, after a dozen transmissions, was thus:—

Theodore Hook and the Duke of Rutland were dining with the Bishop of Oxford. Both being equally incapable of finding their respective hats, the Duke said to the wit, "Hook, you have stolen my castor." "No," replied the prince of jokers, "I haven't stolen your castor, but I should have no objection to take your beaver;" alluding to Belvoir Castle, the splendid seat of the Duke of Rutland, which in the language of the day is pronounced precisely in the same way as the name of that animal whom man robs of his great-coat in order to make a covering for his own skull.

It requires considerable training to become an accurate witness of facts. No two persons, however well trained, ever express, in the same form of words, the series of facts they have both observed.

3. There remains a third source from which we arrive at

the knowledge of the existence of a supreme Creator, [illegible] from *an examination of his works*. Unlike transmitted [illegible] mony, which is weakened at every stage, this evidence [illegible] confirmation from the progress of the individual as well [illegible] from the advancement of the knowledge of the race.

Almost all thinking men who have studied the laws which govern the animate and the inanimate world around [illegible] agree that the belief in the existence of one Supreme Creator, possessed of infinite wisdom and power, is open to [illegible] less difficulties than the supposition of the absence of [illegible] cause, or of the existence of a *plurality* of causes.

In the *works* of the Creator ever open to our examination, we possess a firm basis on which to raise the superstructure of an enlightened creed. The more man inquires into the laws which regulate the material universe, the more he is convinced that all its varied forms arise from the action of a few simple principles. These principles themselves converge, with accelerating force, towards some still more comprehensive law to which all matter seems to be submitted. Simple as that law may possibly be, it must be remembered that it is only one amongst an infinite number of simple laws: that each of these laws has consequences at least as extensive as the existing one, and therefore that the Creator who selected the present law must have foreseen the consequences of all other laws.

The *works* of the Creator, ever present to our senses, give a living and perpetual testimony of his power and goodness far surpassing any evidence transmitted through human testimony. The testimony of man becomes fainter at every stage of transmission, whilst each new inquiry into the works of the Almighty gives to us more exalted views of his wisdom, his goodness, and his power.

When I was between sixteen and seventeen years of age, I heard, or rather I attended, for the first time, to the words of the Athanasian Creed. I felt the utmost disgust at the direct contradiction in terms which its words implied; and during several weeks I recurred, at intervals, to the Prayer-Book to assure myself that I rightly remembered its singular and self-contradictory assertions. On inquiry amongst my seniors, I was assured that it was all true, and that it was part of the Christian religion, and that it was most wicked to doubt a single sentence of it. Whereupon I was much alarmed, seeing that I found it absolutely impossible to believe it, and consequently, if it were an essential dogma, I clearly did not belong to that faith.

In the course of my inquiries, I met with the work upon the Trinity, by Dr. Samuel Clarke. This I carefully examined, and although very far from being satisfied, I ceased from further inquiry. This change arose probably from my having acquired the much more valuable work of the same author, on the Being and Attributes of God. This I studied, and felt that its doctrine was much more intelligible and satisfactory than that of the former work. I may now state, as the result of a long life spent in studying the *works* of the Creator, that I am satisfied they afford far more satisfactory and more convincing proofs of the existence of a supreme Being than any evidence transmitted through human testimony can possibly supply.

If I were to express my opinion of the Athanasian Creed merely from my experience of the motives and actions of mankind, I should say that it was written by a clever, but most unscrupulous person, who did not believe one syllable of the doctrine,—that he purposely asserted and reiterated propositions which contradict each other in terms, in order that

in after and more enlightened times, he should not be supposed to have believed in the religion which he had, from worldly motives, adopted.

The Athanasian Creed is a direct contradiction in terms; if three things can be one thing, then the whole science of arithmetic is at once annihilated, and those wonderful laws, which, as astronomers have shown, govern the solar system, are mere dreams. If, on the other hand, it is attempted to be shown that there may be some mystic sense in which three and one are the same thing, then all language through which alone man can exert his reasoning faculty becomes useless, because it contradicts itself and is untrue.*

The great basis of virtue in man is *truth*—that is, the constant application of the same word to the same thing.

The first element of accurate knowledge is *number*—the foundation and the measure of all he knows of the material world.

