

## SOME EARLY WRITINGS OF JONATHAN EDWARDS.

A. D. 1714-1726.

BY EGBERT C. SMYTH.

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JONATHAN EDWARDS was born October 5, 1703. By "Some Early Writings" I designate those of his productions which treat of topics in philosophy and natural science, and which have been referred to the period between A. D. 1714 and A. D. 1726, inclusive. These writings are: a piece of banter, which I will call "The Soul"; a paper, entitled by its author, "Of insects"; a revision of this in the form of a letter, which may be designated "The Flying Spider," using Edwards's description; a draft of a letter designed to accompany the one just mentioned; a collection of topics, observations, and discussions, denominated by their writer, "The Mind"; a further miscellany, which received from their editor, Dr. Dwight, the title, "Notes on Natural Science"; and a manuscript named by its author, "Of the Rainbow."<sup>1</sup> With the exception of "The Mind" and the cover of the "Notes on Science," I have examined, for the purpose of this report, the originals of all the documents which I have specified, together with other autographs,—letters, sermons,

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<sup>1</sup> In 1829, Rev. Sereno E. Dwight, D.D., published, carefully revised, all of these papers but two. See his edition of "The Works of President Edwards, with a Memoir," Vol. I., pp. 20, 21, 23-28, 34-39, 41-53, 664-761. In "The Andover Review," Vol. XIII., Facsimiles I., II., and pp. 1-19, may be found exact reprints, from the autographs, of "The Flying Spider," and "Of insects"; also, a Facsimile of the draft of the introductory and apologetic letter, with a transcript and account, and a Facsimile of a portion of the essay, "Of insects." In the Appendix to this report are published similar copies from the original MSS., of "The Soul," "Of the Rainbow," and "Of Being," and of "Colours" with Facsimiles of the first, and of a portion of the third, of these productions.

I am informed y<sup>t</sup> you have advanced a notion y<sup>t</sup> the Soul is material & keeps w<sup>th</sup> y<sup>e</sup> body till y<sup>e</sup> resurrection as I am speak<sup>r</sup> of lower of Novelty you must allow me to be much entertained by this discovery w<sup>ch</sup> how ever old in some parts of y<sup>e</sup> world is new in this

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plans, a large volume written in the author's later years,<sup>1</sup>—the whole supplying specimens of Edwards's handwriting from boyhood to near the close of his life. Besides these manuscripts I have looked over copies of many observations on topics in divinity which were prepared for Dr. Dwight's edition, of the works of Edwards, in ten volumes, but were not published.

The object of this examination was to ascertain what information it might afford respecting the period in their author's life to which these papers belong. And the purpose of the following report is to communicate what I have found. The immediate occasion, I may add, for undertaking such an inquiry, was the doubts as to the early origin of some of these papers which within the past few years have been influentially expressed, particularly by an accomplished French philosopher, Professor Georges Lyon, who, in a history of Idealism in England during the eighteenth century, devotes to Edwards nearly an entire chapter.<sup>2</sup>

It is not strange that such critical misgivings have found utterance and circulation. The documents in question are marvellous productions for a boy and youth. They are known to Dr. Lyon and the public, only as published by Dr. Dwight. In editing them he removed important indications of their age. The boy appears to write in command of a knowledge of literary form not to be expected even in so precocious a reasoner. Dr. Dwight also contents himself with expressing an opinion as to the time of their composition with but little more than an indication of its grounds. Of these, the handwriting is made specially prominent, and the question naturally arises whether the differences in this respect between the autographs can afford a sure criterion.

The results of the present inquiry will be found, I trust,

<sup>1</sup> The cover is strengthened by pasting on the inside the Programme for Commencement at Yale College, 1742.

<sup>2</sup> *L'Idéalisme en Angleterre au XVIII<sup>e</sup> Siècle*, Chap. X.



to give a broader basis for judgment, and I cannot but hope that they will stimulate any persons who may possess documents or facts that bear upon the question to contribute to its discussion.

I begin with the paper on the Soul,<sup>1</sup> the earliest known composition. It is written on a piece of foolscap, seven and six-tenths inches wide and four and about one-half inches long. The chirography is clear, firm, neat, though the lines soon begin to run increasingly downward. It has no title. It abounds in the ordinary contractions, y<sup>t</sup>, y<sup>o</sup>, w<sup>d</sup>. It begins twice, and shows a few erasures. There is no division into sentences by capitals, and no punctuation; there is a noticeably large amount of mis-spelling. Dr. Dwight compares this production with a letter, the earliest dated composition of Edwards known to him, and infers that the former was written "at least one year, and probably two, earlier than" the latter. The date of the letter is May 10, 1716. Edwards was then about twelve years and seven months old. The little paper we are considering would thus be referred to his twelfth or eleventh year. The letter has not been published in full. An examination of the original shows that its orthography is far more correct than that of the paper. It is fairly well punctuated, and in good form as to paragraphs, address and subscription. The handwriting indicates not a little practice. I think inspection of the two documents would impress any one with the correctness of Dr. Dwight's judgment as to their relative age. The evidence, however, on which such a conclusion rests disappears largely in the published copies. Both the paper and letter, so far as the latter is printed, are thoroughly corrected as to spelling and punctuation. The superiority of the letter in the latter particular, I should add, though noticeable, is not as decisive as might be thought, since in papers written for his own eye alone or merely to preserve his thoughts, Edwards does not stop to insert many points.

<sup>1</sup> See Appendix A.

The query may arise, whether the letter may not owe its superiority to its being a transcript from a corrected copy. I think not. The manuscript contains too many mistakes of various sorts (none of which, however, as I have intimated, appear in the printed copy) to admit of such a supposition. Do not these errors then, it may be asked, diminish the evidence that it is later than the paper? Not, I should reply, so as to disturb Dr. Dwight's judgment as to their relative age. For the mistakes of the letter are not, noticeably, in spelling. The orthography is fairly good. In the paper, on the contrary, omitting variations which are or may be due to change of standard, or to rapidity of composition or writing, I count twenty-five mis-spelled words in twenty-three lines. The character of these errors is even more significant than their number. The composition is the work of one who is spelling by ear, rather than by the eye.

His father and mother were both persons of superior education and ability. Their home was not only the parsonage, but a school in which the boy was trained by his father with his sisters, four of whom were older than himself. Two letters written in August, 1711, by the father to the mother, when the former, as chaplain, was with troops Connecticut was sending to join an expedition against Canada, contain pertinent references to Jonathan's early education, especially in the matter of writing. "I would have Jonathan keep what he hath learnt in his Grammar, and so I would have the Girls do, and I would have none of them forget their writing." And again, "I desire thee to take care that Jonathan don't lose what he hath learned, but that as he hath got the accidence and about two sides of *propria quae maribus* by heart, so that he keep what he hath got, I would therefore have him say pretty often to the Girls; I would also have the Girls keep what they have learnt of the Grammar, and get by heart as far as Jonathan hath learnt, he can help them to read as



far as he hath learnt; and would have both him and them keep their writing, and therefore write much oftener than they did when I was at home. I have left Paper enough for them which they may use to that end, only I would have you reserve enough for your own use in writing letters, etc.”<sup>1</sup> In this domestic circle, occasionally enlarged by the guests which the parsonage must not infrequently have welcomed, Jonathan, like other bright boys, learned words from his elders’ lips much faster than from books, and spelled them by the sounds which he caught, doubtless sometimes imperfectly. Thus material is spelled with two e’s; allow with one l; resurrection without the double r, which appears in “discovery”; imagine not only without the final e, but with two m’s; little with the last two letters transposed; allegiance with but one l and without an i; four in four-square is written “fore”; does “dus”; assigned without a g; burying “bureing”; suspect with three s’s; physical with i for y; medicinal with “es” for ic; proselyte “proselite.” It is the work of a boy who gives promise of becoming a correct speller, as his father was, but who is more accustomed to hear good words than to write them; a boy as yet untrained in spelling, even as compared with his own standard at twelve. Dr. Dwight’s judgment that the paper was one or two years earlier than the letter, is, I think, a moderate one, especially when the *MSS.* on the Spider are brought into comparison, as they should be.

