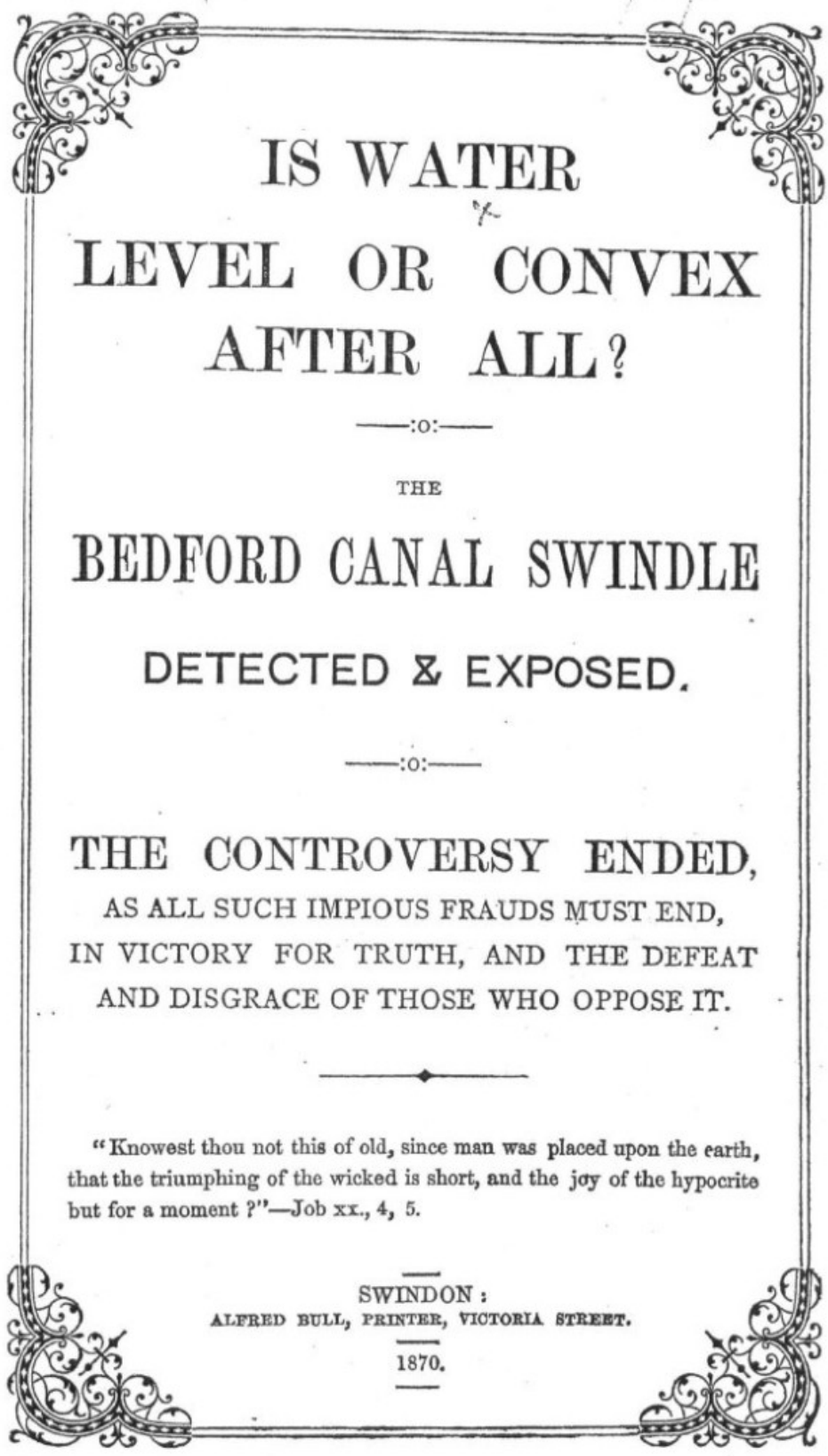


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IS WATER  
LEVEL OR CONVEX  
AFTER ALL?

—:O:—

THE  
BEDFORD CANAL SWINDLE  
DETECTED & EXPOSED.

—:O:—

THE CONTROVERSY ENDED,  
AS ALL SUCH IMPIOUS FRAUDS MUST END,  
IN VICTORY FOR TRUTH, AND THE DEFEAT  
AND DISGRACE OF THOSE WHO OPPOSE IT.



“Knowest thou not this of old, since man was placed upon the earth,  
that the triumphing of the wicked is short, and the joy of the hypocrite  
but for a moment?”—Job xx., 4, 5.

—  
SWINDON :  
ALFRED BULL, PRINTER, VICTORIA STREET.

—  
1870.  
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# IS WATER LEVEL OR CONVEX AFTER ALL ?

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PERHAPS there is not upon record a more palpable illustration of the notorious rascality of the scientific world than has been recently exhibited in the trial between Mr. Hampden, of Swindon, and Mr. Wallace, Fellow of the Royal Geographical Society, of London, aided and abetted by a local "sawbones" of Downham Market, who acted as Mr. Wallace's referee, and the Editor of *The Field* newspaper, who was his chosen umpire.

After the perusal of the accompanying report of the whole transaction, the public will be enabled to judge of the degree of credit which ought to attach to advocates of the infidel and unscriptural theories of the Newtonian philosophers.