I believe these views of the Athanasian Creed are by no means singular,—that they are indeed very generally held, although very rarely asserted. If such is the case, it were wise to take the opportunity which the new Commission for the revision of the Liturgy presents, to remove from the Rubric doctrines so thoroughly destructive of all true religion, and about which the author, doubtless in mockery, so complacently tells us, that whosoever does not believe them "without doubt, he shall perish everlastingly."

The true value of the Christian religion rests, not upon speculative views of the Creator, which must *necessarily* be different in each individual, according to the extent of the knowledge of the finite being, who employs his own feeble powers in contemplating the infinite: but it rests upon those

* See Appendix, Note B.

doctrines of kindness and benevolence which that religion claims and enforces, not merely in favour of man himself, but of every creature susceptible of pain or of happiness.

A curious reflection presents itself when we meditate upon a state of rewards and punishments in a future life. We must possess the memory of what we did during our existence upon this earth in order to give them those characteristics.

In fact, memory seems to be the only faculty which must of necessity be preserved in order to render a future state possible.

If memory be absolutely destroyed, our personal identity is lost.

Further reflection suggests that in a future state we may, as it were, awake to the recollection that, previously to this our present life, we existed in some former state, possibly in many former ones, and that the then state of existence may have been the consequences of our conduct in those former stages.

It would be a very interesting research if naturalists could devise any means of showing that the dragon-fly, in its three stages of a grub beneath the soil—an animal living in the water—and that of a flying insect—had in the last stage any memory of its existence in its first.

Another question connected with this subject offers still greater difficulty. Man possesses five sources of knowledge through his senses. He proudly thinks himself the highest work of the Almighty Architect; but it is quite *possible* that he may be the very lowest. If other animals possess senses of a different nature from ours, it can scarcely be possible that we could ever be aware of the fact. Yet those animals, having other sources of information and of pleasure, might, though despised by us, yet enjoy a corporeal as well as an intellectual existence far higher than our own.

CHAPTER XXXI.

A VISION.

How, when, and where this vision occurred it is unnecessary for me at present to state. It did not arise under the action of the laughing-gas or of chloroform, but by some much more real and immediate spiritual action. I had no perception of body or of matter, yet I felt that I was in the presence of a reasoning being of a different order from man. Language was not the means of our communication; yet it became necessary, in order to be intelligible, when I wrote down the facts immediately after that singular event—but language itself is quite insufficient to give an adequate idea of its immense apparent duration.

The first difficulty I felt in this communion with an unearthly Spirit was the notion of space. Our views of it differed widely. On many points, as, for instance, measure, we apprehended each other perfectly, for each referred to the height of an individual of his own race—of course about six feet. At last I discovered that my idea of space, which was founded upon vacuity, was exactly the reverse of that of the Spirit, which was based upon solidity. I will now, as far as I can, place before my reader the information I received.

The first desire I expressed to the Spirit was to learn, if possible, his view of the origin of all things. He stated that

the records of his race, which he declared was the highest in creation, went back, with great certainty, for myriads of years before all other created beings: that previously to this, their history was somewhat obscure, but had recently been placed upon a much surer footing by some of their most prominent Spirits.

(*a.*) In the beginning all space was fluid—apparently one universal whitish liquid extended in all directions through what we should call space; so I thought at first that this might have some relation to the "milky way." Its temperature was considerable; and in about every thousand years a torrent of this fluid, of a still higher temperature, passed through space with a kind of gushing rush. It was peopled by myriads of happy spirits floating about in it.

After long ages of happiness a dispute arose between two Spirits as to the possibility of the existence of matter under any other form than that of a fluid. The Power which controlled their destiny, justly angry at their presumption, threw into the fluid a very small piece of what, as far as I could understand, was like organic matter.

(*b.*) The effect was astounding: all the fluid in contact with this intrusive piece of matter gradually lost its fluidity, and a new state of matter or of space arose which had been unknown in all past time. The change advanced slowly but certainly, on every side of the intruded matter. In its new form, as far as I could make out, space became elastic gelatinous matter. The two quarrelsome Spirits were the first to be surrounded in it. None in the immediate presence of this new kind of space could move away, and absorption went on rapidly imprisoning millions of beings.