Professor Lyon suggests that the paper is but an echo; that is, that the boy is writing out a lesson well learned and remembered. This concedes the early date, but takes away its significance. The supposition is gratuitous. There is no occasion for it unless it is assumed that a lad of ten could not reason as ingeniously as does the

<sup>1</sup> Exact transcripts in *Andover Review*, xiii., 5. The letters from which these extracts are taken, give interesting glimpses of the writer’s home, and leave a very pleasing impression of his character.



author of this raillery. But when we recall the Spider papers, written not later than the age of twelve, and also note what Edwards tells us of his religious exercises, "some years before he [I] went to college,"<sup>1</sup> that is as early, certainly, as his tenth year, and of his questionings from childhood respecting the divine sovereignty,<sup>2</sup> no difficulty remains that calls for a supposition to relieve it which is destitute of any external support. One feature of the paper appears to be of some significance. It has a double apologetic beginning, precisely as does the letter introductory to the account of his observations on the Spider. In the latter case the fact is unquestionably due to his desire to obtain a better expression of his own thought. In the other the aim at improvement is no less plain, and it seems equally to be an effort at original composition, and not a recollection of a lesson. Besides, from whom else, or for what conceivable purpose, could the original have proceeded? Or why alone of all the boy's school exercises, should this one have been preserved? Mr. Dwight conjectures that the writer's opponent was some "older boy." Edwards, referring to the time already mentioned,—viz., "some years before" his entering college,—says that he was wont to "spend much time in religious conversation with other boys." He may, then or afterwards, have met with an objector. However this may be, the paper offers no suggestion of being a school exercise. It may well have been an original composition, and beyond reasonable question is of a date as early as Dr. Dwight supposed.

I pass now to the "Notes on Natural Science."

Dr. Dwight refers most of these productions to the last two years of Edwards's college life (1718-1720), and to the period of his tutorship (1724-1726).<sup>3</sup> He also regards

<sup>1</sup> Dwight's *Memoir* in *Works*, I., 59.

<sup>2</sup> *Ib.*, p. 60.

<sup>3</sup> *Life*, etc., p. 41. *Ib.*, p. 54.

them as original reflections and discoveries.<sup>1</sup> The series entitled "The Mind," is assigned to the same periods, except that it is supposed to have been begun somewhat earlier (1717). Among those which are attributed to the college period are at least two which clearly express their author's Idealism.<sup>2</sup> Edwards's originality in these papers is not doubted.

Professor Lyon finds it difficult to accept this account. The claims put forth by Dr. Dwight seem to him almost incredible. If admitted, Edwards becomes equal to many Pascals, a genius whose intellectual gifts surpass those of Galileo and Newton combined; and, by a double miracle, the prodigy appears all of a sudden.<sup>3</sup>

Professor Lyon, however, is candid and sagacious enough to recognize that the problem which he raises cannot be decided *a priori*, but requires for its elucidation "a methodical comparison of the manuscripts."<sup>4</sup> The work, entitled by its editor "Notes on Natural Science," consists of two half-sheets of foolscap, which are tied together with coarse thread or small soft twine, four following sheets laid into each other, and three additional sheets stitched together, but not infolded,—in all, eight sheets. It once had a cover, of which I have no knowledge except from Mr. Dwight's account. The sequence of the writing on three of the infolded sheets is on the first page of each, leaving the second pages blank, except about half of one of them, which is filled with matter supplementary to the two pages between which it stands. The other pages are filled nearly solid. The hand is very small and the lines near together. There is little erasure. One series of topics appears to be introduced as though the

<sup>1</sup> *Life, etc.*, pp. 702, 739, 740.

<sup>2</sup> Dr. Dwight specifies three, but the representation varies. On p. 39 of the *Life*, the series, *Existence, Space, Substance*, is put between the years 1717 and 1720. On p. 674, note, the third article is referred for its probable date to "a somewhat later period of life."

<sup>3</sup> *L'Idéalisme, etc.*, pp. 429, 430.

<sup>4</sup> *Ibid.*, p. 431.



copy had been mislaid and afterwards found, and for awhile two series of numbered articles run on together, at first through opposite pages. Shorthand is used twice; three and a half lines of it in all, not including what was on the cover. The color of the ink varies, as does the sharpness of the pen. Sometimes the writing is extremely fine. In general there is no marked difference in the hand from the earlier manuscripts, yet the later numbers seem to show greater freedom. The spelling is good, though there are not a few omissions of letters, as from rapid writing. The diagrams, with a few exceptions, are rather roughly made. In two or three, circles are drawn so correctly as to indicate the use of some instrument. In a fourth, some aid was probably used. Of the rest, the drawing is wholly, or nearly so, by the eye. The cover contains hints for arranging the collection, and rules to secure the most clear, persuasive and convincing presentation of the subjects discussed.<sup>1</sup> There are two series of "things to be Considered, or Written fully about," though this title is inserted but once. One of these series reaches the number thirty-one; the other sixty-five, and then is continued by titles merely.<sup>2</sup> These heads, written in a large, round hand, begin with number sixty-two. The topics are not, as they stand, connected or classified. Thus between the article on a subterranean "Abyss"<sup>3</sup> (a paper in which the compressibility of water is argued, in remarkable anticipation, it is said, of a discovery first published in 1763), and the remarks on "Gravity,"<sup>4</sup> occur observations on the cause of "the pleasure the mind has by the senses,"<sup>5</sup> on the wisdom and goodness of God as shown in the creation of Atoms,<sup>6</sup> and on

<sup>1</sup> Dwight, *Life*, etc., pp. 702, 703.

<sup>2</sup> Dr. Dwight designates the two "Series" as "First" and "Second." The latter begins first in the *MS.*, the other being apparently copied in, commencing on the sixth page of the infolded sheets.

<sup>3</sup> Dwight, *Life*, etc., p. 746, No. 71.

<sup>4</sup> *Ibid.*, p. 744, No. 68.

<sup>5</sup> *Ibid.*, p. 721, No. 30, first paragraph.

<sup>6</sup> *Ibid.*, p. 760, No. 88.



“SATAN defeated.”<sup>1</sup> These phenomena, with others that might be mentioned, show some lapse of time in the composition of the “Notes.” So far as numbers are given by the writer, they appear to have been inserted at the time of composition, not added in making up a collection of Notes. A question, however, may arise as to the two half-sheets which I have mentioned first. These contain the papers entitled by their author, “Of the Prejudices of Imagination,” and “Of Being.” Were these, it may be asked, written prior to the notes on the infolded sheets, or afterwards, and then prefixed, when, possibly, the writer conceived of collecting materials for publication, or at any rate of preserving the *MS.* book which he enclosed in a cover? There is reason to believe that they were written before the papers contained in the folded sheets. There is an additional superscription to the paper “Of the Prejudices,” etc., viz., “Lemma to the Whole.” The ink with which these words were written is different from that used in the first title, though like that which appears in the third Proposition and subsequent matter appended to the paper. The ink is also like that employed in writing most, I think all, of the paper on “Being,” and the one which, without a title, starts on the first page of the infolded sheets, and is well designated by the editor, “Of Atoms and of Perfectly Solid Bodies.” This paper, moreover, is evidently referred to in that on “Being,” as one that is to follow. The reference is in these words: “What then, [is] to become of the Universe? Certainly it exists nowhere but in the Divine mind. This will be Abundantly Clearer to one after having Read what I have further to say of solidity, etc.” There are also reasons, from the style of the papers which stand first in order in the collection, for attributing to them priority in composition.

Edwards began writing in a conspicuously logical and

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<sup>1</sup>This article is omitted by the Editor, who has also much changed the *MS.* order of topics, as well as the numbers.

philosophical way very young. We have seen this in the paper on the Soul. The Spider manuscripts show remarkable powers of observation and reasoning. I have published in the *Andover Review* for January, 1890, not only the letter edited by Dr. Dwight, but an earlier record, of which that was a revision, following in spelling, punctuation, capital letters, as completely as possible, the manuscripts. They cannot well be dated later than 1716; and the observations, and not unlikely the first record of them, belong to the year 1715—as early as Edwards's twelfth birthday. I present now a transcript, made in the same way, of a similarly early and unpublished manuscript on the "Rainbow." I have made a careful comparison of the first three articles in the "Notes on Natural Science," with the early papers just referred to, and to some extent with later portions of the "Notes." The papers which stand first in the "Notes,"—viz., "Prejudices of imagination," "Being," "Atoms,"—show quite clearly that, looked at from the point of view of the author's progress in mental development, they may well have been written at least as early as his junior year in college, that is, not later than his sixteenth year. In the preceding year he had read Locke's "Essay on the Human Understanding" with avidity. "Taking that book into his hand, upon some occasion not long before his death," writes his friend and earliest biographer, Dr. Samuel Hopkins, "he said to some of his select friends who were then with him, that he was beyond expression entertained and pleased with it, when he read it in his youth at college; that he was as much engaged and had more satisfaction and pleasure in studying it, than the most greedy miser in gathering up handfuls of silver and gold from some new discovered treasure."<sup>1</sup> According to President Woolsey, when Edwards was a member of college, physics was "the principal study"<sup>2</sup> of the third year. Dr. Hopkins testifies,

<sup>1</sup> Hopkins, *Life and Character of the late Reverend Mr. Jonathan Edwards*, pp. 3, 4, ed. 1765.

