A

TOUR to the CAVES,

IN THE ENVIRONS OF

INGLEBOROUGH AND SETTLE,

IN THE

Weſt-Riding of Yorkſhire.

WITH

SOME PHILOSOPHICAL CONJECTURES ON THE DELUGE, REMARKS ON THE ORIGIN OF FOUNTAINS, AND OBSERVATIONS ON THE ASCENT AND DESCENT OF VAPOURS, OCCASIONED BY FACTS PECULIAR TO THE PLACES VISITED.

ALSO

A LARGE GLOSSARY

Of old and original Words made uſe of in common Converſation in the North of England.

IN A LETTER TO A FRIEND.

——————Ot antres vaſt, and deſarts idle,
Rough quarries, rocks, and hills, whoſe heads touch heaven,
It was my hint to ſpeak.

SHAKSPEARE'S OTHELLO, Act I.

THE SECOND EDITION, WITH LARGE ADDITIONS.

LONDON:

Printed for RICHARDSON and URQUHART,
under the Royal Exchange;
J. ROBSON, New Bond Street; and
W. PENNINGTON, Kendal.
1781.

TO

THOMAS PEARSON, Eſq;

OF

BURTON IN KENDAL, WESTMORLAND.

SIR,

THE amuſement you have received in viſiting the natural curioſities in the neighbourhood of *Ingleton* and *Settle*, in company with different parties of gentlemen of approved taſte and knowledge, who entertained the ſame ſentiments with yourſelf, hath induced me to draw up a plain narrative of one of our excurſions, in a letter to a friend, by way of an appendix to the *Guide to the Lakes*. This I thought would not be unacceptable to the ſouthern parties, who, for their ſummer amuſement, make the faſhionable tour of the lakes. The caves may be viſited in their return without inconveniency to moſt of them; and many new and entertaining ſcenes of nature, with ſome large and elegant towns viewed, by taking the *Yorkſhire* road through *Settle*, *Skipton*, &c. I undertake this taſk with the more alacrity, as a great part of my infancy and youth was ſpent amidſt this collection of natural curioſities: The partiality that is acquired by an early acquaintance with

any objects, excites in us a defire to have their beauties and excellencies feen and admired. I cannot but lament, while I am writing this fhort account, that I have not your aſſiſtance in pointing out to me the ſeveral ſtriking traits and peculiarities in theſe ſcenes, moſt deſerving the notice of a which, by their familiarity, are not apt to engage the attention of a native. I have taken, however, the liberty of addreſſing this ſhort deſcription to yourſelf, as in ſome meaſure entitled to your protection, the originals having engaged ſo much of your attention and admiration. What is admired by a gentleman of refined and approved taſte, who has not only ſeen every natural curioſity in *Great Britain*, but who has viſited, oftner than once, every quarter of the globe, ſhould be made as public as poſſible, for the amuſement of the ſpeculative traveller and natural hiſtorian.

If this attempt to inform and amuſe fails of its wiſhed for effect, from the writer's inability in the modern deſcriptive ſtile, it is hoped the deſire to pleaſe will claim ſome indulgence for

Sir, your moſt obedient,

and humble Servant

J. H.

April 25th, 1780.

ADVERTISEMENT.

THE quick ſale of the firſt edition of this work has induced the author to reviſe the whole for a new impreſſion. In this edition the deſcription of each cave is more exact and particular; ſeveral other caves have ſince been viſited and deſcribed; to the philoſophical conjectures on the deluge, many obſervations are added on the origin of fountains, the aſcent and deſcent of vapours, and other phænomena in meteorology, from remarks on facts peculiar to the nature of the country in which the caves are ſituated. A large gloſſary of above ſeven hundred and fifty, moſtly of old and original words, now current in common converſation in the north of England, is added by way of poſt-ſcripta; which perhaps may be acceptable both to natives and ſtrangers.

THE ORDER OF THE TOUR, AND CONTENTS.

Horton

A TOUR

A

TOUR

TO THE

CAVES.

SIR,

ACCORDING to promiſe, I ſit down to give you an account of our ſummer's excurſion.—After having made the tour of the lakes, we were induced to proceed from *Kendal* by *Kirkby-Lonſdale*, *Ingleton*, *Chapel in the dale*, *Horton*, and *Settle*, in order to ſee the caves and other natural curioſities in thoſe parts of the *Weſt-riding* of *Yorkſhire*. I muſt own this ſecond part of my tour pleaſed me more than the firſt, being peculiarly adapted to my taſte for natural hiſtory, as alſo for the extraordinary and terrible. Some may be as much entertained with the profound, as others with the lofty; and ſome may be as much amuſed with the ſublime, as others with the beautiful. This was the humour of my

genius, and here it was abundantly gratified. You have read ſo many accounts already of the beauty and variety to be ſeen among the lakes of *Lancaſhire*, *Weſtmorland*, and *Cumberland*, and heard ſo much in praiſe of them from the reports of travellers, that I can add nothing further to embelliſh their deſcriptions: I ſhall therefore paſs over this part of our journey in ſilence, having met with no adventures that were peculiarly amuſing, and confine my letter to our route through a country not much explored, or however not yet publickly deſcribed. Our amuſements were moſtly in the extremes, either on the tops of high mountains, or below the ſurface of the earth, in caverns and ſubterranean paths, ſeldom viſited by the curious and ſpeculative traveller.

