



LXI. Observations on the priority of Mr. Smith's Investigations of the strata of England; on the very unhandsome conduct of certain persons in detracting from his merit therein; and the endeavours of others to supplant him in the sale of his Maps;—with a reply to Mr. W. H. Gilby's letter in the last number

Mr. John Farey Sen.

To cite this article: Mr. John Farey Sen. (1815) LXI. Observations on the priority of Mr. Smith's Investigations of the strata of England; on the very unhandsome conduct of certain persons in detracting from his merit therein; and the endeavours of others to supplant him in the sale of his Maps;—with a reply to Mr. W. H. Gilby's letter in the last number , Philosophical Magazine Series 1, 45:205, 333-344, DOI: [10.1080/14786441508638448](https://doi.org/10.1080/14786441508638448)

To link to this article: <http://dx.doi.org/10.1080/14786441508638448>



Published online: 27 Jul 2009.



Submit your article to this journal [↗](#)



Article views: 5



View related articles [↗](#)

flask of glass with a neck many inches long was half-filled with mercury, and coated on the outside to the same height with foil. By means of a movable wire, an electric charge was thrown in; the wire was drawn out, and the neck was *hermetically sealed*. After a length of time the sealing of the neck was cut off; the wire was plunged into the mercury, but not the smallest *commotion* was perceived by the hand; although the original charge was capable of giving a *violent shock*. Thus I had encompassed a quantity of electricity on all sides by *glass*: after a *certain time* I found that the *glass* contained none. What should I conclude, but that it *escaped*? Were Mr. De Luc to repeat this experiment, he would certainly consider my inference as natural."

I am too old and too infirm to undertake any new experiments; I shall therefore only suggest an idea which Mr. Donovan may easily try. *Glass* becomes a *conductor* when *heated*; thus it may be that the *flask* was *discharged*, by the operation of *sealing it*; for the operation of *hermetically* sealing it, requires a great *heat*. I therefore suspect that the moment when the *flask* was *sealed*, it was *discharged*. This appears to me more natural than to suppose, against all the known phenomena of the *Leyden vial*, that *glass* is *permeable* to the *electric matter*. But Mr. Donovan might easily put it to the test of experiment in the manner above pointed out.

I am, sir,

Your most obedient servant,

J. A. DE LUC.

LXI. *Observations on the Priority of Mr. SMITH'S Investigations of the Strata of England; on the very unhandsome Conduct of certain Persons in detracting from his Merit therein; and the Endeavours of others to supplant him in the Sale of his Maps;—with a Reply to Mr. W. H. GILBY'S Letter in the last Number. By Mr. JOHN FAREY, Sen.*

To Mr. Tilloch.

SIR,—THE rash and unfounded reflections, which a Mr. *W. H. Gilby* has been induced to address to you from Edinburgh, pages 300 and 301 of your last Number, would not at this time have occasioned me to trouble you thereon, but for the very superior calls of *justice* as well as friendship, in favour of Mr. *William Smith's* irresistible claim to the discovery of the order, and to priority in the actual tracing and mapping of the surfaces of the principal part of the *British series of Strata*, and those scarcely less urgent calls, to support the cause of practical Eng-
lish

lish Geology, against the theoretical pretensions of an Anglo-German Geognosy, which has too high and proudly raised its intolerant head amongst us.

From the year 1791, or earlier, Mr. Smith possessed very superior opportunities for, and began assiduously to apply himself to the practical comparison of, the *underground measures* or Strata of extensive and deep Collieries, with the *surfaces* or basements of these same Strata; and he succeeded, in tracing and mapping these surfaces and those of other strata lying below and above them in the series, to a considerable extent, in connection, for considerable distances *around Bath and Bristol*; and in 1794, having had the opportunity of travelling with a Committee of the Somersetshire Coal Canal Company, through all the principal Coal districts of England, almost to the borders of Scotland, his discovery was completed, as to *the same order of superposition, the same general features, and the same organic remains, accompanying each stratum*, with which he had made himself acquainted near Bath, *through the whole of their definable course across the Island*.