<sup>2</sup> *Edwards Memorial*, p. 31.



referring to the college days of Edwards, that "moral philosophy, or divinity was his favorite study," and also that he "made good proficiency in all the arts and sciences and had an uncommon taste for natural philosophy."<sup>1</sup> If I mistake not, in the notes on "The Mind," which, for some reason not given, Dr. Dwight supposes to have been commenced before those on "Science," Edwards makes an unmistakable reference, in one of the earliest numbers, to the paper on "Being." In the brief paragraph on "Space," which is numbered, according to the order in which it stood in the manuscript, "9," we read: "Space, as has been already observed, is a necessary being, if it may be called a being; and yet we have also shown that all existence is mental, that the existence of all exterior things is ideal." Where is this shown? To what prior proof does the writer refer? Not to any preceding number in this collection on "The Mind," for nothing is found there which answers to the allusion. Does not the paper "Of Being" fully meet the conditions? He argues there that there must be eternal, infinite, omnipresent being; that space is this being; that "Space is God"; that the "universe exists nowhere but in the divine mind." In the sixty-fourth number<sup>2</sup> (equivalent to one hundred and sixteen) of his *Miscellanies*, a book also supposed to have been begun in college, and containing observations on topics of divinity, he says,—if I may trust one of the unpublished copies to which I have referred,—"We have shown in philosophy that all natural operations are done immediately by God, only in harmony and proportion." The reference, apparently, is to an article standing fortieth in the notes on Mind.<sup>3</sup> This paper, viz. No. 40, was written, therefore, before the series in divinity had far

<sup>1</sup> Hopkins, *Life*, etc., p. 4.

<sup>2</sup> *MS.*, p. 1059. 52 are added for articles designated by single and double letters of the alphabet.

<sup>3</sup> Dwight, *Life*, etc., p. 671.



advanced, a series which finally reached toward 1500 numbers. Now the number in "The Mind" which contains, apparently, the allusions to the paper on "Being," it will be recalled, was in order only "9." Again, in number forty-five, of "The Mind," we read: "As to *Bodies*, we have shown in another place that they have no proper Being of their own." The reference may be to number "13" of the same series,<sup>1</sup> but would be more fully met by the elaborate reasonings of the paper on *Being* and its sequel on *Atoms*.<sup>2</sup> We can carry the evidence still farther back, so far as the copies are available for such a purpose.

In number twenty-seven, a, of the "Miscellanies" we read: "We have shown that absolute nothing is the essence of all contradictions."<sup>3</sup> This is the burthen of the argument in "Of Being." Notice these sentences: "A state of absolute nothing is a state of absolute contradiction. Absolute nothing is the aggregate of all the absurd contradictions in the world." "It is the greatest contradiction and the aggregate of all contradictions to say that there should not be." Evidently the paper "Of Being" had been written when number twenty-seven, a, of the theological collection was composed.

Again, a brief observation belonging to the same series, entitled "God," and marked pp,<sup>4</sup> reminds us throughout of that portion of the essay "Of Being" which maintains that "nothing has any existence any where else but in consciousness." The thought and even the illustration from a room in which there is no one to see what is in it, are reproduced in an argument that eternal being must also be regarded as intelligent. And before this, under the letter f,<sup>5</sup>—that is, in the sixth of the long series approximating 1500 numbers, and carrying us thus close

<sup>1</sup> Dwight, *Life*, etc., p. 700.

<sup>2</sup> *Ibid.*, p. 674. See "Of Being," Coroll. (*ibid.*, p. 708), and "Atoms," Coroll. 9, 11 (p. 713).

<sup>3</sup> *MS.* copy, p. 1.

<sup>4</sup> *Ibid.*, p. 1.

<sup>5</sup> *Ibid.*, p. 1173.

to the beginning of Edwards's observations in divinity,—we find this reference: "As we have shown and demonstrated, that contrary to the opinion . . . that nothing is substance but matter, that no matter is substance but only God, who is a Spirit, and that other spirits are more substantial than matter, so also," etc. The corollary, which concludes "Of Being," reads: "It follows from hence that those beings which have knowledge and consciousness are the only proper, and real, and substantial beings; inasmuch as the being of other beings is only by these. From hence we may see the gross mistake of those, who think material things the most substantial beings, and spirits more like a shadow; whereas spirits only are properly substance." And in a corollary to the connected article "Of Atoms," it is said, "the substance of bodies at last becomes either nothing, or nothing but the Deity, acting in that particular manner, in those parts of space where he thinks fit; so that speaking most strictly there is no proper substance but God himself."

With these indications of the early origin of the first papers in the "Notes on Science" coincide their literary characteristics. We have at least five pieces of writing, some of them quite long, which plainly belong to the ante-collegiate period, viz.: "The Soul"; the first draft of the Spider paper, entitled "Of insects"; the revised paper in the form of a letter—the one published by Dr. Dwight; the sentences of an apologetic introductory letter; a dated letter to Jonathan's sister Mary. To these, I think, should be added the hitherto unpublished paper on "The Rainbow." The Letter on Spiders shows a marked improvement in style upon the paper entitled "Of insects." It is difficult, probably impossible, to determine how much of this improvement is due to the boy's own careful revision of it, how much to training and growth. Some time may have elapsed between the two compositions, but we cannot form any exact estimate of this. Nor is it important. The sen-



tences of the introductory letter, in which the writer refers to himself as "a child," are penned on the same paper which concludes the revised draft, and with the same ink and characters. There is no indication of extraneous help. We have thus a fair index of the boy's growth about the time he entered college. The "Rainbow" gives us further aid. We have it in a draft which compares remarkably with the paper "Of insects." Pen, ink, hand are apparently the same. There are other noticeable indications of its early origin to be found in spelling, construction of sentences, and other childlike characteristics of style. The local allusions are significant. The house of the father, Rev. Timothy Edwards, was built of timber drawn on the snow in winter "from the distant mill."<sup>1</sup> It fronted the west, and the land behind it "sloped toward the east to the brook that flowed at the foot of a steeper hill which was then crowned with a beautiful forest of primeval trees."<sup>2</sup> In "Of the Rainbow," the writer gives a reason for the saying that a rainbow in the east is a sign of fair weather, and narrates that he has "frequently heard my [his] countrymen<sup>3</sup> that are used to saw-mills say," etc., and remarks, further, that we "almost always see the ends of rainbows come down even in amongst the trees below the hills, and to the very ground." His description, also, of his philosophical apparatus is quite in point,—“a drop of water upon the end of a stick,” a glass bottle, a puddle, and the “taking a little water in my mouth, and standing between the sun and something that looks a little darkish and spirting of it into the air so as to disperse all into fine drops.” With this primitive apparatus, and local and domestic coloring, are combined acute observation and clear reasoning,

<sup>1</sup> *Windsor Farmes.* By John A. Stoughton, Hartford, 1883, p. 47.

<sup>2</sup> *Ibid.*, p. 46.

<sup>3</sup> In "Of insects," he says: "almost everybody Specially of my own Country," and refers to a time "when I was in the Woods," and in the "Flying Spider" to observations made "Standing at Some Distance behind the End of an house."



and, as in "Of insects," a reference to Sir Isaac Newton's discussions of rays of light.

Proceeding further, we make a natural and easy connection with the papers "Of the Prejudices of imagination," "Of Being," and on "Atoms." There is advance in reasoning power, in range of thought, and yet no greater development than might easily have come to such a boy in passing from childhood to the latter part of his Sophomore or to his Junior year. There is also much that reminds us of the earlier stage. This is specially noteworthy. I should weary you were I to present the many particulars which satisfy me that there is a somewhat close resemblance and connection. I will try and indicate the nature of the argument, though it is so much one of details that I cannot take time to do justice to its cogency.

