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TO THE HONORABLE JUDGE STORY, LL. D., discóvering and correcting the

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THEORY OF HUMAN GENEALOGY AND KINDRED, and destroying the concomitant fallacious

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Author of 'Proportional Formulæ,' 'Theory of Longitude,' 'A Letter on the Fallacy of the Rectangular Survey;' and 'A Letter to the President of the United States, on the Mathematical Determination of the Disputed American Frontier.'




Iliad, Lib, vi.
"Behold, the nations are as a drop of a bucket, and are counted as the small dust of the balance." - Isarah, xl. 15.

## CAMBRIDGE.

METCALF, TORRY, AND BALLOU.

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nUptial connections of the first human generation.

> By JOHN LEE,

Author of 'Proportional Formulæ,' 'Theory of Longitude,' 'A Letter on the
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## CAMBRIDGE:

METCALF, TORRY, AND BALLOU.
1840.


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## A LETTER

## TO THE HON. JUDGE STORY.

Sir,
The narrow and severe limits of pecuniary necessity compel me, in this letter, to prepare my introductory address with painful and laborious brevity.

The publication of this Letter is attributable chiefly, and almost exclusively, to the liberality of students in Cambridge. A small number of gentlemen, who are not connected with Harvard University, have also lent their aid. Among that number I am able to include, with sincere satisfaction and pleasure, my distinguished countryman, Mr. Grattan, and also his son, both resident in Boston.

I am not anxious to induce, by the foregoing statement, a hasty inference of illiberality now existing among the incorporated fraternity of Cambridge. An opposite inference will clearly result from a statement of the following facts.

In that respectable old volume which is generally known by the title of the Sacred Scriptures, we find, in Chapter xiv. 22, one Jeremiah propounding the question - "Are there any among the vanities of the Gentiles that can cause rain?" This was a decisive question in his day, but his knowledge was not matured by experience.

Not long ago, an illustrious manufacturer of "Winds and Rains made ready to order" demanded of the American government an opportunity to bless the democratic soil with celestial irrigation. Doubtful of his powers, but struck with
secret and portentous dread of the disastrous results of refusal, the government obeyed - sub modo ; that is, the quantity of soil, allowable for public utility and individual recompense, was made proportional to the quantity of irrigated land in the first case of experiment.

The superhuman chemist, insulted and offended, withdrew to the academic shades of Harvard University. He convened, in the open Courthouse, the congregated multitudes around him; and on the bare announcement of his majestic and sublime speculations, he was thronged, visited, and frequented, in private solemnity and public state, by the populous nobility of Cambridge.

Volumes are stated in the foregoing facts. Concerning the liberality and literature of Cambridge need I say more ?

Having now, Sir, conferred, in fee-simple, on the philosophical annals of Cambridge, the perpetual praise and admiration of posterity, I proceed, according to the purport of this letter, to examine and rectify the genealogical errors of the illustrious Blackstone.

To accomplish this purpose, the first necessary step is to state Sir William Blackstone's own theory of human descents, which may be found in his Commentaries, Vol. I. Book II. Chap. XIV. No. 203 to 207. This theory I shall represent in a tabular diagram. But in order to shun the prolixity of names written at length, I shall adopt the following more concise method of designation by letters. Represent Blackstone's "Propositus," or person supposed to be now alive, by Z, or if that person be a female, and therefore a Proposita, represent her by z. As the sex of this person is, however, altogether immaterial in this question, I shall confine these investigations to the case of the Propositus. Denote Z's father by Y, and Z's mother by y ; denote y's father by X, and y's mother by x ; also denote Y's father by W, and Y's mother by w ; and so continually back; always denoting the males by capitals, and the females by small letters. Now if we arrange these alphabetic symbols in parallel ranks repre-
senting the several consecutive generations, the representative rank of each succeeding generation being placed under that of the preceding one ; we can exhibit Blackstone's Table in the following simple alphabetical diagram.
\&c. \&c. \&c. \&c.

$$
\begin{gathered}
\text { Kk Ll Mm Nn Oo Pp Qq Rr } \\
\text { Ss Tt Uu Vv } \\
\text { Ww Xx } \\
\text { Yy } \\
\text { Z. }
\end{gathered}
$$

In stating the foregoing theory, and explaining its details with laborious exactitude, Sir William Blackstone seems to have rushed upon the inevitable precipice of atheistical absurdity in which it eventuates, totally unconscious of his danger and his doom. One of his annotators has perceived the yawning gulf, and retreating a few feeble steps to a new position, has rashly presumed himself in safety. For I shall soon show, that, by taking into notice the very circumstance on which he has relied for the means of escape from the difficulty, he has unbarred the portals of the human understanding to a quadruple array of appalling, though imaginary horrors, and a newly accumulated host of those fantastic and frightful delusions which may well be represented as the Gorgons of the brain. But first it is proper to state, in explicit language, the general nature of the points of difficulty. This I shall do in the course and progress of the following articles.

Art. 1. Z having sprung from two parents, $Y$ and $y$, we cannot, without a supposition of incestuous connection, suppose $\mathbf{Y}$ and $y$ to have sprung from the same father, or the same mother ; Y and y having, therefore, two parents each, and all distinct from each other, the total of that rank of parents must be four. In like manner, assigning two parents to each individual of that rank, the multitude of their immediate progenitors will be eight; and that of their imme-
diate progenitors will be sixteen, \&c.; so that each preceding rank amounts to double the multitude of the succeeding one.

Art. 2. That peculiar case in which $Y$ and $y$, the parents of $Z$, are supposed to be both created, is not considered in this investigation; being a case which cannot have occurred for several thousand years.

Art. 3. But, independently of the authority of divine revelation, we should perceive a manifest inconsistency and absurdity in supposing that one of the parents Y and y , was created, and the other begotten. We must therefore suppose them both to have been begotten.

Art. 4. Now, of the preceding rank, $\mathrm{W}, \mathrm{w}, \mathrm{X}, \mathrm{x}$, the supposition, as before, is inadmissible, that a part of their number was created, and the remaining part begotten; and the supposition, that all four were created, is also inadmissible; therefore all four were begotten. And the same reasoning will apply to all the preceding ranks.