Immediately from this time Mr. S. resolved on the design, of extending his Map around Bath and Bristol, *to the whole of England and Wales*, and as much of Scotland as he might be able; to which Map, during its progress, as well as to his growing *Collection of marked Specimens of each stratum and its imbedded extraneous Fossils*, his friends had the most free access, and whereby several scores of Persons in the West of England, and other parts, had every facility given them, of becoming thoroughly acquainted with the subject, before I had the good fortune to hear of Mr. S. or his pursuits, in the year 1800; and yet it has since appeared, that few if any one, of my present scientific acquaintances, had heard of Mr. Smith, before myself. Such is the difficulty opposed to *merit alone*, bringing a man into notice.

Mr. Smith's liberality in communicating his discoveries even went so far, as to draw up, at a Friend's house, in the year 1799, a List of all the principal Strata of England*, with the names he had adopted for each, in their ascertained order, with the most characteristic Reliquia of each, their several effects in producing springs of water, and a pretty copious list of the quarries and places, best adapted for examining each of these strata: of this List he gave some copies at the time to his Friends present, and they from time to time multiplied and distributed

* Last Sunday Evening (April 30) Mr. S. exhibited at Sir Joseph Banks's *Conversation*, an exact copy of this his original List of Strata, and intends to publish the same,

them,

them, so that before the commencement of the present century, many copies of a list got into *private* circulation, which explained the chief results of Mr. S's arduous labours.

Soon after this period, Mr. S. printed and widely circulated a Prospectus, which further and pretty fully explained his discoveries and results, and the modes of their beneficial application to the concerns and interests of the Land and Mineral owners: but these appeals to the Public, failing to produce an adequate list of Subscribers to Mr. S's proposed Map and Work, and having received no Money on account thereof, but from two *Individuals*, he found himself compelled to lay the same aside, and apply very assiduously to his Engineery and other Business, for retrieving his pecuniary affairs, from the embarrassments that a too ardent zeal in the prosecution of this great and truly *national undertaking*, had brought on him!

In this dilemma of my Friend, and instructor in his new art of *Mineral Surveying*, and after I had fully ascertained the originality, as well as verified the truth and importance, of his discoveries relating to the mineral structure of Britain, of the south-east and east of England in particular, I saw with the utmost regret, persons starting up on every side, who had evidently either directly, or more indirectly, although not less certainly, *acquainted themselves with Mr. Smith's ideas and leading facts*, who were preparing to profit by them, and who yet appeared little disposed to acknowledge their obligations.

These circumstances, occasioned me almost incessantly to urge Mr. S. as others did whose advice ought to have had more weight, to bring out a publication on the subject, however short and in outline: but failing in accomplishing this, I determined to let no opportunity slip, of bringing Mr. S's discoveries and new professional practice sufficiently before the Public, to secure him the credit of them at least; and I began, in 1805, by showing at some length, their application to the important concerns of the *Civil Engineer*, in the article *Canal*, which I undertook to prepare for Dr. Rees's *Cyclopædia**, and followed the same
up,

* By a sort of fatality which attended my connection with this Work, it happened, that the Editor rejected nearly all this part of the manuscript, in his hasty and indiscreet mode of shortening my communication: I continued, however, to embrace the numerous opportunities that offered as a contributor to that work, for introducing the mention of Mr. Smith and his discoveries, and of making reference to future articles on other points, from the article *Clay Strata*, to that on *Joints* or fissures in the strata, inclusive: in the course of which communications, I prepared for the article *Geology*, a brief summary view of the theoretical results that appeared to me deducible, from Mr. Smith's discoveries and my own verifications there-
of,

up, in occasional communications* to your and other periodical Publications, until 1811; when Mr. Smith, having yet published nothing on the subject, seemed in danger of lessening, if not perhaps being judged to have forfeited, his well merited claims, I gave such an abstract of the history of his proceedings and his results, in my Derbyshire Report, as seemed to me best calcu-