Mr. Hampden took up the subject, simply and solely relying on the fact that the Bible, or Scriptural evidence, as far as it went, uniformly ignored, if it did not directly oppose the notion of a globular earth. Not a single verse throughout the whole Scriptures hint at any expression confirmatory of the Newtonian theory. Mr. H. knew this would be impossible if a revolving globe were really a fact; and he felt so fully assured of the absurdity of attempting to show that all the inspired penmen were so grossly ignorant of physical science as not to know the shape of the earth on which they lived, that he was resolved to force attention to the subject in which he felt so deeply interested; he also knew that unless he backed up his arguments with some convincing proof of his earnestness he would never succeed in obtaining the discussion he courted. He therefore issued a challenge some time in January 1870, offering to deposit £500 against an equal amount on the issue of a trial whether the surface of water was flat or convex. So little confidence did the pretended philosophers and engineers feel in their theory, that it was not until several weeks afterwards that a solitary reply was given to his challenge. The letters in

the following appendix were written by Mr. Wallace, of London, who had accepted Mr. H.'s challenge, and undertaken to show a curvature on the surface of some lake, river, or canal, according to the terms proposed by Mr Hampden.

The survey was made on the 5th of March 1870, Mr. Wallace making every arrangement connected with the experiment. Mr. Hampden has been blamed for allowing such unrestricted liberty to his opponent, but he purposely refrained from all interference, as he wished to leave the entire responsibility in the hands of Mr. Wallace—knowing, too, that, unlike a game of chance, the identical water would remain in *statu quo* for many years to come, and that if Mr. Wallace's experiment did not tally with any and every other that had been or might be made on the same spot, Mr. Hampden would be armed with a power of exposure which would be of infinitely more value to the cause than a decided victory at the outset.

Mr. Walsh, the Editor of *The Field*, who had been chosen referee by and on Mr. Wallace's part, "found it necessary to return to town" before the final trial came off, and left in his stead one Mr. Coulcher, a local apothecary, who, if all reports were true, was not over scrupulous in making assertions according to circumstances. The distances, staves, and disks, were all, as before said, under Mr. Wallace's sole arrangement and control. Much that passed would bear very severe comment. The conduct of Mr. Wallace and his coadjutor was that of men who felt that any argument or attempt at explanation would be fatal to their cause. They shirked all discussion with Mr. Carpenter (Mr. Hampden's referee) in the most cowardly and evasive manner. They would not, in fact, answer a single question, or give a single explanation of their view of the facts illustrated by the telescopes. Mr. Hampden's eyes were instantly opened to a degree which subsequent events have fully justified and confirmed.

If there is one class of men, next to horse dealers and jockeys who bear the unenviable reputation of being the most tricky and unscrupulous in their assertions, it is the members of our scientific societies. Most of them are, more or less, if not entire infidels, at all events so sceptical in their religious opinions that anything like a high moral tone, either in conduct or principle, is looked for in vain. Pure assumption, and pretended improvements on the works and Word of God are the characteristic features of most of their philosophy. Of this Mr. Hampden was repeatedly warned by several of his correspondents, but he was in hopes that his antagonist, Mr. Wallace, would prove an exception to some of the rest; and he is still under the impression that Mr. W. has been made to act the knave against his better nature.

The conduct of Mr. Walsh, who was selected as final arbitrator, has exhibited such pitiable ignorance of the simplest facts of practical engineering, coupled with such despicable cowardice in the dread of offending the scientific world, that Mr. Hampden feels at a loss how to find language sufficiently strong to express his indignant abhorrence of such unscrupulous conduct without exceeding the limits of justifiable censure. His articles on the subject from week to week in *The Field* have been most severely commented on by those who fully endorse the Newtonian theory. If the man was not quite confident that he was fully capable of understanding the evidence furnished by the referees on both sides, his accepting the office of arbitrator was most scandalous and reprehensible. There is not a man of ordinary intelligence on the cab-stands of the metropolis who would not have exhibited more sense and taste than to undertake to do what he felt unequal to and utterly incompetent for. Take these editorial functionaries away from their scissors and paste-pot, and they are found to be as great blockheads as other men—mere slaves to the popular taste, and most of them as venal as any hireling in existence. There is no doubt some moral or pecuniary pressure was brought to bear on the late decision, and, like all cowards, Mr. Walsh was afraid to uphold the truth and the palpable evidence of reports, against the array of scientific opinion which he knew would be down upon him in the event of his giving judgment favourable to the anti-Newtonian theory; but, at the same time, such was his gross ignorance of the letters and diagrams he inserted in his own columns, that he actually allowed several correspondents to prove the absurdity and falsehood of his decision without appearing to notice how damaging such opinions were to his decision on the subject.

There cannot be a greater truth than that knaves and liars need retentive memories, and a most skilful use of their faculties. Every thief knows that his chances of escape are in exact ratio with his cleverness and ingenuity. A fool is scouted among the criminal classes, and to nothing but their unscrupulous falsehoods and boldness of assertion are the astronomers and philosophers indebted for much of the reputation they possess. Take the present subject as an instance. Mr. Wallace, in his letter of the 16th of February, both by diagram and in word, undertakes to show an ascending curve from the point at which he stood. In his letter to the *Field* of the 2nd of April, he denies that he ever mentioned a rise or curve upwards! thus altogether abandoning his own position, and taking up a different ground from that he had previously maintained. Shifty, and dodgy, and self-contradictory, as all men are and must be who abandon the plain,

straightforward rule and path of honour and principle, and resort to treachery and chicanery for effecting what they know to be impossible in any other way.