Art. 5. Now as all the individuals of each rank have been begotten, the existence of those individuals requires, of necessity, the previous existence of all the ranks of their immediate progenitors ; that is, the existence of each particular rank presupposes the previous existence of a preceding rank, whose multitude is double that of the said particular rank. Therefore the existence of Z implies, by necessity, the preexistence of two persons, whose existence also implies, by a like necessity, the pre-existence of four persons; and their existence implies the pre-existence of eight, \&c.

Art. 6. Axiom. If any finite number whatever be selected, and denoted by $\Sigma$; we can select among the terms of the unlimited progression, 1, 2, 4, 8, 16, 32, \&c., a term greater than $\Sigma$.

Art. 7. Now, if we acknowledge the veracity of those records which are commonly believed to be sacred, the existence of the human race on the terrestrial globe had a commencement ; and, by the same authority, that race began with two persons; therefore, down to the moment of Z's
decease, the whole multitude of human beings, that had ever existed on the earth, must have amounted to a marvellously great, but yet finite number, - which denote by $\Sigma$. That such number cannot have been infinite, will appear from this; that, for some time, at least, after the creation, the number of all human beings was only finite; and if after that time, such number became infinite; then, if taken at the moment when that time expired, we find the number of all human beings, down to that moment, finite, but, in the next ensuing moment, grown to be infinite by the mere act of propagation - which is absurd.

Art. 8. Now, by Art. 6, we can select, among the several cousecutive ranks of the progenitors of Z , some rank more numerous than $\Sigma$; from which circumstance, combined with Art. 5, we infer, that, from the bare fact of the existence of Z , we are compelled to conclude, that a single generation of his progenitors must have existed on the earth, amounting to a greater multitude than that of all human beings that had ever existed on the earth, if the Mosaic records be credited. Here, then, the Mosaic records and this theory directly clash and are at issue - and this is the first point of the difficulty.

Art. 9. We may now observe, that, from the first moment of existence of any propagated human being; that is, from the moment of conception, some length of time must of necessity elapse, before that human being, then propagated, shall be able to propagate in turn. The ensuing argument will be equally effective, whether that period of necessary delay be supposed to be a thousand years, a century, a halfcentury, ten years, one year, a month, a week, a day, an hour, a minute, or even a single second of time. As the fact is, however, we may safely suppose it, at least, equal to seven years; for that supposition, when the time of gestation is deducted, will not allow much more than six years from the moment of birth. But whatever be the actual length of this necessary period of delay, denote it by ©.

Art. 10. Now, as the existence of $Z$ by propagation presupposes the existence of Y and y , and also, by Arts. 2 and 3, presupposes their propagation; and as, in like manner, by Arts. 4 and 5, their propagation presupposes the propagation of $W, w, X, x$, and so continually back ; then, the propagation of $\mathbf{Z}$ presupposes the prior propagation of Y , and also, prior to both, it presupposes that of W the parent of Y , and, prior to all three, that of $S$ the parent of $W$; and so continually back through an infinite succession. And the purpose of the argument will equally be answered, whether the line of progenitors be taken, as in this case, all males, or all females, or some of each sex. Now as these consecutive propagations must have succeeded each other at intervals not less than $\Theta$, the total infinite succession of such propagations must be dispersed over a tract of duration which is not less than a tract consisting of the same infinite multitude of periods, each equal to $\odot$. But such a tract cannot be finite; for if any finite period be proposed, we can surpass it merely by a finite multitude of periods, each equal to $\Theta$. These consecutive propagations must therefore have extended through all pre-existing duration; and therefore the human race and the habitable earth must have existed from eternity ; - and this is the second point of the difficulty.

Art. 11. I shall designate hereafter, as an Issuary Line, every such series of pre-existing parents, as described in Art. 10, whether all males, all females, or some of each sex.

Art. 12. So far as the existence of an issuary line is extended over any tract of duration, it exists unbroken through such tract; that is, at every point of time throughout such tract of duration, one individual, at least, of that issuary line must be living. For, since the parent must be alive, at least, up to the moment of conception, the existence of such parent continues, at least, until that of the offspring begins.

Art. 13. By a similar process of reasoning to that of Art. 7, we may prove, that the greatest multitude of human beings that have ever, even for a single moment, coexisted on the
earth, is a finite number, which denote by $\cong$. The same is also demonstrable otherwise, without scriptural authority, from the finite magnitude of the earth.

Art. 14. Now take a rank of the progenitors of Z, whose multitude is equal to $\mu$, so that $\mu$ shall be greater than $\cong$. The existence of each individual of that rank, presupposes two issuary lines, totally distinct from each other; namely, the male and the female; and by Arts. 10 and 12, these lines have eternally pre-existed mubroken; and by a bare-inspection of Blackstone's Table, or of the alphabetic diagram in page 5 of this Letter, it will appear that all the individuals of each rank are traced in his theory, from distinct issuary lines. Therefore the existence of that rank whose multitude is $\mu$, presupposes the existence of twice that number of issuary lines, totally distinct and eternally pre-existing unbroken.

Of the aforesaid rank, select one individual, whose first moment of existence was earlier, or else not later, than that of any of the other individuals of the said rank; and denote that moment of time by m . Now, if any other individual of that rank were not begun to exist at the moment m ; yet, because his two issuary lines had pre-existed eternal and unbroken, then, of each of those lines some individual was living at m ; and therefore, for every individual of the said rank, who had not begun to exist at the moment m , two other individuals must have existed instead; and therefore the total multitude of persons coexisting at m, must be, at least, equal to $\mu$; but $\mu$ is greater than $\Xi$; therefore that multitude of persons must be greater than $\cong$; that is, $a$ greater multitude of persons coexisted on the earth at the moment $m$, than the greatest which has ever coexisted on the earth at any moment - which is absurd ; - and this is the third point of the difficulty.

Art. 15. The manifest absurdity of these results has not altogether escaped notice down to the present time. In Dean's American edition of Blackstone, one of the annota-
tors, in a note annexed to Book II. Chap. XIV. No. 203, has remarked some of these results, and suggested a principle, the application of which, he conceives, will enable us to escape them. This principle, which he seems to regard as an anchor of infallible stability, is - "the intermarriage of relatives."