of, and I received some time after the delivery of this MS., assurances, that the same should appear, along with the accounts of the principal systems of Geology and Theories of the Earth, that had been previously published:—what, however, was my surprise and that of many others, on the appearance in 1810 of this article *Geology*, promised to be a very comprehensive and full one, to find a mere statement of the *Wernerian Theory*, with suitable flattery to its author; and consistently enough, this was prefaced, by such remarks as the following; viz.—This interesting *part of mineralogy* (the new Geognosy) principally owes the distinguished rank it now holds among the *Sciences*, to the celebrated Professor of Freyberg, who has separated *Geognosy* from *Geology*, “considering the latter as a merely speculative branch of knowledge, and as having nearly the same relation to the former, *which astrology has to astronomy!*”—The framers of most of these tissues of extravagant notions, known by the appellations of *theories of the earth*, have been satisfied with a very moderate share of materials for their structures—nothing is better calculated to flatter self-love than to be mentioned as the creator of a theory of the Earth—in short—“who would be desirous to waste his time in refuting, or even remembering *all (or any of) the theories of the Earth* now extant?”—(and doubtless the liberal foreigner in *British* pay, who wrote this, meant to insinuate,—or what Geognost would wish, to continue to be told, of anything that Englishmen have, or can do in *Geology?*—And accordingly it has occurred, throughout the articles since furnished, from this anti-*British* source, that Mr. Smith or any of his coadjutors or their discoveries, are not mentioned, or have scarcely any of the rapidly accumulating facts of the British stratification been brought forward, in this extensive English Dictionary, even where they had been promised and referred to, in some instances; but the Dogmas of the idol of Geognosts, Werner! and the observations and opinions of his followers abroad, with those of a few of the lately initiated amongst ourselves, have been held to be all-sufficient, for the information of English Readers!!

It gives me pleasure however to add, that the serious evil above complained of, seems at length to have worked its own cure, since on reading part of the particle *Rock*, in the last published leaf of this Work, the same plainly appears to be *from another pen*;—begins by restoring the Geological meaning of one of the most common and useful *English terms*, which inconsiderate Anglo-German Geognosts had endeavoured to alter, so essentially, as to make *rock* mean, very commonly, *a soft and earthy stratum*, like clay, marl, sand, and the like!—the infallibility of the *Geognosy*, as detailed in the article *Geology*, is plainly called in question;—and the writer, literally assigns to Mr. S. the discovery, to which your pages, Mr. Editor, have so often stated him to be well entitled, with regard to the distribution of fossil shells and other organic remains in the Strata, and their uses in identifying the same, &c.

* The earliest and most explicit of these communications, was on the practicability of the proposed Archway under the Thames at Rotherhithe in 1806, in your xxvth volume, p. 44.

lated,

lated, to put the Public usefully in possession of them, and to secure the future credit of them for my valued, but rather untractable friend.

After some time, the Rev. Joseph Townsend published a 4to work, which, although under the very ill-chosen title of "The Character of Moses," &c. is almost entirely occupied with *local details*, respecting the stratification of the West of England, and therein he very handsomely, in the preface and other parts, acknowledges the having first learnt to trace the Strata, and very many of his particulars concerning them, from Mr. Smith, in the year 1801, and subsequently.

On the proposal for founding the Geological Society of London, in 1808, Mr. Smith and myself were often complimented, in the Letters and remarks of our Friends, on the great éclat which this new Institution would give to *Mineral Surveying*, as a chief basis on which British Geology should be built; our replies at the time were, that this result would altogether depend, on the Persons to whom the management of the Society's concerns might fall, and be retained; and the result has unfortunately corresponded,—instead of the least patronage or countenance being given to Mr. Smith, every means, direct and indirect, were soon resorted to, by a leading Individual therein, in particular, to obtain his materials and delineate them on a new Map, pretended, at first, to be for the private use of the Society; but after it had twice or thrice been copied, to correct its first egregious errors, as new materials were quickly collected, with inconceivably less pains or cost than Mr. Smith's materials were originally obtained, and I was repeatedly applied to for contributions to this new Map, I began to suspect, that all was not right, and determined on putting the question plainly, whether the design was not really entertained, of publishing this rival Map?, and this not being longer denied,—then, whether it was intended in such publication, to make the acknowledgements so justly due to Mr. Smith, for his long priority in the research, and his materials, obtained as above mentioned?, when I was unblushingly told, that theirs being a Map begun and altogether made on *Wernerian principles!*, no such acknowledgements as I asked, would be made!!