Mr. Wallace never showed a complete curve from first to last. Mr. Coulcher, the referee at Downham Market, and Mr. Walsh, the umpire at London, never dared to attempt to argue that he did. And then Mr. Wallace has the meanness to assert that he "never intended to show it!" when the whole trial was undertaken for this express purpose, as will be seen from his letters. If he did not show a *rise* of five feet, he would have been compelled to show a *fall* of sixteen feet! Therefore, let him take which horn of the dilemma he likes, he is beaten in both; and Mr. Walsh's ignorance and stupidity does not see the awkward fix his friend is in. His own diagrams, on which he professed to base his decision, give the lie to his verdict, and prove him as great a simpleton as was ever appealed to on such an event. The diagrams are palpably in favour of Mr. Hampden's assertion that the surface of the water was flat. Mr. Hampden was so confident in the truth of his theory that, after the decision was given, he offered Mr. Wallace to make a second experiment, with £1,000 deposit on either side, instead of £500 as before. This was in the most cowardly manner evaded and left unnoticed. And he is ready now to deposit this amount on the same terms as before—that is, to forfeit the money if a curved sheet of water can be demonstrated to the satisfaction of any ten men of common sense.

If the cowardice of the scientific world did not equal its knavery, would they not undertake to prove the question at once, however positive they might be as to the issue, and set the matter at rest for ever? But, having been telling the most astounding lies for upwards of 400 or 500 years, they appear resolved to stick to them to the last. But their shameful frauds shall be exposed to the utmost, and their meaner cowardice denounced till they consent to abandon their mediæval science, and allow the world to judge whether the crazy theories of Copernicus and Sir Isaac Newton are to be regarded as gospel to the end of time. How an enlightened public can submit to be led by the nose by a few self-opinionated philosophers, falsely so called, is what cannot be explained. If Mr. Hampden is wrong in asserting that all seas, lakes, rivers, and canals are level—not to a given or assumed centre, but perfectly flat—and all waters on the face of the earth, whatever may be their height one above the other, are, nevertheless, horizontal, as a chair or table is horizontal to the floor on which they stand, those who assert the earth to be a globe must be utterly regardless of the truth of their system, and merely uphold it simply because it contradicts the Bible, which is all these



infidels seem to care about. They have never made a single experiment the truth of which can be incontestably proved, and they stick to their insane theory because it is ingenious, and makes thoughtless blockheads stare with amazement. *One* single proof would be worth a thousand mere assertions. But astronomers and opticians live upon the credulity of a thoughtless public, and have nothing to do with facts, but only with appearances. Moreover, such is the state of the public mind, that, having fed upon fraud and deception so long, they positively rather remain deluded than be obliged to confess that they have been duped for generation after generation. Mr. Hampden, however, having to some extent shown the fallacy of the assumed curvature of water, it is to be hoped that many will feel encouraged to aid in forcing these sham philosophers to substantiate their other theories, or confess their absurdity. Emigrants, and others who are compelled to cross our oceans, are entitled to the most accurate and scientific measurements and surveys of the water. To be told they are upside down to their friends at home, when they are standing on exactly the same level, is a most preposterous assertion—if it is not true; and its truth has *nothing* but bare assertion for its proof. Proof is demanded for everything else. Why should these imposters any longer defy the common sense of the public, and say that as long as their theory is mathematically correct, they must not be asked for proofs. If a farmer or landowner wishes to ascertain the rise or fall or shape of any portion of his ground, he does not allow his surveyor to put him off with random guesses or mere assertion. He requires the actual levels to be shown in feet and inches; let us demand the same amount of accuracy in the measurement of our seas and oceans. Thousands of lives would probably be spared if the imposture of a curved ocean were once admitted and exposed. If a canal be flat, rivers must be the same; if rivers of from 300 to 3,000 miles be flat, seas and oceans of the same extent must be equally so. If waters be flat, the earth on which they rest cannot possibly be curved, and the Newtonian philosophy is proved a bugbear and a delusion—very clever in theory, but unscriptural and untrue.

After the experiment had been made on the 5th of March, and Mr. Coulcher, as before said, peremptorily refused to hold any communication with Mr. Carpenter, and denied that the referees had any right to discuss the particulars of the survey, Mr. Carpenter had no alternative but to send in his report to the said Mr. Walsh, which he immediately prepared to do.

On Friday, March 18th, the following letter was written and forwarded to Mr. Hampden by Mr. Walsh:—

" 346, Strand, London,

" March 18, '70.

" DECISION IN HAMPDEN *v.* WALLACE.