Art. 16. It is almost astonishing that men of discriminating judgment and exercised mind will, on some occasions, without resistance, bow the understanding to a gross and contemptible delusion. A moment's reflection might have informed this annotator, that mere marriage of relations can, by no possibility, relieve us from the difficulties attached to this theory. For, in the case of any two such relatives who may marry together, let us ask the question - how are they related? The relationship must be either that of brother and sister, under which designation $\mathbb{I}$ now include halfbrother and half-sister, so called, or else it must be a relationship of some other kind. In the former case, the persons comnected in marriage have a total or partial identity of parents ; in the latter case the two parents of the husband are persons totally distinct from those of the wife. And, therefore, so long as we disallow the marriage of brothers and sisters, since every married couple must have had four parents, the twofold ascending progression, maintained in Blackstone's theory, receives no check from the consanguinity of ' husband and wife, and all the objections and difficulties arising from the multitude of progenitors remain precisely as before.

But if the annotator's "intermarriage of relatives" be supposed to extend to the case of brother and sister, what a field of horrors opens to the view! We encounter the fearful contemplation of scenes that appal humanity. No isolated case of necessity meets the view, but a continual stream of pollution. For, be it carefully remembered, that, if we first ascend, for any length whatever in the line of progenitors, and afterwards exclude from the pre-existing genera-
tions all supposition of marriage of brother and sister, the twofold progression of Blackstone's theory has been only retarded up to that stage, and will then begin to operate with all its absurdities as before. And, therefore, admitting that we forbear the supposition of incestnous marriage, as far back as possible; that is, till the multitude of progenitors become barely reconcilable with known fact, we shall then be compelled to introduce that supposition, and continually reapply it, up to the first man. The proposed remedy of the annotator presents, therefore, on the one hand, a mere idle nullity, and, on the other, a deluge of abominations.

Art. 17. The progress and tenor of these reasonings lead me opportunely and directly to consider the fourth circumstance of difficulty attached to Blackstone's theory, which Sir William Blackstone has himself expressly noticed in the same chapter, No. 205 ; and which he has attempted to overcome by the application of this identical principle, which I have considered in the last foregoing Articles, namely, the intermarriage of relatives. I shall now therefore examine the nature of this new difficulty, with a view to ascertain how far it admits of a successful and remedial application of the said principle.

Art. 18. The difficulty to which I allude occurs in the case of collateral consanguinity. Sir William Blackstone shows, that, by an extremely moderate, and, in fact, unavoidable average estimation, each individual in any generation is the parent of two individuals in the succeeding generation, and that hence we are compelled to infer, primâ facie, from his table of lineal consanguinity, that, by average estimation, each individual of any generation has one brother or sister, that is, one collateral of the first degree; and also four first cousins, that is, collaterals of the second degree; and also sixteen second cousins, that is, collaterals of the third degree ; and so on, increasing by a fourfold ratio at each ascending step. From this he concludes, that, of any one generation, every individual must have nearly two hundred
and seventy millions of co-existing collateral relations in the fifteenth degree ; on which he makes the following remark; "And if this calculation should appear incompatible with the number of inhabitants on the earth, it is because, by intermarriages among the several descendants from the same ancestor, a hundred or a thousand modes of consanguinity may be consolidated in one person, or he may be related to us a hundred or a thousand different ways."

Art. 19. One of the annotators gives, in emphatic language, his decided opinion, that "the learned judge's reasoning is just and correct " on this case ; and, in express terms, he distinctly asseuts to both parts of that reasoning, namely, the first calculation of the multitude of collaterals, and the "reducing " influence of the "intermarriage of relatives."

Art. 20. Now I shall attempt to show, in the following Articles, that the "learned judge's reasoning is" neither "just" nor "correct," and that the "learned annotator" might well be suspected of having, with obstinate and blind stupidity, sold himself to absurdity, for the sake of treading. in the steps of the "learned judge."

Art. 21 These objects I shall undertake to accomplish in the following manner. I shall take some cases of collateral consanguinity, in which this "intermarriage of relatives" shall be assumed, and supposed to exist, to its utmost possible extent, short of incestuous connection ; and if, after all allowance made for its operation, the difficulty be not removed, I shall then presume to infer that the "learned judge's reasoning is " not " correct."

Art. 22. By average estimation, my father and my mother have, each of them, one brother or sister, and each of these two has two children, which gives me four first cousins, conformably to Blackstone's theory. Again, my father and my mother have, each of them, four first cousins, making eight persons, whose children are my second cousins, whence, by allowance of two children to each of those eight persons, I have sixteen second cousins, which is again conformable to

Blackstone's theory, and so on. But, as the "amnotator observes, this proceeds on the supposition, that no person marries a relation. We shall now therefore try the amount of diminution wrought upon these numbers by the practice of such intermarriages to the greatest admissible extent. Designate as A and a, the two persons, whereof one is brother or sister to my father, and the other is brother or sister to my mother. Let A and a be male and female, and marry together. Then the two children of A, and the two children of a are no longer two distinct pairs of children, but one pair only, who are my first cousins; in this case, therefore, instead of having four first cousins, I have only two. Again ; by the same circumstance of intermarriage, suppose my father to have only two first cousins, and my mother only two ; and in order to allow, in every admissible case, a continual intermarriage, suppose those four persons to be two males and two females, denoting the males by $A$ and $B$, and the females by $a$ and $b$; and suppose that $A$ and $a$ marry together, and also $B$ and $b$. The assumed average offspring of these two marriages will be four persons, who are my second cousins. Thus the number of second cousins is now reduced from sixteen to four. In like manner, by this continual intermarriage, the number of third cousins will be found reducible from sixty-four to eight, and that of the fourth cousin from two hundred and fifty-six to sixteen, and so on. Having, therefore, in this reduced order of things, one brother or sister, two first cousins, four second cousins, eight third cousins, $\mathbb{S}^{\circ} \mathrm{c}$., it appears that after all admissible reduction resulting from continual intermarriage, I have one collateral of the first degree, two of the second degree, four of the third degree, eight of the fourth, and so on, by a two-fold progression corresponding precisely to that of lineal ascent.

Art. 23. Hence it appears, that, after all admissible reduction by intermarriage, I have now more than A BILLION of collateral relations in the forty-first degree!