I notice, first, a similar awkwardness, occasionally, in the construction of sentences. The study of a later paper shows marked improvement. The change in it of a word now and then would be of advantage, but the sentences are not twisted and distorted as though the thought was struggling for expression. On the contrary, the style is for the most part clear, terse, and even rhythmical. This resemblance between the earlier articles in the "Notes" and the pre-collegiate papers, on the one hand, and the difference, on the other, from the later one, are somewhat obscured for the reason already stated in the papers as printed by Dr. Dwight, but the manuscripts make it palpable. Take this sentence from "Of Being": "then you'll say for the same Reason in a Room Close Shut Up that no body sees nor hears nothing in it there is nothing any otherway than in God's knowledge." Or this, from the paper on "Atoms," which is a sequel and support to "Of Being": "as it will appear rather more Plain by another instance as Suppose the bodye to be a Perfect Solid in that Shape wider at the Upper and by Degrees to Come quite to a point at the Lower to be thrust," etc., etc.

For a parallel from the earlier papers it will suffice to quote part of a sentence from the manuscript "Of insects": "The reason may be that the Multitude and Powerfullness of the Rays affects a Greater Part of the Retina than their space which they immediately strike Upon, but we find that a light that so Does when it is a lone and when No part of the Retina is affected by any thing else but that, so that the least impression is felt by it, wont Do so or att least Not so much in the midst of other Perhaps Greater light, so that other Parts Of the Retina are filled with impressions of their Own." If with the foregoing sentences in mind the article on "Colours" is read, the illustration of my point will be completed.<sup>1</sup>

Common to the pre-collegiate papers and those which stand first in the "Notes," etc., are other characteristics which also mark youthfulness and immaturity. They are more readily felt than described, but may be summed up in the words, intensity, and positiveness,—an intensity which runs over into exaggeration of phraseology, positiveness which in its own clearness and strength of conviction has not learned by experience how to introduce and adjust its statements to the working and needs of other minds. The manuscript "Of the Rainbow" opens thus: "We shall Endeavour to Give a full Account Of the Rainbow and such an One as we think if Well understood will be satisfactory to Any body If they Are fully satisfied Of Sr Isaac Newtons Different Reflexibility and Refrangibility of the Rays of light and If he be not we Refer him to [what] he has said About it and we are Assured if he be A person Of an ordinary logacity and anything Versed in such matters, by that time he has throughly Considered it he[']ll be satisfied and after that let him Peruse what we are about to say." "Of the Prejudices of imagination" opens thus: "Of all Prejudices no one so fights with naturall Philosophy,

<sup>1</sup> See Appendix D.



and prevails more against it, than those of imagination tis that which make the vulgar so roar out upon the mention of some very Rational Philosophicall truths." Again: "Opinions arising from imagination take us as soon as we are born, are beat into us by every act of sensation," etc. "Neither will anybody flatly Deny," etc. "Men Come to make what they Can actually Percieve by their senses or by immediate outside Reflection into their own souls the standard of Possibility and impossibility: so that their must be no body forsooth bigger than they Can Concieve of or Less than they Can See with their eyes." The essay "Of Being" abounds in intense expressions: "it put's the mind into mere Convulsion and Confusion to endeavour to think of such a state"; "it is the Greatest Contradiction and the Aggregate of all Contradictions to say that there should not be"; "indeed we Can mean nothing else by nothing but a state of Absolute Contradiction; and If any man thinks that he Can think well Enough how there should be nothing I'll Engage that what he means by nothing is as much something as any thing that ever He thought of in his Life"; "I Demand in what Respect this world has a being but only in the Divine Consciousness Certainly in no Respect."

Positiveness, as well as intensity, belonged to Edwards's thinking permanently. But there is a touch of something in these papers which is not felt as we read on. The second page of the cover of the "Notes on Natural Science" contained this rule, which he prescribed to himself: "In writing let there be much compliance with the reader's weakness, and according to the rules in the Ladies' Library, Vol. I., p. 340, and sequel."<sup>1</sup> The work there named appeared in London, in 1714. It was "written by a Lady," and introduced by Richard Steele, who also writes a dedication for each of its three volumes, and in the first characterizes the book as a "Collection for the use of female life."

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<sup>1</sup> Dwight, *Life*, etc., p. 703.

Edwards's reference is to a portion of an essay on "Charity." The writer urges that giving should be attended with "especial care not to oppress the modesty of the humble." The needy "have really a kind of property in the small of their estates which charity should lay by for them." Duty toward them is a "debt of honor," and "is not performed when the haughty and rude air of the giver takes away from the receiver the relish of the comfort he proposed to himself from the charity he applied to him for." In benefiting others we may "act the part, and the best part too, of the Almighty Father of beings." How has his Son commended charity in that He "forsook his Father's bosom and came down into our nature to relieve a poor perishing world and rescue it from eternal destruction." There is a pleasing simplicity and youthful ingenuousness in this college boy's reference to such a book and essay. He was trained to defer to his elders, and in courtesy. His letter introductory to "The Flying Spider" reveals a charming modesty. He nowhere shows a consciousness that he is doing anything extraordinary. Yet it were not strange if, as already intimated, in the first stirrings within him of his wonderful powers, his intellectual alertness and quickness made him impatient of the comparatively sluggish operations of other minds. Perhaps only through experience of life and by self-discipline, as well as by the timely aid of parental training, did he learn to do justice to the divine right of some persons to be slow and dull.<sup>1</sup> This, however, is

<sup>1</sup> It would be interesting, and might be of importance to the inquiry as to the date of the "Notes on Natural Science," if it could be ascertained when or how Edwards had access to the first volume of the "Ladies' Library." Its preface is dated July 21, 1714. Mr. Franklin B. Dexter, M.A., Asst. Librarian, Yale University, informs me that the college had no copy when Edwards was connected with it. He may have seen it in the home where a tenth sister was born early in his Junior Year. Mr. Dwight (*Life*, etc., p. 17) says that his sisters were "Sent . . . to Boston to finish their education." One of them may have brought a copy back with her.

In *Windsor Farmes*, p. 147, June 5, 1718, is given as the date of birth of Martha Edwards. This is probably a misprint for Jan. 5. Over date of Jan. 27, 171 $\frac{1}{2}$ , Rev. Timothy Edwards states that this daughter "was Just



mainly conjecture.<sup>1</sup> He became one of the meekest and humblest of men. Nor in his beginnings would we fail to discriminate between a positiveness which was the natural effect of remarkable clearness of vision and zeal for truth, and an undue self-assertion, or mere inconsiderateness of others' limitations. Still less would we confuse with over-intense and exaggerated expression the tokens of imaginative power in these early papers,—the vivid description of his having “Severall times seen in a Very Calm and serene Day . . . standing behind some Opaque body that shall Just hide the Disk of the sun and keep of his Dazling rays from my eye and looking close by the side of it, multitudes of little shining webbs and Glistening strings of a Great Length and at such a height as that one would think they were tack'd to the Sky by one end were it not that they were moving and floating”; or the injunction that if we would “Go About to form an idea of Perfect nothing” we must not “suffer our thoughts to take sanctuary in a mathematical point,” and “when we Go to Expell body out of Our thoughts we must Cease not to leave empty space in the Room of it and when we Go to Expell emptiness from Our thoughts we must not think to squeeze it out by any thing Close hard and solid but we must think of the same that the sleeping Rocks Dream of.”

The conclusion to which the preceding examination points accords with other indications which must be dismissed

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three weeks old the Last Sabbath day morning.” In the same letter is the allusion to the son quoted by Dr. Dwight: “I have not heard but that your Brother Jonathan also is well; he hath a very Good name at Weathersfield, but [both?] as to his Carriage and his Learning.”

<sup>1</sup>In a letter already cited, Rev. Timothy Edwards, under date of Sunday, August 7, 1711, writes to Mrs. Edwards: “I hope thou wilt take Special care of Jonathan y<sup>t</sup> he dont Learn to be rude & naught &c—of w<sup>ch</sup> thou and I have Late-ly Discoursed.” Jonathan had not then seen his eighth birthday. The message may refer to some influence from without, rather than to any tendency from within. It is cautionary, and may imply some degree of solicitude, but does not indicate the occasion or cause. It is also too early to be connected with any phenomena in the *MSS.*

with a word. There are occasional youthful expressions,—such as the word “horrid,” for which the editor substituted “stark,” in the clause: “We Cannot talk about it without Speaking horrid Nonsense.” More trustworthy is the evidence from spelling, punctuation and use of capital letters. Each of these characteristics helps to confirm the relation otherwise exhibited of the early papers in the “Notes on Science” to those written before admission to college and those which may have been composed after graduation.