" The undersigned having been appointed in writing by the principals concerned in the above test (in default of the umpires, who could not agree) as referee, and having received the several reports of the umpires, Messrs, Carpenter and Coulcher, and conferred on them with Messrs. Solomons, opticians, of Albemarle Street, at the request of Mr. Hampden, decides as follows—

" Mr. Wallace, by means of the experiment agreed on as satisfactory to Mr. Hampden and his umpire by both these gentlemen, has proved to my satisfaction the curvature, to and fro, of the Bedford Level Canal between Welney Bridge and Welche's Dam (six miles) to the extent of five feet, more or less. I therefore propose to pay Mr. R. Wallace the sum of £1,000 now standing in my name at Coutt's Bank to abide the result of the above test next Thursday, unless I have notice to the contrary from Mr. Hampden.

" J. H. WALSH,

" Witness, F. Jones."

" 346, Strand.

As may be supposed, I instantly gave Mr. Walsh notice *not* to pay the money, and if he ventured to do so, I would hold him legally responsible for so doing. I knew his statement that " the referees could not agree " to be absolutely false. When Mr. Carpenter called on Mr. Coulcher in order to come to an agreement, or state in writing where and why they differed, Mr. Coulcher sent for a policeman and had him pushed out of the house!

Mr. Solomon's name was never mentioned! Mr. Solomons was never seen, but his foreman or manager, or for aught that is known, one of the firm, told Mr. Carpenter that " it was an engineer's question, and that it required more time to discuss and decide than he had or could afford it. And also advised Mr. Walsh as to the propriety of deferring his decision." But Mr. Walsh probably had the screw on from another quarter, and persisted in giving publicity to his opinion that " the curvature had been proved." After the receipt of my positive veto to pay the money at that crude and imperfect stage of the affair, and hearing that " Messrs. Solomons " had *not* given their approval or expressed any positive opinion on the subject, I felt I should be only giving my consent to a downright swindle if I permitted Mr Walsh's verdict to remain unchallenged. In the course of a day or two I received the following :—

" March 23, 1870.

" MY DEAR SIR,

" I only waited till I heard from you to insert the reports of the referees or umpires, whichever they may be called. I send rough proof for your perusal.

" Am I to understand that you give me formal notice to return you the stake? I am unwilling to believe this, as I had hoped you would have admitted the correctness of the award, at all events, as far as it went. I have thought it my duty, in justice to Mr. Wallace, to state the matter fairly this week, but I still hope you will, for your own sake, reconsider your decision.

" I am, yours sincerely,

" J. Hampden, Esq."

" J. H. WALSH.

Mr. H.'s prohibition was repeated not to pay the money, and published in *The Field* of Saturday, March 23. In spite of which, in reply to his own written assurance that my consent was waited for and required, the money was paid to, and, it is presumed, received by Mr. Wallace!

It will be seen by reference to the original agreement—in the Appendix—that the curvature was to be *proved* to the satisfaction of both Mr. Walsh and Mr. Carpenter. Mr. Carpenter dared not say it was proved, for he knew the whole experiment to be a fallacy, but thought it no part of his business to correct Mr. Wallace's unscientific attempts to prove what he had promised.

There is not a single precedent on record—and all the engineers in Great Britain are challenged to contradict this statement—for taking levels at three and six mile sights. Such a thing was never heard of or proposed, except from hill to hill, where no particular accuracy was required.

Mr. Carpenter sent in his report, full, fair, and exhaustive; and, to any man of common sense or common honesty, quite conclusive. All that the other referee had ventured to say was contained in three lines—that “the curvature had been proved to his entire satisfaction.—J. B. COULCHER, referee for Mr. Wallace.”

Upon this grossly evasive, imperfect, and unsatisfactory statement—and without so much as making a single reference to the score of positive facts adduced by Mr. Carpenter, showing how Mr. Wallace had failed to fulfil his agreement—Mr. Walsh said he was “satisfied the curvature had been proved, and that Mr. Wallace was entitled to the £1,000.”

Mr. Hampden's friends, and several strangers to him also, were so thoroughly disgusted at the palpable conspiracy to defeat the truth, that he had instantly suggested to a well-known advocate of the cause, calling himself “Parallax,” to go down and repeat the experiment he had made several years before, and to state whether the surface of the water had changed since that time; and the proposal was accompanied with a cheque for £10 for his expenses. Mr. Wallace received due notice of the intended survey. “Parallax” and his friends remained on the spot for three days. The weather was unexceptionable during every hour of his stay, and he returned to town on Friday evening, April 18, having obtained the most unanswerable proofs of the fallacy and falsehood of Mr. Wallace's experiment; and in the course of his subsequent lectures throughout the length and breadth of England, will exhibit the absurdity of the means employed by Mr. W. to show his pretended curve, and the gross scandal given to science by Mr. Walsh's decision, as well as the truth of Mr. Hampden's



assertion that it was not in the power of any man living to refute the plain and explicit statements contained in the Word of God respecting the earth's shape.

If any man doubts the correctness of this second survey, there stands the canal, as it has done for, perhaps, the last half century, and can be examined by day or by night, backwards and forwards, by all the surveyors and geographical societies in the United Kingdom.

It is a glorious characteristic of truth, that it never shuns the most severe and searching scrutiny. It revels in the broad daylight of criticism, and courts the keenest and most persistent tests. The precipitate and haphazard manner in which Mr. Walsh hurried over this deeply important and notoriously difficult question is a fair specimen of those "thimble-riggers," who know that a single moment given to fair and deliberate examination would sadly mar their little game, and instantly expose the swindle.