Art. 24. Now, therefore, let me ask, where is the expected refuge from the weight of its own absurdity, which the resource of intermarriage was presumed to create in favor of Blackstone's lineal theory? By the application of that resource, he has merely shifted back the difficulty to a higher degree in the table. He has unconsciously adopted the last expedient of the vanquished man; he has invoked Procrastination to his aid. If a man who dreads an inundation of the Nile should cut a canal, which enables him to drain away half or more than half of the waters of the river, his personal security is not increased, if he have left in the main channel water enough to drown him. And this is precisely the case of Blackstone's theory.

Art. 25. I must now notice another observation made by the annotator, to whom I have referred in Art. 19.

Art. 26. In the same note, he gives a case, in which, from two married couples placed on an uninhabited island, a continual posterity may be derived without incestuous connection, yet never amounting to more than two individuals in each generation.

Art. 27. The annotator states that fact, either, firstly, to instruct and benefit his readers by the bare linowledge of the fact; or, secondly, by such fact intending to remove the difficulties of Blackstone's theory.

Art. 28. If the former of these two objects was that of the annotator, for my part, I can only say, that he has told me nothing new ; and others, of course, can answer for themselves, if they consider the inquiry a matter of sufficient importance.

Art. 29. But if the latter was the object of the annotator, he has indeed most miserably failed. What should we think of the argumentative skill of the man, who, if closely beset by the ingenious fallacy of some sophist, professing to prove that snow is black, should answer; "your argument undoubtedly contains no flaw; yet I can bring another argument showing that snow is white; and I therefore maintain
it to be white." We all know that, in such a case, he ought to say ; " there must be a flaw in your argument, although I am not able to find it ; for I linow, from other more obvious and plain arguments, that snow is white."

Art. 30. In this case, however, he could not be said, in the argumentative sense, to have answered the sophist's argument, as he had not detected its flav.

Art. 31. But should he attempt, with yet greater extravagance, by connecting and incorporating his own argument with that of the opposite party, to vindicate, establish, and explain the latter; what words can represent the magnitude of his absurdity!

Art. 32. Now, that all the absurd results of Blackstone's theory are not necessary facts, we can as easily ascertain, as that snow is white; for, in order to ascertain it, we have only to trace a descending posterity from any pre-supposed limited number of original ancestors, and show, that, in process of time, the amount might equal or exceed our existing population; for thus we perceive, that, instead of an eternal innumerable ancestry, we may all have proceeded from some such limited number of ancestors. But, Blackstone's theory, in tracing the ascending ranks of progenitors, infers this eternal, infinite ancestry; and therefore, like the sophist's argument, we should rather be admonished of the falsehood of his theory, by its plain contradiction of a linown fact, than attempt, as the annotator has done, to urge that fact in explanation and defence of the theory.

Art. 33. Perhaps the best elucidation which this topic will conveniently admit, before I dismiss it, may be found in the following quotation from Whately's Logic, in the Appendix, No. II, Case 97 , the subject of that case being one of those curious fallacies which pretend to disprove the reality of motion. "Aldrich mistakes the character of the difficulty; which is not to prove the truth of that which is self-evident, but to explain an apparent demonstration militating against that which nevertheless no one ever doubted.

He (Aldrich) says in this case, 'solvitur ambulando: ' but (pace tanti viri) this is no solution at all, but is the very thing which constitutes the dificulty in question ; for it is precisely because we know the possibility of motion, that a seeming proof of its impossibility produces perplexity."

Art. 34. I have now, Sir, carefully represented the several insuperable difficulties, which encumber Blackstone's theory, and shown the failure of the attempts, which have been made by himself and by others, to overcome them. I might now be expected to proceed immediately to the task of detecting the fallacious principle involved in the theory - or, in other words, of solving the fallacy; but I hope to pursue a more beneficial and instructive course, by not immediately proceeding to accomplish that object. For, undoubtedly, our time is not unprofitably spent upon any subject, when we continue to examine it in every accessible situation, till we have carefully considered it in all its important points ; and under that conviction, I shall undertake some additional investigations of Blackstone's theory, before I proceed in search of its essential flaw. Indeed it may be not unreasonably said; "although the attempts hitherlo made in defence of Blackstone's theory have been found to fail ; we are not yet absolutely sure that no argumentative resources exist, by which it might be successfully defended, either totally, or partially at least; and therefore, before undertaking a summary conviction, a more liberal proceeding would be - to inquire with candid punctuality - how much might be said in its defence." With such a sentiment I cheerfully concur, and shall therefore, in the following Articles, proceed accordingly.

Art. 35. First, then, we shall make an attempt for the relief of Blackstone's theory, by correcting a supposition which he seems to have inadvertently taken for granted, or else to have passed without notice.

Art. 36. That supposition is, that all the progenitors of the Propositus in the same rank must, at some moment of
time have coexisted on the earth. This is true of no rank except the two parents of the Propositus; as will easily appear thris. Denoting the Propositus by Z, represent his father and mother by Y and y ; his grandfather and grandmother maternal by X and x , and paternal by W and w . Suppose that $Z$ is now twenty years old, and that his birth occurred one year after the marriage of Y and y . Suppose y to have been seventeen years old at the time of her marriage, and born one year after the marriage of her parents $X$ and $x$; and, at the time of such marriage, suppose $X$ to have been twenty years old, and $x$ to have been nineteen; and admit both to be living still. Allowing nine months for gestation, we are sure that, sixty years ago, X was not in existence ; and fifty-nine years ago, x was not in existence. Suppose also that Y, at his marriage with y, was forty-eight years old; that his mother w died in giving him birth, and that his father $W$ survived his mother five years only. Then, of the four grand parents, $\mathrm{W}, \mathrm{w}, \mathrm{X}$, and x , during the interval from sixty-nine to sixty-four years ago, W alone was in being on the earth; during that from sixty-four years ago to somewhat less than sixty, none of the four was in terrestrial existence; for one year afterwards, of all four, X alone had such existence ; and since that time, $X$ and $x$ have, without intermission, coexisted on the earth, while $W$ and w, have been deceased. Thus at no moment of time, have W, $\mathrm{w}, \mathrm{X}$ and x , been all in existence on the earth.