Much as I may have heard from various quarters, since Mr. John Cary seriously undertook the publication, of Mr. Smith's Map, (and became a useful sort of security to the Public, that he should not very long delay completing it,) on the progress then actually making in Engraving this pretended Geognostic Map (concerning which some curious history will remain yet to be disclosed) first in London and then in Paris, I had so much con-

confidence that the fear of the exposure I could make, and the consequent shame and disgrace that must attach to the actors herein, would restrain them, that I had determined to delay submitting the present statements to the public, and should have continued to do so, but for a publication that has lately issued from the University press at Oxford, on Geology, dedicated to the worthy Geognost, to whom I have been principally alluding above; and wherein the author Dr. Kidd*, has at pages 21 to 27, given a brief account of *the strata of England*, essentially the same as Mr. Smith has been in the habit of explaining and showing them for twenty years past, and as I published them four years ago in the Derby Report, yet not a mention or hint of Mr. Smith or his labours, escapes this *impartial* Doctor! (although he makes many references to the Derby Report), but he on the contrary, concludes his account thus; viz. "In the foregoing account of the strata of the SE part of this Island, I have been purposely very brief: not only because they have *already been described by other authors*: but because I have reason to believe, that a still more detailed and accurate account of them is likely to be given by a Gentleman (to whom he dedicates), who, from his extensive travels both on the Continent and in this Island, is *most competent to the task*, and to whose *private*† but persevering exertions, Geology has long been deeply indebted."

Now is it not surprising, that Dr. K., who makes *express references*, by volumes and pages, to 44 different works, for his Geological materials‡ (and refers to special few of *his own materials*),

* Who has himself, and some, if not all, of his coadjutors noticed by him, p. vii. examined Mr. Smith's Maps and Collection, long ago

† The fact here alluded to, of the Geognost here so extolled, having yet *published nothing* on Geological subjects, as far as I know, is worthy of observation by the impartial Reader, as well as the prevailing practice, of ascribing all Geognostic merit to M. Werner, who has alike *withheld his speculations from the Public*, on most of the theoretic points, that are known to be his, by the English Public, *only through the Writings of Mr. Jameson*, and others of his "admiring pupils:" and yet, the plea is almost daily brought forwards, as Mr. Smith's friends in general must have heard, by these Anglo-Wernerians, that it is perfectly fair, to anyhow obtain, *and to publish*, all that Mr. Smith has so long ago done, without giving him any credit for the same, "*because he has not published them*," say they!!: and I may add for these worthy Gents, that all which Mr. S. has done *in teaching persons*, and they *in publishing abstracts of his facts and discoveries*, should go for nothing in his favour, but the knowledge of these publications may, and ought as much as possible, to be *withheld* from the Public!!

‡ Dr. Kidd, presuming to sit in academic Judgement, as it were, on the pretension of *all the precious Writers* on Geological subjects, as to their *not having brought forward any perfect Evidence* (see his Title) *in support of a theory of the Earth*, has very unjustly overlooked and made no mention

serials) should have suppressed the mention, of all of those "other authors" (Query, Farey, Parkinson*, Sowerby, Townsend, Bakewell †, &c. †) who have briefly described the strata of England, but that neither Mr. Smith or any of those who have had the liberality, publicly to bring forward or admit his claims on this head, were intended in all the paragraphs here quoted from Dr. K. will be apparent, from the well known fact of Mr. Smith *never having quitted this kingdom*; and also from the two very next paragraphs in Dr. K's Book, which, says he, contain "the earliest and *most interesting hints I have met with respecting a regularity in the succession of the strata of the Earth:*"—the first of these early and notable instances, is, a mere *suggestion*, on an unfounded opinion by Dr. Lister, in 1684, *for others to set about making a coloured Map of the "upper soils"* (whether *alluvial* or otherwise) of England, but which *no one attempted to carry into effect*, until the County Reports to the Board of Agriculture were undertaken, long since Mr. Smith's Map of the *Strata* (lying beneath these superficial and alluvial *Soils*) was begun and well nigh finished.

The second of these interesting cases, quoted by Dr. K. is, that of Mr. *B. Holloway* (not *Mitchell* †, as the very reprehensible laxity of the Doctor's *quotations*, had said) who in 1722 mentioned, in a Letter to Dr. Woodward, that the Fuller's-Earth *Sand ridge of Woburn*, ranged through Shotover near Oxford, and *Newmarket-heath* near Cambridge, and accompanied "every-

tion of the recent work that I have quoted in p 337, by the Rev. Joseph Townsend, the respectable author of *Travels in Spain*: and for which no sufficient reason appears to me in the reading of Dr. K's Book, but the improper desire, more effectually to conceal Mr. Smith's claims, and *appropriate his discoveries to his Geognostic Friend!*

* Mr. James Parkinson's "Organic Remains," in 3 volumes 4to, containing towards its conclusion, a very explicit notice of Mr. Smith's discoveries and of his chief results; and Mr. James Sowerby's "Mineral Conchology," containing a great many local facts respecting the Strata of England and their organic contents, and in which due justice has been done to Mr. Smith, are alike passed over without mention, by the *impartial* Dr. K.!