Had Mr. Walsh, like an honest and honourable man, according to the tenor of his own letters, and Mr. Hampden's express instructions, delayed the payment of the money in order that the truth and correctness of his verdict may be manifest to all the world, he would have been spared the deep humiliation and disgrace he has met with. He has, however, placed a rod in the hands of Mr. Hampden, who, perhaps, of all men in the world, is most ready to inflict the severest retaliation on those who dare attempt to force their lying frauds upon his acceptance. Deception and falsehood, meanness and cowardice always excite in his mind an intensity of loathing that few, perhaps, are able to realise. If ever an opponent laid himself open to censure the most crushing, and disgrace the most lasting, it has been done by every individual directly identified, or by sympathy associated with the recent survey of the 5th of March. Good taste, honour, truth, and self-respect have all been sacrificed, as long as they could grab like starving highwaymen on their booty, and, in their vulgar haste to seize the money, never stopping to ask themselves whether the dogma of infallibility was likely to be accorded without a struggle to the Editor of *The Field*.

By reference to the annexed diagram it will be seen why these men object to state exactly the point on which they take their stand. Suppose them to say, as they probably will, they are always on the top, at A; there they have to show a *fall* of 10 feet 8 inches in the first four miles either way, 16 feet at the end of five miles, 266 feet at the end of forty miles, 1,944 feet at the end of sixty miles, and so on. But, mark—when they get to the end of the four, five, forty, or sixty miles, they will be required to retrace their steps and make the survey back again, showing, this

time, a *rise* of exactly the same number of feet as before, when they showed a *fall*. One hundred pounds per mile, Mr. Hampden is ready to give to any engineer or surveyor who will take him to any spot in the United Kingdom and show him the rise and fall according to the above table, as laid down in their own standard works. They dare not attempt it!

Mr. Wallace, in the recent survey, said he would take his stand below the top, and show an incline upwards of five feet at the end of the first three miles. Mr. Coulcher and Mr. Walsh say that he has done it; but they both state what is most palpably untrue! At either end of the six miles selected as the field of operation Mr. Wallace would have to prove the *continuation* of the decline in the proportion above stated. Could he have done this? Is any one so mendacious as to assert that he could? Let the reader bear in mind what is now said, that every statement that has been made with regard to these measurements will be found a tissue of the most daring falsehoods.

The idea of being "always on the top" is something so glaringly absurd that we fail to see its utter impossibility. Squirrels in a revolving cage, felons on a treadmill may be justly compared to these insane philosophers who dare assert and argue that every living man, woman, and child on a revolving globe are one and all "on the top." But the moment you compel these men to show you how they stand on the top, they immediately show a higher curve still! So, then, you find out it is not "the top" after all, but some distance below it, and you are only shown "the top" at a distance of some miles off. All, in fact, that they can do is to make you look through a glass and say you fancy you see an horizon in the distance. Which horizon you can never reach; for as you approach it, it in turn sinks below "the top," and you see, or fancy you see, another horizon beyond. But the whole subject is so monstrous and fictitious that it is vain to argue about what can never be proved, except in appearance. And of course snow can be made to look yellow or green by looking through coloured glass. But the snow does not change its colour, nevertheless.

As to the motion of the earth, this is simply assumed in order to fit the theory of the globular shape of the earth. If during the day we are "always on the top," during the night we must be always at the bottom, and have travelled round the centre of the earth at the speed of over a thousand miles an hour. So that we are never looking for an instant in the same direction of the sky. If, while praying to our Father who is in Heaven, during the day, we should raise our hands and eyes towards the sky over our heads, we must, when similarly engaged during the hours of night, direct

our eyes and thoughts to a spot down through the floor or over the side of our bed! It is no joke; this is the positive fact. Ships and bedsteads, elephants and bishops are all upside down in the dark. The "centre of attraction" accounts for it all. This, again, must only be taken for granted. It is never seen or felt; it does not keep us in our places against our will, but it keeps us from knowing we are bottom upwards. It does, in fact, act only on our minds—not on our bodies. We are in truth (!) upside down, but we do not know it; quite the reverse. We believe we are just as we were during the day; nothing seems altered; the same clouds, the same rain, the same heat, the same cold, notwithstanding we have moved, or some maniacs *say* we have moved, 13,000 miles from where we were during the day time. "Always on the top" notwithstanding. And we call ourselves men of enlightened minds; common sense is too vulgar to have it said that we look at things as they are.

But we have been speaking of the axial motion only. The orbital motion of the earth round the sun is 91 million miles distance from the luminary, and its speed rather more than one thousand miles a minute, or about five times faster than a flash of lightning! Yet we do not lose our breath, and the lazy sea gulls and the stately ravens manage to keep up with us, if going in the same direction; and nothing is out of place, and though leaving the lightning far behind us, we watch the curling wreaths from our chimney pots as complacently as if such a thing were really visible. Is it not awful to think of? And remember, too, the only *proof* of such an astounding fact is the hallucination of one or two old crazy philosophers. And at the end of the 19th century we possess far less sense than the cattle in our fields. They never mistake sand for grass, or fancy themselves going homewards if their heads are turned towards the water. But man's mind must of course invent something superior to such common-place notions. And 999 men in a thousand, in the possession of their senses, believe these villanous assertion of less than half a dozen infidel philosophers, without one atom more proof than they have for believing that every house in London was built by the fairies.