Art. 37. But after all due notice and allowance of this consideration, the inflexible and stubborn difficulties of Blackstone's theory remain as before, totally unshaken, unassailed, and undisturbed.

Art. 38. That such consideration has no relevant effect whatever on the third difficulty, has already appeared from Art. 14, where we have seen that any effect, which could result from the interference of that consideration, could be only such as to make the matter worse; since, for every one member of any rank; not coexisting simultaneously with senior
members of the same rank, the place of that one individual may be supplied by two others, that is, one from each of the two distinct pre-existing issuary lines, the male and the female; and thus, in every such case, the multitude of coexisting persons is increased; and, by the continual reduplication of previous generations, this present augmentation is extended and diffused, with accumulating influence, through all pre-existing eternity. And if, in any rank of collaterals, we take the last moment of the last surviving member of the rank, and substitute for every other member one or more of his offspring or posterity, we obtain a multitude of coexisting persons not less than before; which proves, in a similar manner, that such consideration has no diminishing effect on the fourth difficulty.

It is almost needless to observe, that, in respect of the second difficulty, the aforesaid consideration is equally ineffectual. For, as the theory of Blackstone infers, by necessity, a perpetual chain of prior generations; and as the commencement of the existence of certain individuals of each preceding generation must, from the nature of the human constitution, have been prior to that of the existence of certain members of the succeeding one, by an interval of time which is not less than a certain assignable period; then this perpetual chain of generations supposes a perpetual chain of intervals, which is not less than a perpetual chain of such assigned equal periods ; and which, therefore, independently of all considerations respecting the coexistence of other persons, must extend backward, as was proved in Art. 10, through all pre-existing eternity.

Art. 39. And, in respect of the first difficulty, the fact is even yet more obviously manifest, that such difficulty is nowise affected by the aforesaid consideration. For that difficulty relates to the total multitude of human beings, which may be inferred, by Blackstone's theory, through pre-existing duration, to have ever existed on the earth, without any regard to the order of their cooxistence ; and because, in whatever order those beings may have coexisted, the twofold pro-
gression pursued to the same extent backward, will make the same sum total, the difficulty is nowise affected by such order of coexistence.

Art. 40. I shall now inquire whether a person maintaining atheistical opinions, and consequently discrediting the Mosaic records, and caring nothing for the first two difficulties, or rather not regaraing them as difficulties at all, could erect any plausible defence against the other difficulties. Now, in respect of the fourth difficulty, such an individual might profess to believe that the population of the earth is daily diminishing, whereby the inference of a numerous host of collaterals might be avoided, and the force of the difficulty weakened : for, if possessed of sufficient effrontery to maintain that the average offspring is only one child from every married couple, the average result would be that no individual has any collateral kindred. And indeed some feeble color might be given to such an assertion, by referring to the case of populous nations of remote antiquity, now totally extinct, which inhabited countries now thinly peopled or not at all; of which facts many indubitable traces are discoverable on the American continent, and perhaps elsewhere. Therefore, with sufficient hardihood, such person might, with some loss, effect an escape from the fourth difficulty. I say, with some loss; for in this case he is compelled, by denying the fundamental principle of that part of Blackstone's theory, which relates to collaterals, to abandon, as without foundation, that part of his theory, in order to preserve the other part, which relates to lineal kindred.

Art. 41. I shall now inquire with what success this atheistical reasoner might make his defence against the third difficulty.

Art. 42. By a reference to Art. 13, we shall perceive, that, in the argumentative induction of the third difficulty, we essentially involve the proposition, that, the greatest multitude of coexisting persons, ever upon the earth, must have been a finite multitude. Now if the only demonstration of this
proposition were that obtainable from the authority of Moses, as in Art. 7, the atheistical objector might, with consistency, despise that authority, and reject the demonstration, and, for want of such demonstration, rejecting the involved proposition, he might, in consequence, reject the whole induction, and refuse to acknowledge the existence of the difficulty. But, as remarked in Art. 13, the said involved proposition is not only demonstrable, as in Art. 7, but also, independently of that, from the finite capacity of the earth. It will now appear, on a careful re-examination of Art. 14, that no other part of the reasoning employed in it is at all susceptible of contradiction or dispute. Here, then, the atheistical objector's attempts at resistance must have an end nothing now can destroy his embarrassment. For, let us imagine, that, in order to afford him the greatest possible facilities compatible with his present situation, we allow him to seek, in foreign connections, that multitude of progenitors which the soil of Britain cannot supply to the British Propositus. This resource will be of no avail. For if the twofold reascending series, in the very commencement of its retrogressive career through the dusky tract of antiquity, treads with a few gigantic steps beyond the shores and population of Britain - with more fearful rapidity and resistless accumulation, will it shortly sweep the boundaries and exhaust the prolific powers of the habitable earth. For the sake of illustration, however, let us, in imagination, accompany the supposed atheistical reasoner in his laborious excursions to and fro, to reassemble the scattered multitudes of the departed progenitors of the Propositus. Firstly, then, we revisit many distant climes, and examine the connubial connections of civilized and barbarous Europe, of savage and illustrious Asia, voluptuous and desolate Africa, and renowned and anexplored America. We trace the old affinities and remote prolific ties betwixt the ruthless Vandal of the north and the grim Patagonian of the southern pole: betwixt the Mongol Tartar and the Briton; the rovers of the sultry Arabian desert, and the wandering warriors of the
dreary American forest ; we pursue the matrimonial mazy labyrinth among the mansions of the Norman, the Saxon, and the Roman, through the rude and rustic tenements of the Gael, the stately structures of the Greek, the uncouth dens of the Lapland savage, the huts of the Negro, the domiciles of the unsocial Chinese, and the decorated fabrics of the Mexican, to find progenitors for the British Propositus; and when all this has been done, we have done nothing to the purpose; we have merely started on our way; we have barely begun to trace the interlineal everlasting thread over eternity unlimited and space unbomnded; we have left the confines of the earth in quest of the multitudinous legions of his countless kindred; and our next inevitable step is to discover a few insignificant millions of a remnant of his family among the inhalitants of the moon.