A great controversy arose as to the state of those embedded in the jelly. Some supposed that they were miserably squeezed,

and maintained that they deserved to be thoroughly wretch... Whilst others asserted, that being entirely relieved f... movement, theirs must be a state of perfect blessedness, th... whole faculties being absorbed in contemplation. In t... midst of these discussions the process of jellification ... advancing more and more rapidly, and in ten thousand ye... the whole of infinite fluidity throughout all space, with a... its myriads of Beings embedded in it, was transformed int... this new form of space. From the description conveyed t... me by the Spirit, I should infer that the whole of what we call infinite space had now become more nearly like *blanc-mange* than any other sub-aërial substance.

(*c*) After a state of repose of many hundred thousand years a new catastrophe occurred. Space became too large even for itself. It then suffered, for many hundred thousand years, enormous compression. During this long period all its embedded Spirits perished, and space itself, during six hundred thousand years, became one vast and solid desert, containing no living beings.

But the vast periods of the past were as nothing compared with the long series of cycles which now succeeded—each in itself comprising millions of years.

About this time recorded history began, and is believed, by the Spirit with whom I was in conference, to be as authentic as the nature of the circumstances admit.

One solitary survivor seems to have escaped the crash of systems and the condensation of space. He proceeded to cut himself into two parts, and to advise each part to follow out the same course, directing them to transmit the command of their first parent throughout all time. Alone, in the midst of infinite solidity, the newly-severed beings, setting themselves back to back, exerted force. Thus urged, matter itself gave

way, and they occupied an elongated hollow space. Then again bisecting themselves, they further lengthened the path. After ten thousand years they began to exert their energies in the transverse directions of that path, and thus widened it. The race then began to form chambers, each for himself, into which he might retire for abstruse calculations, the nature of which seemed almost beyond the remotest reach of utility, although not beyond the power of the Analytical Engine. Thus vast cities, as it were, became formed, penetrating in every direction through solid space.

(*d.*) After millions of years of industry quietness and calculations, a most extraordinary catastrophe occurred. It was with the greatest difficulty that I could discover its nature, or how to explain it in ordinary language. The nearest approach I can make towards its explanation is this:—It seemed, from what my spiritual informant communicated, that the whole universe was lifted up bodily, and then borne rapidly back with a great shock, thus disarranging everything, and destroying millions of their race.

But the most incomprehensible part of this historic narration was, that on the survivors recovering their senses, they found that everything which had formerly been on their right hand was now on their left. They also observed, to their still greater dismay, that every abode in the universe was turned topsy-turvy, so that the surviving philosophers, who had retired to their attics to study, suddenly found themselves in their cellars.

I have conveyed, as carefully as the nature of the subject admits, the impressions this relation made upon me, sometimes assisted in my slow apprehensions by another unembodied Spirit, whom, to distinguish from the relator, I shall call Mathesis.

Whenever a man can get hold of numbers, they are invaluable: if correct, they assist in informing his own mind, but they are still more useful in deluding the minds of others. Numbers are the masters of the weak, but the slaves of the strong. I therefore earnestly pressed for more exact information as to the possible number of years; but it appeared beyond the Spirit's power to estimate it, even within a few millions. He mentioned incidentally that the last vast period he had just described was merely one of many others of similar extent: also, that though these periods were not actually equal, the difference, which even in extreme cases only reached a hundred thousand years, was not worth considering.

To gratify my longing desire for information on this most important subject, the Spirit proceeded to inform me that their histories recorded a large number of these successive catastrophes, and that they were succeeded by a new and more terrible one, which he was proceeding to explain, when I interrupted him by asking for an approximate estimate of their number. Aware of my anxious desire for numerical accuracy, he said he could, in this one instance, gratify it fully. "If there is," said my informant, "any one point "better established than all others, it is that there had oc- "curred exactly one hundred and twenty-one of these avatars "of destruction."

I now felt as if I had discovered one solitary fixed point in the vast chaos of time. My guide described to me that, after the termination of this system of one hundred and twenty-one cycles, a new and more terrific system of events followed each other.

First, however, he said he must mention an interregnum, irregular in its progress, but still of vast duration;

in fact, some of his race had been able to prove that it occupied at least three times as long as any one of those just described.

(*e.*) It commenced by a motion very like that to which space itself had been submitted at the end of each avatar, finishing with a smash, and followed by a period of repose of about ten thousand years. It however differed from those avatars inasmuch as there was no inversion of the position of cellar and attic.