Such is Newtonian philosophy;—this the earth of which it is seriously said and argued that "there is no top nor bottom," "no rise nor fall," "no up nor down;"—round which men can walk without ever being out of the perpendicular;—with which, in its flight through space at the rate of one thousand miles per minute, or five times quicker than a flash of lightning, birds and balloons, butterflies and bees can keep up, though never moving half as many inches in the same time;—at any point or portion of which the spirit-level and the plumb-line always show a dead flat and

absolute repose;—a pure fabrication, which has not one single characteristic of any other body in nature;—which no science can illustrate, nor any philosophy explain;—a thing about which the Almighty Creator Himself is wholly silent, and of which His inspired penmen make no mention;—a thing that common sense laughs at, and Christian men disown, as being utterly devoid of one atom of proof, or even of probability to support it;—a thing of which the inventor himself said it was not to be believed or accepted as fact! Such is the monstrous fiction which is imposed on our credulity, and which our astronomers deem it heresy to dispute; but which, sooner or later, will be detected and exposed, denounced and abandoned for ever.

Our engineers should be compelled to *show* how a spirit-level acts when it is off the top. It is all very well to *say* the air-bubble keeps the centre of the tube, or a plumb-line points to the earth all round the globe. If, as they assert, they are always “on the top,” and can never reach a spot—whether 50, 500, or 5,000 miles from where they stand—where the spirit-level does not show a flat, then the earth *must* be a plane. The spirit-level, or air-bubble in a tube full of any liquid, is God’s instrument, and not man’s, for showing whether the surface on which it rests is flat or otherwise. It cannot be tampered with, nor can its palpable evidence be argued away. A man who dares assert such and such a surface is a slope, up or down, and when tested by the spirit-level or plumb-line it is found perfectly even or flat, can anything else be said to him than that he must be either mad-drunk or a fool? If a spirit-level or plumb-line will act in the same manner—let them be placed how they will—it is surely possible to demonstrate the fact. If, again, all so-called perpendiculars converge to an assumed centre, their tops must diverge in the same proportion, and the masts of those ships said to be descending the horizon, and “hull down” to the spectator on shore, should show them at a considerable angle from a plumb-line 10, 15, or 20 miles away. Is this ever seen? No! Lies and imposture at every turn. God’s Word trampled on, and His work denied. Lastly, if the several parties implicated in the foregoing statement are not conscious of having dealt with and obtained Mr. Hampden’s money on false, unfair, and fraudulent pretences,—if they feel they have a reputation at stake, only one degree removed from that of the lowest blackleg on the turf, will they eat, drink, or sleep till they have fully and publicly cleared themselves from the imputations which, till then, will most assuredly attach to it, and appeal, not to a set of interested professionals, whose craft is so seriously imperilled, but to the common sense of honest men, who have no object but truth, and who will not allow prejudice to warp their judgment? Let Mr.



Wallace, then, submit to another trial, to which he has bound himself, if his word is to be trusted (unless he should have the honour and moral courage to decline to go through the farce again, well knowing what the result must be if honestly performed). But, in the event of his persisting in the insane delusion of there being a hill of water, and the former delusion should be confirmed, Mr. Hampden will pay all expenses, and also submit to an action for libel and slander, which he will richly deserve if these Newtonian philosophers should prove honest and truthful men after all. But if Mr. Walsh's verdict should be reversed, and proved, as Mr. H. declares, a false and fraudulent decision, then he will claim the £1000, and insist upon a most ample apology for the trickery and imposition practised upon him. This, he feels assured, every lover of fair play and justice will pronounce to be no more than he is strictly entitled to, and may reasonably demand. If it is denied, and—contrary to all precedent and practice in every court in Great Britain—Mr. Walsh, as arbitrator, refuses to sum up the evidence, and publicly declare upon what grounds his decision is founded, it will be an undeniable proof that his verdict, and that of all connected with the late survey, has been, from beginning to end, a tissue of falsehood, deception, and fraud; and that Mr. Hampden's last resource will be to sue all the parties concerned in a court of law, which will most assuredly be resorted to, if all appeals to their sense of honour and integrity prove unavailing.

*The following are true copies of Mr. Wallace's Letters to Mr. H. :—*

"9, St. Mark's Crescent, Regent's Park, London, N.W.

"J. HAMPDEN, ESQ.

"January 15th, 1870.

"Sir,—As I presume by your offer in "Scientific Opinion" of January 12th, that you can afford to pay £500 to have the question of the actual rotundity of the Earth proved to your satisfaction, I hereby offer to stake that sum on the undertaking to show visibly, and to measure in feet and inches the convexity of a canal or lake. A canal will do if you can find one which is nearly straight for four miles without locks, if not, I propose Bala Lake, in North Wales as a place admirably suited for the experiment. As an intelligent referee I propose the Editor either of "Scientific Opinion," "The Field," or "Land and Water," or any well-known Land Surveyor, or Civil Engineer, or any fellow of the Royal Geographical Society.

"I remain Sir, yours very faithfully,

"ALFRED R. WALLACE, F.R.G.S."