Art. 43. Thus it appears, that so long as we endeavor to resist the inductions of this theory, by first conceding the fundamental data which sustain it, and afterwards attempting to check the conclusions by other considerations, we may anticipate eventual confusion and defeat. Perhaps no human speculation, that has ever existed, will furnish a better illustration than that which is afforded by Blackstone's theory, of the import of the celebrated maxim,—" " סos лог $\sigma \tau \tilde{\omega}, \chi \alpha i \tau$ aviow." "Give me a standing-place, and. I will move the earth." For so long as the initial premises of Blackstone's theory are conceded, no intellectual power can arrest the progress of the argument, or disturb the stability of the conclusions.

Art. 44. But, after all the time and labor which might be consumed in such an experiment, we shall find it an extremely simple, and almost an infantine task to rectify in toto these paradoxical conclusions, by directing our operations to a single fundumental principle of this theory.

Art. 45. One of Blackstone's annotators, while he disallows the results of this theory, admits its calculations to be "right in numbers." And Blackstone himself, speaking of the great
number of ancestors, which, back to the twentieth degree, without an admission of incestuous connection, he conceives that every individual must have, considers that conclusion to be a fact which "common arithmetic" will "demonstrate." Now, perhaps to the surprise of many persons, the fact will appear to be, in the case of these gentlemen, that, the whole original error of each lay in rashly adopting these two suppositions. The ensuing articles will soon show, that Blackstone's theory is not "right in numbers," and that " common arithmetic" will not "demonstrate" its conclusions.

Art. 46. It is not true, that, in tracing the progenitors of any Propositus, and excluding all supposition of incestuous connection, the multitude of each preceding rank must be doubled. It undoubtedly is true till we ascend to the two grandsires and two grandmothers of the Propositus, butit is true no farther. This will easily appear by the subjoined Formula, where, as before, a capital letter and its corresponding small letter denote husband and wife.

$$
\begin{gathered}
\mathrm{Uu} \mathrm{~V}_{\mathrm{v}} \\
\mathrm{~W} \mathrm{w} \mathrm{Xex} \\
\mathrm{Y} y \\
\mathrm{Z}
\end{gathered}
$$

Now let W and x be brother and sister, being children of U and u ; and also let X and w be brother and sister, being children of $V$ and $v$. Now there is no incestuous connection in the marriage of $W$ and $w$, nor in that of $X$ and $x$; and these persons are four in number; and the number of their parents, $\mathrm{U}, \mathrm{u}, \mathrm{V}, \mathrm{v}$, is also four ; -instead of being eight, as Blackstone's theory would infer. The same result might be otherwise obtained by supposing W and X to be brothers, being children of U and u ; and w and x to be sisters, being children of V and v . Now the same thing might be repeated in the case of $\mathrm{U}, \mathrm{u}, \mathrm{V}, \mathrm{v}$, and again repeated in the case of the next preceding rank of parents; and so as far back as we please. And in order to avoid the twofold
increase of the ranks, we are not at all compelled to linnit each rank to four persons; on the other hand, any rank whatever may comprehend the whole multitude, which, in Blackstone's theory, it is supposed to do ; and yet, by the circumstance of interlineage, now explained, the several amounts of the preceding ranks may be diminished to any amount not less than four; and also the amounts of the several ranks may fluctuate continnally, increasing above and diminishing down to four; as will appear by another formula. This other formula will require, from its greater length, some additional explanatory notation. For that purpose, we shall consider every combination of a capital letter with its corresponding small letter, to represent, as before, a married conple; and, in each rank, we shall designate the couple which stands on the left extremity of that rank, as the first couple of that rank; and that which stands immemediately on the right hand of it, as the second couple of that rank; and so on to the right extremity of the rank. Also, a numeral annexed to any letter shall specify from what couple, in the rank next above, the person represented by that letter, is descended. Thus, in the subjoined formula, the numeral 3 , annexed to the letter M , intimates that M is the offspring of the couple $\mathrm{K}, \mathrm{k}$, in the rank next above. And here we may observe, that, by this notation, we may discover in a moment, whether any incestuous connection be supposed in the formula, by simply examining whether both individuals of any married couple have the same numeral annexed; for, if not, no incest, in their case, can exist.
\&c. \&c. \&c. \&c.
Cc Dd
E'1 e'2 F'2 f'l G'1 g'2 H'2 h'l
I'1 i'2 J'3 j'4 K'1 k'4
L'1 l'2 M'3 m'1 N'2 n'3 O'1 o'2 P'3 p'1 Q'2 q'3 R'1 r'2
S'1 s'2 T'3 t'1 U'4 u'5 V'6 v'7
W'1 w'2 X'3 x'4
Y'1 y'2
Z

Art. 47. Thus it appears, that, instead of an eternal and innumerable ancestry, we can trace the lineage of the Propositus, at any reascending stage, back to two couples. And without any intrinsic absurdity; we might suppose, in a former age, two such original couples, both created by the Deity; but such a supposition is expressly discountenanced by the testimony of the Sacred Scriptures. By admission, therefore, of the marriage of brother and sister, in the solitary case of these two couples, we trace the family of the Propositus, back to the first human pair.

Art. 48. Thus, by the simple rejection of the groundless and idle supposition of a twofold reascending progression, I have relieved Blackstone's theory from its extravagant and palpable absurdities, contradictory to common sense, and hostile to divine revelation.

Having now, Sir, accomplished the proposed object of this Letter, I might, without inconsistency, immediately terminate my remarks ; but a secret impulse, not strictly definable, moves me onward a few additional degrees. For - if I totally relinquish here the investigation of the subject examined in this letter, I shall be haunted in the visions of nocturnal slumber by the fantastic image of some presumptuous blasphemer, directing the finger of scorn to me and my religious crced, and attracting notice to what he may stigmatize as "that primeval act of crime whereon the Christian mathematician clares not hazard a remark."

In order, Sir, to prevent the actual and real representation of this disgraceful imaginary scene, I shall proceed, in the following Articles, to offer some considerations on the case of the first two connubial connections of the offspring of Adam and Eve.

Art. 1. Some objects/we designate agreeable or desirable; by which we mean, that we love the presence and possession of those objects, or, in other words, they excrcise an attractive influence on the human will; for example, flowers,
precious minerals, \&c. This class of objects we shall denote by the capital letters, as A, B, C, D, \&c.