This opinion of their date suits, also, what I may call the general situation. Edwards was trained from childhood to use the pen. He began writing on Natural History and Physics very early. He had a strong love for these studies. There must have been a beginning of the collection called “Notes,” etc. The most natural time for it is the period when his mind had been stimulated by Locke, and when his college studies brought Natural Philosophy to the front. He remained at college nearly two years after graduating. The numbers in his “Miscellanies,” as I learn from the manuscript copies, together with those which have been published, show that during a portion of this graduate period he was preparing for what Dr. Hopkins calls his “trials,” that is, his examination for approbation as a preacher of the gospel. In June or July, 1722, he was thus approved, and in August took the charge of a Presbyterian Church in New York City. Subsequently he preached in Bolton, Connecticut,<sup>1</sup> but later returned to New Haven, where, in the following June, he entered on his duties as tutor. During his tutorship the college was without a permanent head. The three tutors, called the “pillar tutors,” had, in that troublous time, a heavy burden to sustain. At the close of the first year Edwards was laid aside by severe and dangerous illness for about three months. He was sought for by the churches. He at length (in 1726)

<sup>1</sup> Stoughton, *Windsor Farms*, p. 82.



accepted the call to Northampton, to assist his venerable grandfather, Solomon Stoddard.

Probably from this time his mind was more and more absorbed in what became the work of his life. Of this subsequent period President Woolsey says, referring to Edwards's early "speculations" on matter and mind, "I have not found any evidence that these enquiries were resumed at a later period; probably his ministerial work and the science of theology with the study of the Scriptures occupied all his attention during his later years."<sup>1</sup> This opinion was expressed at the reunion of the Edwards family at Stockbridge, in 1870. Neither then nor since, so far as I am aware, has anything appeared to modify it. Recalling now the evidence from the manuscripts as to the early beginning of the articles on subjects in natural science and mental philosophy, it may fairly be claimed that Dr. Dwight's judgment of the time at which these papers were written is moderate and sound. If any change is to be made, it would apparently be in the direction of earlier rather than later dates.

The principal object of this report is now accomplished. Two suggestions will be added that naturally arise.

The evidence adduced quite clearly indicates that "Of Being" was one of the earliest of Edwards's philosophical productions. He repeatedly, apparently, refers to it. His idealism was thus at the beginning and foundation of his philosophy. The question deserves renewed examination, aided by whatever light his unpublished manuscripts may shed upon the inquiry, what influence had this speculative conclusion upon his conceptions of spiritual life and of various tenets in divinity?

Again, the earlier the date of the paper on *Being*, the less likelihood is there of any influence from Berkeley on the mind of the writer. Such influence, indeed, is still

<sup>1</sup>*Edwards Memorial*, Boston, Congregational Publishing Society, pp. 32, 33.

possible, so far as dates are concerned. Three important writings expressing the principles of Berkeleian philosophy were published by its author between the years 1709 and 1713. The earliest probable date of the paper "Of Being" is 1717-1718. Copies of the "Essay toward a Theory of Vision" (Dublin, 1709), or of the "Principles of Human Knowledge" (Dublin, 1710), or the "Three Dialogues between Hylas and Philonous" (London, 1713), may easily, before 1718, have crossed the sea; although there would be nothing strange, considering the times, the absence of journals heralding new publications, the character of Berkeley's theory, if his writings had not early attracted attention in this remote world.<sup>1</sup> But however this may have been, it seems hardly possible that a youth, fourteen or fifteen years of age, could have read a writer so charming as Berkeley in style, diction, appeal to the imagination, and not betray in expressing his thoughts some traces of such a master. If, besides, we suppose that he was indebted for his main thought to Berkeley, for his way of looking at the subject of which he treats, the reflection at once arises which another has expressed: "Edwards was not the man to conceal a real obligation." Nor is this difficulty removed by the fact that we are dealing with private notes and remarks. He makes in them too much of idealism as his own view, treats it as too important, recurs to it too often, to make it easy to suppose he was dealing with borrowed matter, or was conscious of its appropriation. In one instance, to a brief note on "Density Pores," he adds: "N. B. This has been thought of before." The names of Newton, Locke, Cudworth, appear; there is not the slightest trace of a reference to Berkeley. To this should be added that there is no evidence, as yet discovered, that any work of Berkeley was accessible to Edwards while a student either at Wethersfield or New Haven. No copy, so far as

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<sup>1</sup> Information on this point is respectfully solicited by the writer.



known, was in the college library. Tutor Johnson, afterwards President of Columbia College, who became substantially a Berkeleian, was not Edwards's teacher, unless for a few disturbed weeks in December, 1718, and January, 1719, during which the Wethersfield students were at New Haven, and he "is said to have first become interested in Berkeley's idealism when he went to England in 1723 for Episcopal ordination."<sup>1</sup> Soon after Berkeley's arrival, in January, 1729, at Newport, Rhode Island, Johnson was introduced to him and was presented "with those of the Dean's publications which had not fallen under his eye." On June 25, the same year, Berkeley writes to him: "I know not whether you have got my treatise concerning the principles of Human Knowledge. I intend to send it with my tract *De Motu*." It is not clear that, even at this late date, Johnson possessed so important an exposition of the Berkeleian philosophy as the *Principles*. Edwards was then at Northampton, where he was ordained early in 1727. A remark, however, of one of Johnson's biographers, Dr. Beardsley,<sup>2</sup> deserves notice at this point. He says: "When Johnson graduated in 1714, something had been heard of these great names [viz., Descartes, Boyle, Locke, and Newton], as well as of a new philosophy that was attracting attention in England, but the young men were cautioned against receiving it, and told that it would corrupt the pure religion of the country and bring in another system of divinity."<sup>3</sup> Unfortunately no authority is given for this statement, and its immediate author is no more with us. It is indefinite, may arise from the antedating of a later impression, or may misinterpret some reference. If the original allusion—assuming such an one—is to Berkeleianism,

<sup>1</sup> See President Porter's *The Two Hundredth Birthday of Bishop George Berkeley*, etc., 1885, p. 71.

<sup>2</sup> Beardsley, *Life and Correspondence of Samuel Johnson, D.D.*, 1874, pp. 67, 72.

<sup>3</sup> *Ibid.*, p. 5. See also the interesting discussion in Professor Allen's *Jonathan Edwards*, 1889, pp. 14 *et seq.*

it is open to suspicion and needs corroboration. Not unlikely, so far as Dr. Beardsley's statement may be founded in fact, something other than Berkeley's philosophy is implied<sup>1</sup>. Though it is impossible to determine all that was in the air in the Connecticut valley in Edwards's youth, no sufficient reason has yet been given for supposing that any of Berkeley's writings had fallen into his hands when he wrote the paper "Of Being," and there are not a few reasons for thinking that he was still writing, as when he described the ends of Rainbows as "almost alwaies" seen descending "even in amongst the trees below the hills," from such thoughts as came to him from within his own horizon. From across the waters the minds that most were stirring his own were, in physics, Sir Isaac Newton's; in philosophy, Locke's. Indeed, so far as appears, we need, in order to account for his idealism, to recognize only these forces: the early fascination for him of Newton's discoveries respecting light and colors; the philosophy of Locke, especially the stress laid on sensation as explaining the origin of ideas; his own extraordinary

<sup>1</sup> Locke's philosophy excited strenuous opposition in England on the ground of its alleged inconsistency with the accepted religious beliefs and its sceptical tendencies. See President Porter's account of Locke's critics in Appendix to Morris's Ueberweg's *History of Philosophy*, Vol. II., pp. 346 *Sqq.* It is easier to suppose that in 1714 young men in this country were cautioned against Locke's philosophy than against Berkeley's. [Since the foregoing note was in type, I have compared Beardsley's statement with Chandler's, published in 1805, but written much earlier. The former appears to be merely a reproduction of the latter yet by transposing the order of two clauses, and using the phrase "as well as," it suggests, I presume unintentionally, that the "new philosophy" was something distinct from that of the men who are named. Dr. Chandler's words are: "Indeed, at the time when Mr. Johnson took his *Bachelor's* degree, the students had heard of a certain new and strange philosophy that was in vogue in England, and the names of Des Cartes, Boyle, Locke and Newton had reached them, but they were not suffered to think that any valuable improvements were to be expected from philosophical innovations. They were told that a new philosophy would soon bring in a new divinity, and corrupt the pure religion of the country," etc. The "new philosophy" here referred to is plainly that of the philosophers who are mentioned. Berkeley's name, it will be noticed, does not appear. See Chandler's *Life of Samuel Johnson, D.D.*, pp. 4, 5. Cf. statement, on p. 14 of the introduction after September, 1717, of "the study of Mr. Locke and Sir Isaac Newton."]