(*f.*) A new form of shaking of universal solid space now arose, much more frequent but less destructive than the former. It occurred about once in two years, and was repeated many hundred thousand times.

(*g.*) Again a period exactly similar to that recorded in (*e*) occurred.

(*h.*) This was followed by a long series of movements of all solidity, approaching, as far as I could understand it, to an oscillating or wave motion. This continued without intermission during exactly three of those cycles whose precise number had been preserved.

(*i.*) During the whole of this period there was a great destruction of the race. A universal sickness arose and continued more or less, so that multitudes actually perished, and those who escaped could scarcely carry on the ordinary calculations necessary for their existence.

(*j.*) Another period followed, ending with a smash excessively like (*e*).

(*k.*) Then followed a period of shaking like that in (*f*).

(*l.*) Then another smash like (*e*).

(*m.*) Period of long repose.

After this came a long state of absolute rest.

Such was the dawn of the most terrible, as well as the

most recent, of these vast changes in the universe which [illegible] been so well related by my ethereal guide.

(*n.*) The temperature of the universe had been unif[illegible] throughout many millions of years: it now began to change [illegible] different isolated places. Increased cold in some parts dr[illegible] the inhabitants from their dwellings. This was followed [illegible] torrents of invisible air, bringing infection and death [illegible] millions of their race. Public opinion was roused, and the[illegible] academies of science and of arts were urged to devi[illegible] a remedy. An expedition was sent by their school of Science and of Geology to endeavour to trace the origin of this plague.

The Commission, after long investigation, reported that they had penetrated solid space in their usual way, putting each other back to back, and pressing the foremost forward. It also stated that one of them had invented a method of arrangement of the members in a kind of wedge form, which they found much more effective for their object. The result of this, however, was that the leader of the column got so many squeezes, that all their best Spirits declined a position for which coarser animals were better fitted. Consequently, most of their Presidents of scientific bodies were selected from what we should call the "*Demi-monde*" of science.

The first report of this Commission stated that, after penetrating space (by pushing) through many thousand miles, they had reached the cause of all the evil. They had ascertained that it arose from the fact they had discovered,—that space itself was discontinuous:—that they had reached a spot where there was a kind of chasm in it, into which some of them tumbled, and were with difficulty extricated:—in fact, they reported that it was only necessary to send proper persons to fill up this chasm in order to restore the universe to health.

Great rejoicings were made on the return of this Commission. Public meetings were held, speeches were made, papers were read, and medals were lavished. Those who had interest used their services on this committee to justify their promotion, each in his own different line. Those who had no interest as well as those who had, were anointed daily during twelve months with what I can but very imperfectly describe by calling it *lip-salve*. All this while they were fed at the public expense with *royal food*, which was highly coveted; but as far as I could make out, its taste must have been somewhat intermediate between rancid butter and flummery. Whatever this may have been, they relished it highly, and in truth it seems to have been well suited to their organs of digestion.

Time, however, went on; the pestilence increased. Strange reports arose: first, that space itself was decaying; then, that there existed somewhere in decayed space an immense dragon whose breath produced the pestilence, and who swallowed up thousands of Spirits at each mouthful.

Another Commission was sent, with instructions to fill up the hole in space. This was supposed to be a great step in advance. Having penetrated a very short distance beyond the celebrated chasm, they found another just like it, and on the same level. They found the first chasm slightly curved, which had indeed been remarked by an unpretending member of the former Commission: but so simple a remark was not thought worth reporting. The second chasm also was found slightly curved, but its curvature was in an opposite direction, presenting rudely the appearance of two parentheses, thus ( ). Upon this discovery the Commission were inclined to return and report that a series of chasms occurred in advance of the first, and that it would be useless—indeed,

that it would be highly dangerous—to open more chasms. One of the most modest of the Commissioners, who had been snubbed on the former occasion, suggested, however, that these slightly-curved chasms might possibly be portions of some vast circular crack: an idea which was ridiculed as a wild hypothesis by the chairman, quizzed by the secretary, and laughed at by all the rest. Fortunately they were persuaded to excavate a few yards more on the second vertical chasm or crack, when it became probable that the single dissentient was right. It soon became certain, and before half the circle had been uncovered, each member of the commission thought he had himself been the first to discover its circular shape.