"By this means the money will be perfectly safe. The reason I ask for its being deposited at once, is, that I must go to some expense and considerable trouble in getting a telescope and other necessary instruments, and in finding out a suitable spot, and as the time you have named is short, I must begin at once, and cannot do without the *certainty* that the trial will come off.

"I may state that the Editor of the "Field" is a perfect stranger to me.

"I remain, yours very faithfully,  
"ALFRED R. WALLACE."

"I believe the Bedford River near Downham Market, Norfolk will have to be the place. The "Field" will publish the result of the experiment.—A.R.W."

"9, St. Mark's Crescent, Regent's Park, N.W.,  
"January 25th,

"Dear Sir,—Your wish to have a second referee is quite reasonable, and I accede to it at once, only stipulating that he shall not be a personal acquaintance of your own, and shall be a man in some public position as Editor, Author, Engineer, &c.

"Foggy weather would render the experiment impossible. I should therefore wish that if they are prevented by weather, the time named by you may be extended a month.

"Yours very faithfully,  
"ALFRED R. WALLACE."

"9, St. Mark's Crescent, N.W.,  
"February 13th, 1870.

"Dear Sir,—I should very much regret if you did not come down to Norfolk to see the experiment I propose to make, yourself. I was going to suggest that you should *first* meet me there, and only in case I should not be able to make the thing sufficiently plain to *you*, should we call in the referees at all. I firmly believe I can make it plain to you, and that it would interest you very much to see it, and convince you in a way that no report of referees could do. I have now made all my arrangements, and propose to start for Lynn or Downham Market (the nearest way to the Bedford River) on Friday next, if the weather is at all settled. Will you meet me there, or will you come on Monday and we can remain till a fine day occurs, when a few hours will settle the question? This will be much the best plan, because Mr. Walsh, being Editor of a weekly paper, can only leave town on Monday or Tuesday, and if those days should happen to be bad, I shall have to wait for him another week. But if you come, any day will do, and as soon as it is fine we can telegraph for your referee, Mr. Carpenter, if you wish it.

"When the snowy weather is over, it may be very fine, and if you will join me I will go any day you like to fix, but not later than early next week (21st or 22nd Feb.) if convenient to you. Hoping you may be able to agree to my proposal, and that you will fix a day to meet me within a fortnight from this date,

"I remain, dear Sir, yours very faithfully,  
"John Hampden, Esq." "ALFRED R. WALLACE."

"9, St. Mark's Crescent, N.W., Feb. 16th, 1870.

"Dear Sir,—I do not wish to make the least alteration in the arrangements, and the referees shall of course attend; but I certainly think, as you have written so strongly on this matter, you should be present yourself.

"Till the wind changes, I fear there will be fog in the Fens, but if it looks promising I shall go down on Monday, and if it is clear, telegraph to the referees and yourself.

"The test I am going to use is very simple and conclusive. I have prepared half a dozen signal posts, each six feet long, and with red and black circles attached to them, so as to be distinctly seen at a long distance. I shall set these up a mile apart on the *water's edge*, and then look along them with a powerful telescope. If the water line

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is straight and flat, the tops of these poles will of course be straight and flat too ; but if the earth and water has a curvature of 4000 miles radius, then the tops of the poles will be equally convex, and they will be seen *rising higher and higher to the middle point, and then sinking lower and lower to the furthest one*, and the amount of rising and falling will be nearly the feet and inches I have put down on the diagram on the other side. The upper figure shows what *must* be seen if the earth is round, the lower what *must* be seen if it is a *plane*.

"Of course the curvature shown is immensely exaggerated, but with a good telescope it will be easily seen if it exists.

"Yours very faithfully,

"John Hampden, Esq."

"ALFRED R. WALLACE.

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"9, St. Mark's Crescent, N.W., Feb. 20th, 1870.  
"Dear Sir,—I will *to-morrow* pay £500 to Messrs. Coutts', on conditions identical with those of your £500, and I will request them to inform you of the fact. When you receive this information I trust you will accept my assurance that I had no other reason for not doing so earlier than that which I have already stated.

"If the weather is milder and clearer, I shall go down to Downham Market on Monday, February 28th, inviting Mr. Carpenter to *accompany me* if he thinks proper, and then sending for Mr. Walsh on the Tuesday or Wednesday, if the weather is sufficiently favourable.

"I have had much difficulty in getting a telescope of sufficient power. I have one that *may* do (3 inches object glass and 4 feet long), but should prefer one of 4 inches object glass and five feet long ; and these are only made for astronomical purposes. I can only find *one* in London, and that will not be let out on hire or trial, and only sold (without stand) for £42. I believe, however, I can get the loan of one from Brighton if mine turns out insufficient, and if I cannot get one at Lynn. I have had one telescope on trial already, and found it not good enough.

"Believe me, yours very faithfully,

"John Hampden, Esq."

"ALFRED R. WALLACE.

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"9, St. Mark's Crescent, N.W., March 9th, 1870.  
"Dear Sir,—In accordance with your letter of yesterday, I enclose a memorandum authorizing Mr. Walsh to act in the manner you suggest, which, if you see nothing requiring alteration, please sign and send to *him*, or if otherwise, write one yourself and send it to *me*, or send a supplementary one if you have anything to add. With regard to your postscript, I believe you will find that *any civil engineer* will tell you that the '*decline*' you speak of *was shown* in the spirit-level in the view from both ends—because, on a circle, the place you stand on is always on the top, and in the telescope of the level the signals were always *below the level line* shown by the *cross-hair*, and no more could be shown if I went again to the middle station. If, however, the umpire thinks this necessary, he will ask me to show it.