deductive power, so early exhibited and henceforth at once his strength and his weakness; and his wonderful sense of the immediateness of the divine presence and agency. All this at least concurred to make him an idealist and a determinist, and might even have carried him over into sheer pantheism but for his Bible, his human, Puritan, New England conscience, and his early, clear, constant, and intense thought of God as perfect Knowledge and perfect Love.<sup>1</sup>

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<sup>1</sup> See extracts from copies of unpublished "Observations" in *Andover Review*, xiii. 295 *et seq.*

## APPENDIX.

## A.

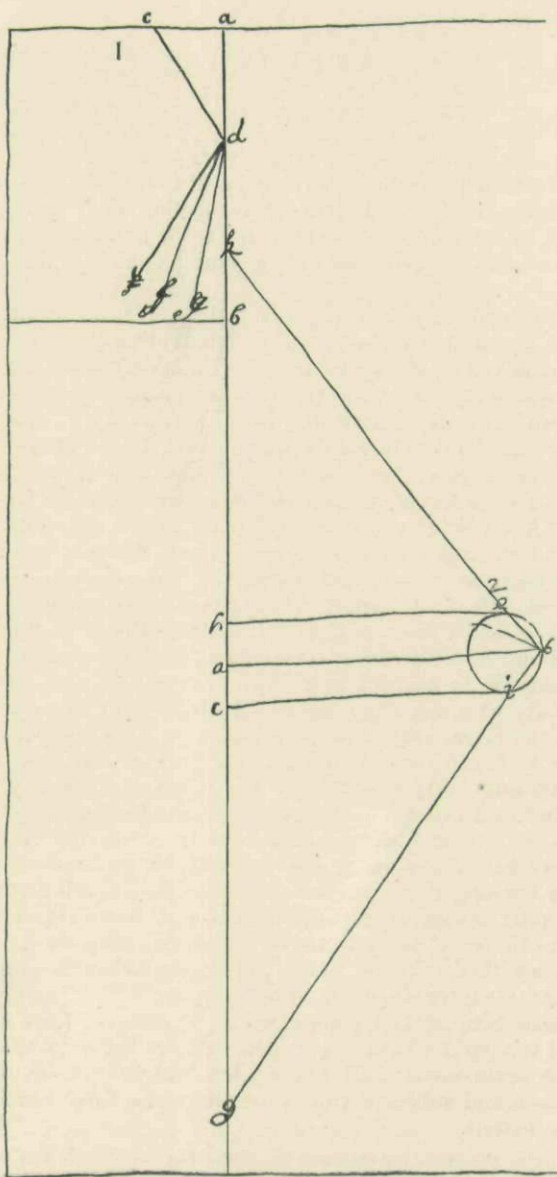
[THE SOUL]<sup>1</sup>

I am informed y<sup>t</sup> you have advanced a notion y<sup>t</sup> the Soul is material & keeps w<sup>th</sup> y<sup>e</sup> body till y<sup>e</sup> resurrection as I am aprofes't Lover of Novelty you must allow me to be much entertain'd by this discovery w<sup>ch</sup> however old in some parts of y<sup>e</sup> world is new in this

I am informed y<sup>t</sup> you have advanced an Notion y<sup>t</sup> the Soul is materiall & attends y<sup>e</sup> body till y<sup>e</sup> resurrection as I am a profest Lover of novelty you must imagin I am very much entertained by this discovery (w<sup>ch</sup> however in some parts of y<sup>e</sup> world is new to us) but suffer my Curiosity a Littel further I w<sup>d</sup> know y<sup>e</sup> manner of y<sup>e</sup> kingdom before I swear alegance 1<sup>st</sup> I w<sup>d</sup> know whether this materiall Soul keeps w<sup>th</sup> in y<sup>e</sup> Coffin and if so whether it might not be convenient to build a repository for it in order to w<sup>ch</sup> I w<sup>d</sup> know w<sup>t</sup> Shape it is of whether round triangular or fore square or whethe is it a number of Long fine strings reaching from y<sup>e</sup> head to y<sup>e</sup> foot and whether it dus not Live a very discontented Life I am afraid when y<sup>e</sup> Coffin Gives way y<sup>e</sup> earth will fall in and Crush it but if it should Chuse to Live above Ground and hover about y<sup>e</sup> Grave how big it is whether it Covers all y<sup>e</sup> body or is assined to y<sup>e</sup> head or breast or how if it Covers all y<sup>e</sup> body w<sup>t</sup> it dus when another body is Laid upon y<sup>t</sup> whether y<sup>e</sup> 1<sup>st</sup> First Gives way and if so where is y<sup>e</sup> place of retreat but suppose y<sup>e</sup> Souls are not so big but y<sup>t</sup> 10 or a dozen of you may be about one body whether yy will not Quarril for y<sup>e</sup> highest place and as I insist much upon my honour and property I w<sup>d</sup> know wher I must Quit my dear head if a Superior Soul Comes in y<sup>e</sup> way but above all I am Consearned to know w<sup>t</sup> they do where a bureing Place has bin filled 20 30 or 100 times if they are a top of one another y<sup>e</sup> uppermost will be so far of y<sup>t</sup> it Can take no Care of y<sup>e</sup> body I strongly suspect they must march of every time there Comes anew Set I hope ther is some Good place provided for them but dupt [d(o)ubt?] y<sup>e</sup> undergoing so much hard Ship & being deprived of y<sup>e</sup> body at Last will make them ill temper'd I Live it <sup>h</sup> your phisicall Genus to determin whether some medesinall applications might not be proper in such Cases and subscrib your proselite when I can have solution of these maters

<sup>1</sup>In copying the MSS. for this and the following reprints it has been found extremely difficult, at times, to determine whether or not the writer intends to capitalize. The letter s is especially uncertain in this respect. Brackets mark letters or words not in the manuscript.





## B.

## OF THE RAINBOW

We shall Endeavour to Give a full Account Of the Rainbow and such an One as we think if Well understood will be satisfactory to Any body If they Are fully satisfied Of Sr Isaac Newtons Different Reflexibility and Refrangibility of the Rays of light and If he be not we Refer him to [what] he has said About it and we are Assured if he be A person Of an ordinary logacity and anything Versed in such matters, by that time he has throughly Considered it he<sup>ll</sup> be satisfied and after that let him Peruse what we are about to say the first Question then shall be What is that Reflection which we Call a Rainbow from I answer from the falling Drops of Rain for we never see any Rainbow except it be so that the sun Can shine full upon the Drops of Rain except the heavens be so Clear on One side as to let the Uninterrupted Rays Of the sun Come Directly Upon the Rain that [?] falls on the Other side, thus we say it is a sign of fair Weather when there is a Rainbow in the East, because when there is a Rainbow in the east, it is alwaies already fair in the West for If it be Cloudy there the Rays of the sun will be hindered from Coming thence to the Opposite Drops of Rain. It Cannot be the Cloud from whence this Reflection is made, as was once thought, for we almost alwaies see the Ends of Rainbows Come Down Even in amongst the trees below the Hills And to the very Ground where we know there is no part of the Cloud there, but what Descends in Drops of Rain and Can Convince any man by Ocular Demonstration In two Minutes On a fair Day that the Reflection is from Drops by Only taking a little water in my mouth and standing between the sun and something that looks a little Darkish and spirting of it into the Air so as to Disperse all into fine Drops And there will appear as Compleat and plain a Rainbow with all the Colours as ever Was seen in the heavens and there will Appear the same If the sun is near enough to the horizon upon fine Drops of Water Dashd up by a stick from a puddle, the Reason why the Drops must be fine is because they wont be thick enough but here and there a Drop if they Are Large, And I have frequently heard my Countrymen that are Used to sawmills say that they have seen a Rainbow upon the Drops that are Dispersed in the Air by the Violent Concussion of the Waters in the Mill and what Is Equivalent to A Rainbow, If One take a Drop of water upon the end of a Stick and hold it up On the side that is Opposite to the sun and moving it along towards One side or t'other you will Percieve where the Drop is held just at such a Distance from the Point opposite to the sun that the Rays of the sun are much more vividly Reflected by it to your eye, than at any other Place Nearer Or further of and that in the Colours of the Rainbow too



so that If there had been Enough of these Drops there would have appeared a perfect Rainbow. and If you have a mind to see more Distinctly you may fill a Globular Glass bottle with water, the Glass of it must be very thin and Clear, and it will serve your turn as well as so big a Drop of Water and by that means you may also Distinctly see that the Reflection is from the Concave and not from the Convex surface