But the chairman was a person of large experience. He quietly left the Commissioners to fight amongst themselves about the discovery of the circle, and if they chose, even about its quadrature. On his return, however, he reported that from some very extensive calculations of his own he had anticipated an elliptic cavity; that he had directed the attention of the Commissioners to the subject; and that they had succeeded in verifying his prediction. He also stated that the same theory led him to the knowledge of the fact, that in certain cases the ellipse might approach very nearly to a circle, although it could never actually reach it, whilst on the other hand it might become so flat as to approach a straight line—an approximation to which nobody ever suggested that the chairman himself could have attained. The chairman then, with singular modesty, alluding in his report to one of his colleagues possessing high rank, great influence and a very moderate knowledge of science, remarked that it was fortunate for him (the chairman) that that distinguished member had been so fully occupied with much more valuable

investigations, otherwise he would certainly have anticipated the important discovery it had fallen to his own lot to make.

In the meantime the Commissioners, who had each wished to appropriate to himself the discovery of the circle, now thought that this usurpation of it by their chairman was most unjust towards the unpretending member who had really made it. They therefore advised him to claim his own discovery, and promised to back him in asserting it.

But their chairman really was a *clever fellow*,* and deep as Silurian rocks. Aware of the importance of the discovery thus appropriated, he had already visited the modest Commissioner—had overwhelmed him with compliments, and had also prevailed upon that other influential Commissioner whom he had so well buttered in his Report, to give him a small piece of preferment, which had been accepted by his victim:—thus putting a padlock upon his lips, which his brother Commissioners were unable either to unlock or to pick.

After the Report was presented, more speeches were made—more medals given, but the plague continued, and their universe was depopulated.

A third Commission was afterwards sent, who reported that they found at the spot previously reached, on either side, two vast circles, the diameter of each of which was one hundred times the height of an ordinary individual; that the material occupying space within the circle differed slightly from that without it; and that it appeared as if a vast cylinder of space had been pushed through without disturbing the matter external to it. They also reported that the former Commissioners had never approached the origin of the mischief, but had simply worked their way, at right angles, to a

* A *clever fellow* may occasionally snatch our applause; but a *clever man* can alone command our respect.

line which might terminate in it at the distance of a thou[sand] miles, more or less, either on the right or on the left hand [of] the point they had reached.

At this moment a sound like the roll of distant thunder recalled me to this lower world, and interrupted my interesting communion with the world of Spirits. That noise arose from the chimes of the cathedral clock. Spending a few days at Salisbury, I had wandered into the cathedral, and being much fatigued, had selected the luxurious pew of the Dean as a place of temporary rest. Reposing on elastic cushions, with my head resting on an eider-down pillow, the vision I have related had taken place.

On removing the pillow I observed a small piece of matter beneath it. This, upon examination, turned out to be a morsel of decayed Gloucester cheese. The whole vision was now very clearly explained. The verger had evidently retired to the most commodious pew to eat his dinner, and had inadvertently left the small bit of cheese upon the very spot I had selected for my temporary repose. It was clear that my Spirit had been put, *en rapport*, with the soul of a mite, one of the most cultivated of his race.

If the reader will glance over the following brief explanation, he will be fully convinced that my solution of this vision is the true one.

Parallel Passages in the Creation of the Universe and in the Birth and Education of a Gloucester Cheese.

References.

a. Milk gushing into the milk-pail at the rate of twenty gushes per minute. Alternations of greater and less heat.

b. Rennet being thrown in, the milk curdles.

c. Curds compressed into cheese.

References.

d. Cheese turned over daily during 121 days.
A few minutes' difference in the time of the dairyman's attendance to perform this operation made the days slightly unequal.

e. Cheese lifted up and pitched into a cart.

f. Cheese *jolted* in cart during half a day on its way to to be shipped at Gloucester.

g. Cheese pitched from cart into ship.

h. Ship sails with the cheese for Southampton.

i. The motion of the waves makes the mites sea-sick for three days. Multitudes die.

j. Cheese taken from ship and pitched into a cart; as in the period *e.*

k. Cheese conveyed in cart to cheesemonger at Salisbury —the mites dreadfully *jolted.*

l. Cheese pitched into cheesemonger's shop, as in *e.*

m. Long period of repose of the cheese on the cheesemonger's shelf.

n. A cylindrical cavity made and piece taken out for a customer to taste. Portion of cylinder replaced. Air being let in, a part of the cheese becomes rotten, in which large worms are produced, giving rise to the story of the dragon.