† Mr. Bakewell's Introduction to Geology, 1st Edit. as being the last express work on the subject in this Country, is very reprehensibly overlooked by Dr. K; but this could not have been, on account of his declared partiality to Mr. Smith, as the Readers of your xliid and xliiid volumes must be sufficiently aware.—I would add, that the forthcoming 2nd Edition of Mr. B's work will, it is said (by himself), endeavour to make amends to Mr. Smith, for the neglect shown to him in the first: and perhaps certain Geognosts may have been much earlier apprized of this circumstance, than myself?

‡ See the Phil. Mag. vol. xxxvi. p. 102, vol. xxxvii. p. 175 Note, and vol. xxxix. p. 94 Note.

where at about the distance of eight or ten miles," the *Chalk ridge* of the Chiltern and Gog-magog Hills, near to the Cities above named.

Now it is observable, that neither Mr. Holloway or Dr. Woodward then, or Dr. Kidd now (at the distance of more than ninety years) have seemed to be at all aware, that the *Black-heath Sand* must be found on *New-market-heath*, which is above the Chalk (if there be any regular stratum of sand there?) whereas the *Woburn Sand*, is far below the Chalk (see Derby Report i. 111 and 112), and consequently, the two Ridges so described, if they existed, must cross one another like a \times (the algebraic sign) instead of being \parallel , as was pretended.—Which, I would ask, is most to be deplored, the ignorance still prevailing in the chief Seats of Learning among us, as to the most obvious Geological facts around them?, or the pitiful design manifested in Dr. K's Book, in the revival of these excusable mistakes of former great Men, of depriving a deserving, although a non-academical Individual, of the merited rewards of his labours?. I have several other appeals to make, against Dr. K's modes of selecting evidences, as well as against his judicial sentences on different Geological points, but must reserve them for a season of more leisure, and hasten now to remark on Mr. Gilby's very extraordinary Letter in your last.

Professor Jameson, in issuing to the world, his first version of *The Geognosy*, of Werner, declared himself unable to determine the "formation" to which the Gypsum of Derbyshire (with its imbedding Red Marl) should be referred, because forsooth, "no well educated Geognost has ever communicated any observations regarding it;" and if we may credit Mr. G. H. Gilby in your 301st page, this great Geognost, remained in his perplexing dilemma, as to "the real position of the red ground," or Red Marl, until he fortunately read Mr. G's paper! in your xliivth volume, page 241.—That after so many persons had laboured at investigating and describing the Gypseous or Red ground of England, so many hundreds of pages of Wernerian Memoirs, Geognostic Transactions, Geognostic Annals, &c. had been published, he, Mr. G. should hear himself publicly announced, as the first, the well-educated, and the happy Geognost, who had at last succeeded in solving this very knotty problem! (and in your work too, Mr. Editor!) might well prove "peculiarly gratifying" to him, and may easily be supposed, to have given almost instant origin to the letter of severe rebuke to me, for having dared, in your previous number, page 167, 169, &c. to speak of the "position of the Red ground, in regard to the Coal and its accompanying strata," without expressly quoting as my authority, his said paper, that had been so highly honoured!

But

But to be serious, and to show that no wrong has been done by me to Mr. G., but the contrary. I beg to point out to him and your Readers, that so far from *he* having, "full half a year" *previous to me*, pointed out the unconformableness of the Red Marl, the reference that was so distinctly before him in p. 167 (viz. to p. 330 of your xlii^{id} volume) will show, that *five months before any communication from him appeared*, I had not only pointed out, a new and perfect case of this unconformableness (unknown to him) at Bedworth in Warwickshire, but had distinctly and correctly referred to the Papers of Mr. John Strachey, published in 1719 and 1725, which described *his* (Mr. G's) whole case of the same nature in the vicinity of Bath and Bristol!; and also, that *I had expressly invited your Correspondents*, to make and communicate observations on this point. I might therefore, with far more justice than Mr. G., complain of his want of candour, in silently passing by my previous notice and invitation.