The Next thing that Wants a solution is what should Cause the Reflection to be Circular, or which is the same thing what should Cause the Reflection to be Just at such a Distance everywhere from the Point that is opposite to the sun, and no reflection at all from the Drops that are within or without that Circle why should not all the Drops that are within the Circle Reflect as many rays as those that are in the Circle or where the Circle is to Resolve this we must Consider this One law of Reflection and Refraction to wit If the Reflecting body be Perfectly Reflexive the Angle of Reflexion will be the same as the Angle of incidence but if the body be not Perfectly so the Angle will be less than the Angle of incidence, by a body Perfectly Reflexive I mean one that is so Solid as Perfectly to Resist the stroke of the incident body and not to Give way to it at all, and by and imperfectly Reflexive a body that Gives way and Does not Obstinate-ly Resist the stroke Of the incident Body so I say that If the body a. b. be Perfectly Reflexive and Does not Give way at all to the stroke of the incident Ray c. d. It will Reflect by an angle that shall be equal to that by which it fell upon the body a. b. from d. to e. but if the body a. b. is not able to Resist the stroke of the Ray c. d. but Gives way to it it will neither be able to Reflect by so big an angle but will Reflect it it may be by the line d. f. or d. g. according as the Reflexive force of a. b. be greater or lesser. And the bare Consideration of this will be enough to Convince any man for we know that there is need of Greater force by a Great angle than by a little one. if we throw a ball against the floor or Wall it will much easier Rebound sideways than Right back again and [if] we throw it sideways against a body that Gives way to the stroke of (it may be tried at any time) it will not Rebound in so big an angle as if the body were quite hard, so it is the same thing in the body a. b. it might Give way so much as to let the Ray proceed Right on with very

☞ note  
well for  
a halo

little Deviation from its old path and if so the Deviation will be greater and greater in proportion to the Resisting Power of the body and if so if it Gives way at all it will not Deviate so much as if it Did not at all Now these Drops of water is one of these imperfectly Reflexive bodies If they were Perfectly Reflexive we should see those Drops that are right opposite to Reflect as many Rays as those that are Just so much on one side had the liquor but Resistance enough to Reflect the Rays so Directly back again, but those

Rays that fall Perpendicularly or near Perpendicularly upon the Concave surface of the Drop as from a. to b. fig 2 falling with much Greater force than the Ray, which falls sideways upon it from e. to b. after the Refraction at e which is made in all pellucid Globes. the Concave surface has not force enough to stop it and Reflect it, (what that Reflexive force of the [Concav]e<sup>1</sup> surface is we are not now Disputing) but lets Go through and Pass right on Uninterruptedly [N]ow the Ray h. e. b. and the Rays Which fall about so obliquely Coming with a far [light-]er stroke the concave surface has force enough to Resist it and what falls Obliquely being far more easily Reflex[ible] Reflects it along in the line b. g. and so in the same manner the Ray c. i. b. will be Reflected to k. so that an eye so much sideways as g. or k. will take the Rays thus Reflected from the Drops and no where Else And it being Only those Ray whose Obliquity is adjusted [to] the Refractive power that are Reflected by it, and they being all Reflected Out again with such a Degree of Obliquity we hence see why the Rays be not Reflected all ways equally, we hence Also see why the Rays are Only Reflected out at the sides of the Drop and not Directly back again by that why the Eye Does not take the Rays from any Drops but those that are so much sideways of or on one side of the Point that is Right Oposite to the sun and so why the Parts that are so Opposite Look Dark and why the Parts that are Just so much on one side or just At such A Distance all Round from the Opposite Point Alone Are bright or which is the same thing why there is such a bright Circle the next Grand Question is what is it Causes the Colours Of the Rainbow and this Question indeed is almost answered already for it is very evident :

## C.

## OF BEING

That there should absolutely be nothing at all is utterly impossible, the Mind Can never Let it stretch its Conceptions ever so much bring it self to Concieve of a state of Perfect nothing, it put's the mind into mere Convulsion and Confusion to endeavour to think of such a state, and it Contradicts the very nature of the soul to think that it should be, and it is the Greatest Contradiction and the Aggregate of all Contradictions to say that there should not be, tis true we Cant so Distinctly show the Contradiction by words because we Cannot talk about it without Speaking horrid Nonsense and Contradicting our selve at every word, and because nothing is that whereby we Distinctly show other particular Contradictions, but here we are Run up to Our first principle and have no other to explain the Nothingness or not being of nothing by, indeed we Can mean nothing else

<sup>1</sup> The MS. is defective here.



by nothing but a state of Absolute Contradiction; and If any man thinks that he Can think well Enough how there should be nothing I'll Engage that what he means by nothing is as much something as any thing that ever He thought of in his Life, and I believe that if he knew what nothing was it would be intuitively Evident to him that it Could not be. So that we see it is necessary some being should Eternally be and tis a more palpable Contradiction still to say that there must be being somewhere and not otherwhere for the words absolute nothing, and where, Contradict each other; and besides it Gives as great a shock to the mind to thing of pure nothing being in any one place, as it Does to think of it in all and it is self evident that there Can be nothing in one place as well as in another and so if there Can be in one there Can be in all. So that we see this necessary eternal being must be infinite and Omnipresent<sup>1</sup>

This Infinite And omnipresent being Cannot be solid. Let us see how Contradictory it is to say that an infinite being is solid, for Solidity surely is nothing but Resistance to other solidities.

Space is this Necessary eternal infinite and Omnipresent being, we find that we can with ease Concieve how all other beings should not be, we Can remove them out of our Minds and Place some Other in the Room of them, but Space is the very thing that we Can never Remove, and Concieve of its not being, If a man would imagine space any where to be Divided So as there should be Nothing between the Divided parts, there Remains Space between notwithstanding and so the man Contradicts himself, and it is self evident I believe to every man that space is necessary, eternal, infinite, & Omnipresent. but I had as Good speak Plain, I have already said as much as that Space is God, and it is indeed Clear to me, that all the Space there is not proper to body, all the space there is without y<sup>e</sup> Bounds of the Creation, all the space there was before the Creation, is God himself, and no body would in the Least stick at it if it were not because of the Gross Conceptions that we have of space.

A state of Absolute nothing is a state of Absolute Contradiction absolute nothing is the Aggregate of all the Absurd[?] contradictions in the World, a state wherin there is neither body nor spirit, nor space neither empty space nor full space

<sup>1</sup> Between this paragraph and the next are the words: "Place this as a Lemma where it suits best and Let it be more fully [d]emonstr" [demonstrated]. The last word is very obscurely written. It seems to begin with an s, as though another word were in mind than the one adopted, as suggested by the following letters. if these are rightly read. In the margin, running down from against the first line of the second paragraph are these words: "Place this somewhere else." A mark drawn above "Place this as a Lemma" etc., seems to indicate that this direction refers to the same paragraph.

neither little nor Great, narrow nor broad neither infinitely Great space, nor finite space, nor a mathematical point neither Up nor Down neither north nor south (I dont mean as it is with Respect to the body of the earth or some other Great body but no Contrary Point, nor Positions or Directions[]) no such thing as either here Or there this way or that way or only one way; When we Go About to form an idea of Perfect nothing we must shut Out all these things we must shut out of our minds both space that has something in it and space that has nothing in it we must not allow our selves to think of the least part of space never so small, nor must we suffer our thoughts to take sanctuary in a mathematical point, when we Go to Expell body out of Our thoughts we must Cease not to leave empty space in the Room of it and when we Go to Expell emptiness from Our thoughts we must not think to squeeze it out by any thing Close hard and solid but we must think of the same that the sleeping Rocks Dream of and not till then shall we Get a Compleat idea of nothing

a state of nothing is a state wherin every Proposition in Euclid is not true, nor any of those self evident maxims by which they are Demonstrated & all other Eternal truths are neither true nor false

when we Go to Enquire whether or no there Can be absolutely nothing we speak nonsense in Enquiring the stating of the Question is Nonsense because we make a disjunction where there is none either being or absolute nothing is no Disjunction no more than whether a tiangle is a tiangle or not a tiangle there is no other way but Only for there to be existence there is no such thing as absolute nothing. There is such a thing as nothing with Respect to this Ink & paper there is such a thing as nothing with Respect to you & me there is such a thing as nothing with Respect to this Globe of Earth & with Respect to this Created universe there is another way besides these things having existence but there is no such thing as nothing with Respect to Entity or being absolutely Considered we don't know what we say if we say we think it Possible in it self that there should not be Entity

and how Doth it Grate upon the mind to thing that something should be from all Eternity, and nothing all the while be Conscious of it let us suppose to illustrate it that the world had a being from all Eternity, and had many Great Changes and Wonderfull Revolutions, and all the while nothing knew, there was no knowledge in the Universe of any such thing, how is it possible to bring the mind to imagine, yea it is Really impossible it should be that Any thing should be and nothing know it then you'll say if it be so it is because nothing has Any existence any where else but in Consciousness no certainly no where else but either in Created or uncreated Consciousness