Art. 2. Other objects we call disagreeable, hateful, \&c., of which we dislike the presence, and which exercise a repulsive influence on the will. These we shall denote by small letters, as a, b, c, d, \&c.

Art. 3. Other objects again may be totally indifferent, being such that we neither like nor dislike them. If there $b e$ any objects which are strictly of this class, we may denote them by the small Greek letters, as $\alpha, \beta, \gamma, \& c c$. The influence of such objects on the will, may evidently be represented by zero.

Art. 4. If any rank of the objects, $A, B, C, D, \& c$. , be presented in array before any individual, on condition that he may take, and retain, one, and only one of them ; when such individual makes his choice, he simply obeys the strongest attraction.

Art. 5. But if objects of each contrary class, as A, a, B, b, $\mathrm{C}, \mathrm{c}$, \&cc., with or without any of the indifferent objects, $\alpha, \beta, \gamma, \& c c$., be connected in a cluster by an inseparable string, and that cluster be introduced to the presence of any individual, with liberty and power to remove it, neglect it, or take it ; if the first alternative be realized, we plainly perceive, that, in this case, the sum total of the several repulsive influences has exceeded that of the others; if the third alternative occur, the case is reversed; but if the second alternative be that which is realized, the two sums are exactly equal.

Art 6. In the case of the first or third alternative, in which one sum exceeds the other, I shall denote such excess by the expression-prevalent amount; and in each several cluster, wherein such excess may be found to exist, I shall call that excess, the prevalent amount of that cluster.

Art. 7. Now, if several such clusters be set in array, in the presence of any individual, under a necessity to select and take one and only one of them; then, if the prevalent
amount of one cluster be attractive, and those of the res all repulsive, that one will be selected; if two or more such prevalent amounts be attractive, the selecting individual will take that which has the greatest prevalent amount attractive; but if all those amounts be repulsive, he will take that which has the least prevalent amount repulsive; thus the selected cluster may, in general language, be declared to be, either that which has the greatest prevalent amount attractive, or that which has the least prevalent amount repulsive.

Art. 8. The state, situation, or manner of life of any individual may be considered as the cluster of circumstances which surround him. And I have no need of demonstrating. the painful truth to human beings, that when those cases occur in which we have an opportunity to make a selection of circumstances, we are compelled to select them, not separately and singly, but in the cluster; we may choose to be in this or in that situation; but we have no power to select each particular circumstance at pleasure, and, by connecting. them together, to make a situation for ourselves.

Art. 9. Through all the extent of eternity, if any moment be taken, I shall designate the total order and state of all things then existing, as the Perisystem of that moment, and the total perpetual series of such successive perisystems, extending through all the past and the future eternity, I shall designate as the Diasystem of eternity.

Art. 10. Thus any one perisystem may be regarded as an infinite cluster of circumstances; but a diasystem is an infinitely more vast and comprehensive cluster; being, in fact, an infinite cluster of such clusiers.

Art. 11. Attempting with humility the investigation of things indescribably beyond us, it seems to be maintainable, that in any diasystem or perisystem, real or imaginable, the innumerable circumstances which compose it are, in certain separate parcels, connected by necessity together; so that, from such diasystem or perisystem, if one circumstance be removed, a certain parcel of other circumstances will also be
removed ; and vice versâ, if one additional circumstance be introduced, it will, by a like necessity, be accompanied by a certain multitutude of others.

Art. 12. We have strong intimations in the aspect of nature, and positive and plain testimony in the volumes of divine revelation, that such necessity, to a certain degree, is co-immutable and co-eternal with Divine Majesty, and His counsels are directed and determined conformably thereto; that is, of all possible diasystems, that one has been selected which contains the greatest prevalent amount of that which is "good in His sight;" - and yet that very same diasystem which contains, by preponderance, the greatest quantity of good is mixed with a quantity of evil.

Art. 13. The truth of this proposition is, even without the authority of the Scriptures, to all intelligent persons who acknowledge a Deity, very apparent. For, in the arrangement and order of the created world, we have copious evidence that what we call benevolence, is a prominent feature, so to speak, in the character of the Deity. He everywhere appears, in all His works, like a kind landlord who had carefully studied the comforts of those that were intended to occupy the tenements which He constructed for their habitation. He appears to be One that would never visit or afflict the humblest of His creatures with a single momentary pang of discomfort or distress, for the sake of any enjoyment or gratification resulting to Him from such a circumstance ; and yet it may be asked ; "Why is there such a quantity of pain and distress in the world? Why are we incessantly beset by the racking tortures of corporeal privation and disease ? And why are the inferior and brutal tribes arraycd against each other in perpetual predatory war, when the Almighty Caterer might have extended the vegetative bounties of the earth to all?" The only general answer which can be given to these questions and all of a similar nature is ; that, if the system of things were so altered as to exclude these evil circumstances, that altered system would not produce the greatest prevalent amount of good.

Art. 14. And in the case of what is called moral evil, the same thing may be said. Suppose, for example, the following question to be put. "Why, at some remote and early period of the diasystem, has the Deity suffered the train of causes and effects, and the course and progress of concomitant events, to be such, that rebellious thoughts and machinations of malignity should spring and exist in some inferior spirit, and prompt him to disseminate mischief through every department of the terrestrial creation?" Or, instead of that question, take the following more obvious, though equivalent one. "Why has the Deity ordered such a system of things, that we should be liable to moral evil and all its unhappy consequences? Why were we not made, not only perfect, but infallible beings?" The only possible answer is this; that every diasystem whatever, in which these alterations are supposed to have place, is yet less eligible than that which has been adopted; because every such diasystem would eventuate with less prevalent amount of good.

Art. 15. To those that understand and study the Scriptures, I need scarcely observe, that all the foregoing statements are expressly sanctioned in the sacred volume. I shall refer such persons, however, for the sake of prompt illustration, to Romans v. 20, 21, ix. 17-23, xi. 12, 25-36; Exodus ix. 16 ; Isaiah xxxvii. 26 ; Ezekiel xxxviii. 16, 17, 23.