I have, however, higher charges to prefer against Mr. G. for endeavouring, by the authority of Mr. Jameson's name (I hope without his sanction?) to "manœuvre for himself a gloria," and "plume himself" with merit, that so very justly *belongs to Mr. Strachey*, long since dead, whose *accounts and two sections*, most distinctly mention and *show the overlying and unconformable position of the Red Marle, &c.* on the inclined Coal-measures of that district:—and that Mr. G. made *this arrogant claim*, not entirely without a knowledge of what Mr. Strachey had done, must I think be inferred, from page 245 of his first paper, wherein he mentions the description of Stowey and Farington Collieries (by Mr. Strachey) in vol. xxx. of Phil. Trans. for 1719, but ascribes the same to "a Mr. Williams," contrary to all the facts contained in the volume quoted!!

In like manner, I cannot altogether acquit Mr. G. of want of candour at least, if not of injustice, towards my friend Mr. Smith, whose prior labours in the same field he could not be in the least ignorant of, from Mr. Townsend's work, which he so often refers to in his first paper; and if Mr. G. really went over the ground which he describes, it is next to impossible, I think, but that numbers of persons there, must have told him, that the same observations had been made, and a Map of the strata drawn, and which had been exhibited among them for many years by Mr. Smith; who did not secretly do this, in a corner, but made a point of attending the Bath Society's Meetings and other similar occasions of public resort, to freely exhibit and explain his Map and Sections of the district, now so long after claimed, *to be first truly described by Mr. G.!!*

Mr. Smith was from the first aware of, and always taught, the correctness of Mr. Strachey's representations (with which *he* first made me acquainted) *in the places described by that Gentleman*, but Mr. Smith knew a great deal more than was known to Mr. Strachey, viz. that the coal-seams which near their bassets were highly inclined to the Red Marl, which lay upon their edges, by degrees became more flat and parallel to the Marl, as Steam-engines enabled them to follow these seams into the deep, and the inference seemed a natural one, that still further eastward, they would be found *parallel to the Red Marl and Lias upon it*.

In addition to these new facts, adverse to the generalization of Mr. Strachey's local observations on unconformable Marl, &c. the *pudding-stones** which were generally mentioned, as contained in these overlieing strata, not as continuous and regular strata, but varying considerably in thickness and being often wanting altogether, appeared to me *so very like to alluvial matters*, that, never having had the opportunity of minutely examining any place in the district myself, *I always doubted*, and so have uniformly expressed myself, that Mr. Strachey's really did form a case of *unconformable regular or undisturbed strata* †, until the same was *rendered more probable*, by an able pupil of Mr. Smith's, Mr. Bevan, having brought to light a case (see vol. xliii. p. 330) admitting of no doubt, as I happen sufficiently to know, from having myself been upon and examined the surface with him, several years before, when on Canal business near Bedworth, but at which time, the slight inquiries we made, as to the coal strata and works below, did not bring out *the least hint of any unconformableness*, or other deviation there from what is common in Coal Pits, everywhere!—in p. 174, I have alluded to similar, although apparently accidental difficulties, in gaining correct, or rather, perhaps, sufficiently full information,

* Some of these are by Mr. Gilby called "limestone breccia," and seem to me now referable, to *the unconformable conglomerate Yellow Limestone*, which I have since mentioned at Alberbury, Barnby, &c. page 168 of your March number: and had I when writing that page, happened to have turned to and reconsidered Mr. Gilby's description of these Limestone beds, in p. 246, I certainly should have referred thereto.

† These difficulties may very well be supposed to have prevented Mr. Townsend from so decidedly mentioning *the unconformableness* of the Red Marl, as a *general and unvarying fact*, as Mr. G. apparently would have had him done, and has himself done, in contradiction to the ascertained facts above mentioned, and in defiance of the reasoning which I have adduced, in the middle of page 170, to show that *the unconformableness* of the Marl or any other stratum, *can only show itself* in the very few spots, comparatively, *where edges of strata are covered by it, and not where the overlieing stratum covers the plane of a previously deposited stratum*, (see Note † on page 170).

respecting

respecting Garforth, Kippax, and Glass-Houghton Collieries; all which I think might have restrained the sarcastic jeers of the *well educated* Mr. G. at *practical Men*, remaining long in the dark, as to facts, that seem very plain, after being fully known.