Supposing there were Another Universe only of bodies Created at a Great Distance from this Created in excellent Order and harmonious motions, and a beautiful variety, and there was no Created intelligence in it nothing but senseless bodies, nothing but God knew anything of it I Demand in what Respect this world has a being but only in the Divine Consciousness Certainly in no Respect there would be figures and magnitudes, and motions and Proportions but where where Else but in the almighty's knowledge how is it possible there should, then you'll say for the same Reason in a Room Close Shut Up that no body sees nor hears nothing in it there is nothing any other way than in Gods knowledge I answer Created beings are Conscious of the Effects of what is in the Room, for Perhaps there is not one leaf of a tree nor Spire of Grass but what has effects All over the universe and will have to the End of Eternity but any otherwise there is nothing in a Room shut up but only in Gods Consciousness how Can Any thing be there Any other way this will appear to be truly so to Any one that thinks of it with the whole united strength of his mind. Let us suppose for illustration this impossibility that all the Spirits in the Universe to be for a time to be Deprived of their Consciousness, and Gods Consciousness at the same time to be intermitted. I say the Universe for that time would cease to be of it self and not only as we speak because the almighty Could not attend to Uphold the world but because God knew nothing of it tis our foolish imagination that will not suffer us to see we fancy there may be figures and magnitudes Relations and properties without any ones knowing of it, but it is our imagination hurts us we Dont know what figures and Properties Are.

Our imagination makes us fancy we see Shapes an Colours and magnitudes tho no body is there to behold it but to help our imagination Let us thus State the Case, Let us suppose the world Deprived of Every Ray of light so that there should not be the least Glimering of light in the Universe Now all will own that in such Case the Universe would be immediately Really Deprived of all its Colours. one part of the Universe is no More Red or blue, or Green or Yellow or black or white or light or dark or transparent or opake there would be no visible Distinction between the world and the Rest of the incomprehensible Void yea there would be no Difference in these Respect between the world and the infinite void, that is any Part of that void would really be as light and as Dark, as white and as black as Red and Green as blue and as brown as transparent and as opake as Any Part of the universe, or as there would be in such Case no Difference between the world and nothing in these Respects so there would be no Difference between one part of the world and another all in these Respects is alike confounded with and undistinguishable from infinite emptiness

At the same time also Let us suppose the Universe to be altogether Deprived of motion, and all parts of it to be at perfect Rest (the same supposition is indeed included in this but we Distinguish them for better Clearness) then the Universe would not Differ from the void in this Respect, there will be no more motion in one than the other then also solidity would cease, all that we mean or Can be meant by solidity is Resistance Resistance to touch, the Resistance of some parts of Space, this is all the knowledge we Get of solidity by our senses and I am sure all that we Can Get any other way, but solidity shall be shown to be nothing Else more fully hereafter. but there Can be no Resistance if there is no motion, one body Can [not] Resist another when there is perfect Rest Amongst them, but you'll say tho there is not actual Resistance yet there is potential existence, that is such and such Parts of space would Resist upon occasion, but this Is all I would have that there is no solidity now not but that God would Cause there to be on occasion and if there is no solidity there is no extension for extension is the extenddness of the solidity, then all figure, and magnitude and proportion immediately Ceases. put both these suppositions together that is Deprive the world of light and motion and the Case would stand thus with the world, there would [be] neither white nor black neither blew nor brown, bright nor shaded pellucid nor opake, no noise or sound neither heat nor Cold, neither fluid nor Wet nor Drie hard nor soft nor solidity nor Extension, nor figure, nor magnitude nor Proportion nor body nor spirit, what then [is] to become of the Universe Certainly it exists no where but in the Divine mind this will be Abundantly Clearer to one after having Read what I have further to say of solidity &c

So that we see that a world without motion Can Exist no where Else but in the mind either infinite or finite

Corollary. it follows from hence that that those beings which have knowledge and Consciousness are the Only Proper and Real And substantial beings, inasmuch as the being of other things is Only by these. from hence we may see the Gross mistake of those who think material things the most substantial beings and spirits more like a shadow, whereas spirits Only Are Properly Substance.

## D

## [COLORS.]

[From p. 28 of the MS. folio.]

COLOURS we have already supposed that the Different Refrangibility of Rays Arises from their Different bulk, we have also supposed that they Are very Elastick bodies, from these suppositions the Colours of natural bodies *may be accounted for*<sup>1</sup>

<sup>1</sup> The words Italicized in print have a line through them in the Manuscript.



that is why some Particles of matter Reflect such a sort or sorts of Rays and no Other the Different Density of Particles whence Arises a Different attraction and together with their Different firmness will account for all some bodies have so little of firmness and so Easily Give way that they Are able to Resist the stroak of no Rays But the Least and weakest, and most Reflexible Rays. all the other Rays that Are bigger and therefore their force not so Easily Resisted overcome the Resistance of the Particles that stand in their way such bodies therefore appear blue as the atmosphere or skies, smoke &c—again tis known that the most Refrangible Rays are most easily attracted that is are most easily stay'd or diverted by attraction, for as has been already shown Refraction & Reflection from Concave surfaces is by attraction because therefore that the most Refrangible Rays are most Diverted by Refraction and Easiest Reflected inward from the surface, and most Diverted by Passing by the edges of bodies it follows that attraction has most influence on the most Refrangible Rays

'Tis also evident that the Particles of bodies that are the most Dense have the strongest attraction. the Particles of any body therefore may be so dense and attract so strongly as to hold fast all the Lesser and more Refrangible Rays so that they shall none of them be Reflected but Only the Greater Rays, on Whom the attraction of these Particles Can have Less influence, hereby the body will become Red

and as for the intermediate Colours the Particles of a body may be so Dense as to hold all the most Refrangible Rays and may yet not be firm Enough to Resist the stroak of the Least Refrangible hereby the body may become Yellow or Green or of any other intermediate Colour

Or a body may be Colour'd by the Reflection of a mixture of Rays the body Particles may be able to Reflect three or four sorts of Rays and have to strong an attraction to Reflect those Rays that are Less and too weak a Resistance to Reflect the Bigger Rays, or the Colour of A body may be Compounded of Reflected Rays of very Distant Degrees of Refrangibility and not Reflect any of the intermediate Colours by Reason of its being Compounded of very heterogeneous Particles [which] have a very Different Degree of Density and firmness. or the Particles of a body may be firm Enough to Reflect all sorts of Rays yet have so little attraction to hold them that the body will be White, or a body may be Compounded of Particles having so little Resistance as to Reflect no Rays, of so Great Density as to hold all or so full of Pores as to Drink in all, then the body is black

Or the Particles of bodies may have Pores and hollows that may be big enough to Let in the Least Rays not the Rest so that the Pores of Particles may have much to Do in the Causing of Colours

The blue of mountains at a Distance is not made by any Rays Reflected from the mountains but from the Air and vapours that is between us and them. the mountain occasions the blueness by intercepting all Rays that would Come from beyond to Disturb that Colour by their mixture

it may therefore seem a Difficulty Why the atmosphere all Round by the horison Dont appear very blue seeing tis Evident that the atmosphere Reflects Chiefly the blue Rays as Appears In the higher Parts of the atmosphere by the blueness of the skie and near the Earth by the blueness of mountains, and the Redness or Yellowness of the Rising and setting sun. it would therefore seem that the atmosphere should Appear most blue where no Rays are Intercepted by mountains because the atmosphere beyond the mountain Reflects blue Rays as well as on this Side. therefore it seems that there would be more blue Rays Come to Our eyes where none were Intercepted by mountains. And Consequently that the most lively blue would be there. and so it would be, if blue Rays Came to Our Eyes in the same Proportion as they are Reflected but most of those blue Rays that Are Reflected by those Parts of the Atmosphere that Are at a great Distance are intercepted by the intermediate Air before they Come to Our eyes (for the Air by supposition intercepts them Easiest) and only those few Yellow Rays and Less Reflexible Rays that Are Reflected by the Air Come to Our eyes whence it Comes to Pass that the Atmosphere near the horizon Dont appear blue but of a Whitish Yellow. And sometimes when it is filled with more Dense exhalations that Can Reflect Less Reflexible Rays still, it appears a little Reddish



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