In order to discover the month in which the cheese was made, I remarked that, since it was turned over on its shelf in the cheese-room exactly 121 times, it must have been first placed there in some month which, together with the three succeeding months, had a number of days exactly equal to 121.

I then computed the following Table:—

Table of the number of Days contained in each four mon commencing on the first day of each month and ending the last day of the fourth following month.

		Number of Days.
1 January	to 30 April	120
1 February	„ 31 May	120
1 March	„ 30 June	122
1 April	„ 31 July	122
1 May	„ 31 August	123
1 June	„ 30 September	122
1 July	„ 31 October	123
1 August	„ 30 November	122
1 September	„ 31 December	122
1 October	„ 31 January	123
1 November	„ 28 February	120
1 December	„ 31 March	121

Now, from the preceding Table it appears that there is only one month in the year fulfilling this condition, namely, the month of March. It follows, therefore, that the cheese must have been made four months before, that is, in the month of December.

Shortly after this vision I received a visit from that great geologist, the erudite Professor Ponderdunder,* a member of all existing Academies, and Secretary of the most celebrated How-and-wi Academy for the *Reconstruction of Primeval Time.* I was anxious to have the opinion of this learned person upon my recent experience: but he was evidently envious of my vision, which he treated disrespectfully. Pe-

* Author of the celebrated Treatise "On the Entity of Space," the basis of all *sound* metaphysical reasoning.

mind of an intellect which was anything but precocious, I had with much labour at last made him apprehend the arithmetic by which I had discovered the exact month of December in the date of the great series of 121 cataclysms, and I felt much mortified that he did not appreciate my ingenuity. All of a sudden he seemed intuitively to perceive the use that might be made of this vision. He then asked me with great earnestness whether I had communicated this new method of reasoning to any other person. On my answering in the negative, he entreated me not to say a word about it. He was especially anxious that Gardner Wilkinson, Layard, and Rawlinson should not get hold of it, lest they might anticipate the discovery which it would enable him to complete. He assured me that he could, by visiting Nineveh, and taking the Pyramids and Jericho on his road, with the aid of my formula, restore the true chronology from the creation.

Having given him this promise, he left me, and immediately telegraphed to a very influential friend, the Vice-President who *managed* the How-and-wi Academy, suggesting that not a moment should be lost in authorizing him to set out on this expedition, which although painfully laborious to himself personally and not without peril, he was willing to undertake for the glory of the Academy, and from the religious conviction that it would enable him to refute the frightful heresy of Bishop Colenso. Within twenty-four hours the faithful telegraph brought him back the order to start and the credit necessary for his equipment. He soon completed the latter, and was *en route* within the time I have mentioned.

It is with deep regret I have now to state, that just ten days after the active Secretary had started on his pious mission, I discovered that my reasoning about the month of December with all its consequences was completely vitiated

by not having taken into consideration the existence of leap years, in which case the magic number 121 occurs in no less than four cases; so that nothing at all is decided by it.

I can only add my hope that, if any of my readers should become acquainted with the whereabouts of the learned Ponderdunder, he would kindly communicate by electric telegraph this painful intelligence to that energetic traveller.

I have subsequently been informed that Professor Ponderdunder's honorarium is only £800 a-year, and the payment of all travelling expenses. The former is doubled upon dangerous travel. I was told that he also enjoys a snug sinecure of considerable value recently instituted in his own country; being at the head of the department for the promotion of "*Small Science and Low Art.*" The family of the Ponderdunders possess the peculiar gift of manipulating learned bodies. The Flowery—Rhetorical, and the Zoo-Ethnological Societies barely escaped perdition under their costly autocracy. I regret also to add, (but truth forbids me to conceal the interesting fact) that Ponderdunder is *not* a member of *all* existing academies as his visiting card indicated.

On searching the list of the members of the Roman Academy "Dei Lynxcii," I find that he is not a Lynx. This, the oldest of European academies, originally existed in the time of Galileo. About a quarter of a century ago I had the honour of receiving its diploma.