It may be proper to add in this place, that not only the majority, but nearly all of the local and operative Colliers in England (and too many of their superiors) except some near Bath and Bristol and near Bedworth, still doubt, and even deny the overlieing of the Red Marl or its Red Rock on Coal-measures, either conformably or otherwise, and that they generally assert, either, as I have mentioned of the Ashby-de-la-Zouch Coal-field, Derby Rep. i. 174*, that a *fault* is always met with, before reaching the edge of the Red Marl or Red Rock; or, that the seam they have been working, rises suddenly up and bassets or "is thrown out," before reaching such edge, or more commonly, they say, that it is "cut off," without being able to explain how; and they mostly aver, that in no case do the Coals pass under the Red Marl or Red Rock! These representations seem to have been often made to Mr. Bakewell, and have been and will, for a time at least, continue to be so repeated, to every inquirer. In Durham, it should seem, that a similar notion yet prevails, and was lately mentioned to Dr. Thomson and Mr. Bakewell (see p. 177 of this volume), that the Coals never pass under the yellow Limestone!

In saying thus much, I hope no one will consider me as casting reflections, as to the veracity or the designs of this body of highly useful and respectable Men, far from it; I have often had the satisfaction of saying, that on *matters of fact*, I rarely if

* Since my Report was printed, and since I have had any opportunity of writing on the subject of this Coal-field, I have had numerous and excellent opportunities of observing and of studying the effects of Ridges and Troughs, Bumps and Hollows and other *original inequalities in the planes and thicknesses of strata*, through which *Faults have subsequently broken*; and am now well convinced, that practical Colliers are very often if not mostly wrong, when they refer the locally *rapid dips* they meet with, *to or from a fault*, to a *tilt* of one or both of the piles of strata contiguous to such fault, and consider such tilts *to be occasioned by the Fault*; and that being formerly misinformed on these points, I have involved my generalization or *theory of Faults*, in its chief difficulty, that of the very *wedge-like form* of the Fault-stuff (Derby Rep. i. p. 121): from which I could now clear it, and render it applicable, perhaps to all the cases that really occur in the Collier's practice, if I had sufficient leisure or inducement to set about such a work:—until then, I must continue to describe and repeat each case, where necessary, in my private or professional Reports on Collieries, instead of being able to shorten them, by reference to a published work, describing each case.

ever find myself at issue with the *practical* Colliers, Miners, &c. but on matters of *inference*, or involving their belief, of things *not actually seen by themselves*, I almost daily, when on my Mineral Surveys, find myself point blank at issue with them, and so have been obliged to continue, in numerous instances;—I am, I hope, alike incapable of being influenced by *numbers*, to adopt or reject any position or deduction to be made from the study of Geological phenomena, as I am of yielding in any such cases to *authority*, however academical or imposing its aspect maybe; nor will I stand quietly by and see, a most deserving Individual and Friend, deprived of the just reputation due to his labours and discoveries, or neglect the attempt, at contributing towards his more solid reward. And I am,

Sir,

Your obedient servant,

12, Upper Crown Street,
Westminster, May 3, 1815.

JOHN FAREY, Sen.

LXII. *Letter from M. AMPERE to Count BERTHOILLET, on the Determination of the Proportions in which Bodies are combined, according to the respective Number and Arrangement of the Molecules of which their integrant Particles are composed.*

[Concluded from p. 193.]

WE may also deduce from this manner of conceiving the composition of bodies, the relations of the quantities of acid, basis, and even of water of crystallization, which ought to be found in the acid salts, the neutral, or those that are hypersaturated with one and the same species, according to the representative forms of the particles of the acid and the base. It is thus, for instance, that we find, according to that of the particles of the sulphuric acid, that most of the supersaturated sulphates ought, conformably to experience, to contain three times more bases than the neutral sulphates, and that the quantity of sulphuric acid is double in the acid sulphates to what it is in the neutral sulphate; whereas the sulphurous acid may, according to the representative form of its particles, make with ammonia an acid salt, into which it enters in greater quantity than into the neutral sulphite, in the ratio of three to two only. Such, in short, is the acid sulphite which we obtain by distilling the neutral sulphate of ammonia.

I shall not enter here into the details contained in my full memoir on the different combinations of ammoniacal gas with the other acid gases: the accordance of the results to which we are