"I remain, dear Sir, yours very faithfully,

"John Hampden, Esq."

"ALFRED R. WALLACE.

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"9, St. Mark's Crescent, N.W., March 20th, 1870.  
"Dear Sir,—In yours of yesterday you imply that Mr. Walsh's decision is an improper one, and that *I know it* ; and that the fact proved by the trial at the Bedford River is worthless and inconclusive, and that *I know it*. Now I think you will, on consideration, see that it is not fair or honourable to impute to me a belief I have never acknowledged, and which I most emphatically deny and protest against. I firmly believe that the result of the trial proved all you ever asked me, or I ever undertook to prove ; and that Mr. Walsh's decision is the only one an honest and sensible man could come to.


"You should remember that when, in answer to your request, I sent you a sketch of what I was going to show you, and how, you replied—'I am perfectly satisfied with your proposed plan. *It cannot fail to be thoroughly convincing one way or the other.*' The plan actually adopted for convenience, with your and Mr. Carpenter's *full concurrence*—(as shown by a sketch drawn by myself in Mr. Carpenter's notebook, at *his request*, on the Friday evening before the trial, and agreed to by him and

you as perfectly satisfactory, but which sketch he has declined to exhibit since, and has not sent in to Mr. Walsh)—was essentially the same, yet you now say the experiment is *worthless and proves nothing!* What will the public say if these two letters are published?

“Now for the assertions and challenges in your pamphlet you were so good as to send me. Your proposed *further tests* are some very good, some quite worthless. All those which in any way depend on an *apparent slope up or down*, as judged of by the *unaided eye*, are utterly worthless; because, of all things, the eye is least able to judge accurately of a level, and if a line deviated as much as eight feet instead of only eight inches in a mile, I would defy you to tell by the eye alone if it were *level*, or sloped *up* or sloped *down*.

“The *good tests* are those which propose to determine differences of level or position by the use, either of a first-rate *spirit-level*, or signals which can be brought to *range accurately in a line*.

“*First.* The test proposed at p. 5, to place a spirit-level at the middle station, and take a sight both ways to Welney Bridge and Old Bedford Bridge (not Welche’s Dam as you state) the water at the two ends would certainly be shown to be about five feet below the *horizontal straight line touching the water at the middle station*. The only difficulty would be in getting the level placed high enough to be above the vapours and unequally heated air close to the ground; but I have no doubt, if it were placed on the elevated towing path, its height above the water would be about five feet less than the height of the points on the two bridges cut by the *cross-hair, which determines the true level line*.

“*2nd.* As to the continuation of the curve *beyond* the three miles in each direction. This is also a good experiment, and I maintain that a signal staff placed *one mile* further off than *either bridge*, would show the water there to be eight or nine feet below that at the *middle station*, and at two miles further off, fourteen or fifteen feet, as it should be if the curve continues—not *less than at the Bridge*, as it should be if your theory of a series of short curves, thus— is true.

“*3rd.* The test of the lamp (p. 8) 18 inches above the water on a clear night at one Bridge, being visible by an eye or telescope situated, say three feet above the water at the other Bridge six miles distant. I maintain that it would *not be visible*; while, at the *same time*, it would be *distinctly visible* from the Bridge at an elevation of *about fifteen feet*.

“Now, on each or all of these three points I am ready, after the present wager has been finally settled, to meet you on any fair terms you may propose, the umpire being any well-known civil engineer, surveyor, optician, or scientific man—the questions all being simple matters of fact, which it requires merely good eyesight, some knowledge of instruments and experiment, and a true tongue, to pronounce upon justly.

“John Hampden, Esq.”

“I remain, dear Sir, yours very faithfully,

“ALFRED R. WALLACE.”

#### MEMORANDUM OF AGREEMENT.

“The undersigned having each deposited the sum of £500 in Messrs. Coutts’ Bank, do hereby agree that if Mr. Alfred R. Wallace, on or before the 15th day of March, 1870, proves the convexity and curvature, to and fro, of the surface of any canal, river, or lake, by actual demonstration and measurement, to the satisfaction of Mr. John Henry Walsh, of 346, Strand, London, and Mr. William Carpenter, of 7, Carlton Terrace, Thornford Road, Lewisham Park, London (or, if they differ, to the satisfaction of the umpire they may appoint), the said Alfred R. Wallace is to receive the above mentioned two sums amounting to £1000, by cheques drawn by Mr. John Henry Walsh to his the said Alfred R. Wallace’s order; and if the said Alfred R. Wallace fails to show such actual proof of the convexity of any canal, river, or lake, the above mentioned sums are to be paid in like manner to Mr. John Hampden. Provided always that if no decision can be arrived at, owing to the death of either of the parties, the wager is to be annulled; or if, owing to the weather being so bad as to prevent a man being distinctly seen by a good telescope at a distance of four miles, then a further period of one month is to be allowed for the experiment, or longer, as may be agreed upon by the referees.

“February 8th, 1870.”

“ALFRED R. WALLACE.”

“JOHN HAMPDEN.”