Art. 16. Now therefore, if the fact be, that fraternal nuptials, in the days of Seth, involved the same intrinsic moral culpability which we know they involved in the days of Moses, from Leviticus xviii. 9, xx. 17 ; Deuteronomy xxvii. 22, and elsewhere; I say, in that case, our answer is ready concerning the case of such nuptials, being, in its general nature, the same answer which must be given respecting the existence of many other evil things and circumstances, namely; that, if two human couples had been first created or any other system of things adopted, whereby fraternal nuptials would have been totally avoided, every such diasystem
would finally appear to be less eligible than that which has been adopted, because every such system, being connected, by necessity with some peculiar disadvantages of which we are ignorant, would eventuate with less prevalent amount of good.

Art. 17. I have said in the foregoing article, " if the fact be." My reason for inserting that clause is, that it appears to be questionable, whether such nuptials be not included in that very limited rank of cases, the moral culpability of which is created and destroyed by the sole force of mere physical causes.

Art. 18. The positive announcement of the existence of any such cases will probably surprise and startle some of my readers ; for a prompt and decisive demonstration of the fact, I refer them however to Leviticus xx. 18.

Art. 19. The act which is there condemned, obtains its culpability, not from any infringement of personal rights or obligations, but from the sole fact of being performed under certain physical circumstances.

Art. 20. That such an act is not merely indecorous but highly criminal, appears from the severity of the punishment annexed.

Art. 21. But now I am encountered by the question, "what reason can you assign, a priori, for supposing that fraternal nuptials belong to that rank of cases? For, if no such reason can be given, such supposition must be a mere expedient, adopted in order to escape the difficulty." This question I shall answer in the following Articles.

Art. 22. Most other criminal acts derive their criminality from reasons of a metaphysical nature ; as, the infringement of personal rights or obligations, the misuse of our capacities, the infraction of the order of nature, \&c. But fraternal nuptials cannot be shown to involve a culpability grounded on any of these reasons; such culpability being attributable only to the physical circumstance of the kindred of the parties.

Art. 23. The expression, "filth," or, "uncleanliness," applied in the ordinary sense, to any quantity of matter, denotes that such matter is in a certain chemical state which is disagreeable to the senses.

Art. 24. That such matter has a greater hostility to the human constitution than that of repugnance to the senses, will appear by considering that such matter is highly insalubrious and poisonous.

Art. 25. We may therefore affirm, that such matter and corporeal human persons are in a state of chemical antipathy.

Art. 26. But yet we are aware, that in some cases, physical causes, which operate on the human person may diminish or destroy such antipathy. Thus, in a state of famine, men have been sustained and refreshed by food which, in any other condition, would produce disease or death.

Art. 27. The feeling of disgust, repugnance, and horror, which accompanies the contemplation of all those acts to which we attach the character of moral pollution, is a feeling superior in degree, but extremely similar in its nature, to that which is described in Art. 23 ; and indicates therefore a superior degree of chemical antipathy betwixt human persons, and such a state of material things as results from those acts of impurity.

Art. 28. Of the similarity and close connexion between substantial and moral pollution, some remarkable and striking indications may be found in the Scriptures. See Leviticus xi. $41-44$, xx. 25 ; also Deuteronomy, xiv. 3, xxii. 5, xxiii. 12, 13, 14, and 18 ; Isaiah lxvi. 17 ; also Exodus xxii. 31 ; Leviticus xi. 39, 40, xvii. 15, xxii. 8; and in the New Testament, Acts xv. 28, 29.

Art. 29. The existence and operation of such antipathy, in the case of the sexual union of living creatures closely connected by kindred, appears to be inferable from a curious fact which is known, I believe, in pathology ; namely ; that a continued repetition of such sexual unions, will deteriorate and impoverish the offspring.

Art. 30. Now the prolific appetite, or multiplying principle, is one which pervades the human race like the appetite for food; but counteracted in certain cases by the aforesaid antipathies, in the same manuer as the appetite for food is also, in certain cases, counteracted by other antipathies, as noticed and explained in Arts. 23, 24, 25, 26.

Art. 31. And, therefore, as in that case of two antagonist principles, when the principle of appetite becomes highly energetic, the antipathy is destroyed; but on the abatement and diminution of such energy, the antipathy revives; so, in like manner, in the case of sexual pathology, if the prolific appetite be extremely energetic, the antipathy of kindred is destroyed; but when such appetite is languid and feeble, the said antipathy takes eifect, and springs into active operation.

Art. 32. Now another fact in pathology, and one which is demonstrable from the amnals of history, is this ; that, ceteris paribus, in the human race, the prolific appetite is most highly energetic while the population are few, and gradually diminishes while the population expands; thus resembling exactly the case of a coiled spring which is gradually suffered to unbend; in which, by the continual act of unbending, the unbending energy is gradually diminished and lost.

Art. 33. Thus the supposition is perfectly admissible and rational, that, in the days of Seth, while the prolific appetite of the human race was yet in the vehemence of its unabated energy and vigor, the fraternal antipathies of sexual union had, as yet, no existence; and consequently no moral pollution attended such a connection.

Art. 34. I am the more inclined to adopt this view of the case, from the nature of Abraham's nuptial connection with Sarah, which occurred soon after the flood, in a period of thin population ; and which, though it scarcely appears, in a strict sense, to be necessary, was one of that class of connections which was afterwards expressly forbidden. See Gen. xx. 12, and Deut. xxvii. 22.

Art. 35. It is observable, howev.

youth, human society was yet unsettled, and terrestrial population was disconnected and dispersed; in which state of things, the formation of nuptial connections may have been attended with much practical difficulty; and many such connections, though obtainable, may have been, from the moral depravity of the family of the female party, strongly objectionable; and therefore, to a certain extent, Abraham's marriage may have been a case of necessity.

Art. 36. Thus these nuptial connections of the first human generation may, together with Abraham's case, be either considered as destitute of moral impurity, or else regarded as cases, whose impurity is merged in that superior necessity whereby $a$ quantity of evil is attached to that system of things which eventuates in the greatest good.

Having now, Sir, destroyed the insuperable difficulties and dispelled the embarrassing delusions which encumber Sir William Blackstone's genealogical theory ; and having shown, in the case of the Sacred Volume, that no objections of a similar kind are maintainable; I conceive that my object is accomplished, and my labors have obtained a successful termination ; finally, therefore, I subscribe myself,

Sir,<br>Very Respectfully,<br>Your Obedient Servant, JOHN LEE.

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