About ſix o'clock, one morning in June, we ſet off from *Kendal*, and after travelling about a dozen miles, along a good turnpike road over *Endmoor*, and *Cowbrow*, we arrived at *Kirkby-Lonſdale*, ſoon after eight. About the mid-way we left the little ſteep, white mountain, *Farlton-knot*, on the right about a mile. It is all compoſed of ſolid limeſtone, and is three or four hundred yards in depth. Thoſe who have ſeen both, ſay, that on the weſt ſide it is very like the rock at *Gibraltar*. There were ſeveral good manſion houſes by the road ſide, which, at the beginning of this century, were inhabited by a ſubſtantial ſet of yeomanry and country gentlemen, the moſt uſeful members of a community: They are now however moſtly let out to farmers; the deſire of improving their fortunes in trade, or the pleaſure of living in towns, have induced the owners to leave them:—Reverſes of fortune

tune or new attachments, have cauſed many to ſell them, after they had been continued many centuries in their families. *Kirkby-Lonſdale* is a neat, well paved, clean town, ornamented with ſeveral genteel houſes, adjoining to ſome of which are elegant gardens. The houſes are covered with blue ſlate, which has an agreeable effect on the eye of a ſtranger. A ſmall brook runs through the market ſtreet, which is uſeful and commodious to the inhabitants; afterwards it turns ſeveral mills in its ſteep deſcent to the river *Lune*. The church is a large and decent ſtructure. The roof is covered with lead, and ſupported by three rows of pillars. The ſteeple is a ſquare tower, containing ſix bells; the muſic of which we were entertained with at nine o'clock, they being played on by the chimes every three hours. Oppoſite to the church gates is the old hall, taken notice of one hundred and fifty years ago by drunken *Barnaby* in his *Itinerary*:—It is ſtill an inn, and no doubt keeps up its ancient character.

Veni Lonſdale, *ubi cernam*
Aulam factam in tabernam;
Nitidæ portæ, nivei muri,
Cyathi pleni, paucæ curæ;
Edunt, bibunt, ludunt, rident,
Curâ dignum, nihil vident.

I came to *Lonſdale*, where I ſtaid
At *Hall*, into a tavern made;
Neat gates, white walls, nought was ſparing,
Pots brimful, no thought of caring;
They eat, drink, laugh, are ſtill mirth making;
Nought they ſee that's worth care taking.

We walked through the church yard, which is large and ſpacious, along the margin of an high and ſteep bank, to a neat white manſion houſe full in view, ſomewhat above half a mile diſtant, called *Underlay*.—I was never ſo amuſed with any proſpect of the kind I had yet ſeen. At the foot of the ſteep bank on which we walked, being about forty or fifty yards perpendicular, glided the large, pellucid river *Lune*, amongſt the rocks and pebbles, which amuſed the ear, whilſt the eye was entertaining itſelf with a vaſt variety of agreeable objects. A tranſparent ſheet of ſtill water about half a mile in length lay ſtretched out before us: At the high end of it was a groteſque range of impending rocks of red ſtone, about thirty yards in perpendicular height, which had an excellent effect in the ſcene, both by their colour and ſituation. We were told that in winter this precipice was in ſome parts ſo glazed over with ice, from the trickling water down the ſurface, as to make it appear like a ſheet of alabaſter. From other parts of the impending rocks, hung great and enormous icicles, which made it appear like an huge organ.

After the eye had traverſed over a rich and fertile vale, variegated with woods and country houſes, the proſpect was terminated with a chain of lofty mountains, which run in a direction from ſouth to north, parallel to the courſe of the river. The neareſt were not above two or three miles off, and looked like the bold and ſurly ſentries of a legion, that ſeemed ſtationed beyond them. On our return, we were amuſed with proſpects of a different nature. The church and town before us enlivened the ſcene: Some mill-wheels between them and the river, added

an

an agreeable variety with their motion. The vale beneath ſeemed to dilate and expand itſelf; the few parts of it, which were viſible, afforded ſufficient ground to the imagination to conceive an aſſemblage of the moſt entertaining objects. *Ingleborough*, whoſe head was wrapt in a cloud, ſtood the fartheſt to the ſouth in the rank of mountains which faced us.

After breakfaſt, we walked by the ſide of the river to the bridge. The channel is deep, the ſtream rapid among rocks, the banks on each ſide covered with trees of various foliage, which ſerve both as a defence and ornament. The bridge is the moſt lofty, ſtrong, ancient, and ſtriking to the eye of a ſtranger, of any I have yet ſeen. It is built with freeſtone, has three arches, two large and one ſmaller; the height from the ſurface of the water to the center arch, is about twelve yards. The arches are of the ribbed ſort, which make the appearance the more groteſque. There is no memorial of its foundation; a negative argument of its vaſt antiquity. We were indeed amuſed with one anecdote of its founder, which ſeemed to be a remnant of the ancient mythology of the north, and one inſtance, among many, of eaſily accounting for any thing that is marvellous. The country people have a tradition, that it was built by the devil one night in windy weather; he had but one apron full of ſtones for the purpoſe, and unfortunately his apron-ſtring breaking as he flew with them over *Caſterton-fell*, he loſt many of them out, or the bridge would have been much higher.

From the top of the bridge the proſpect down the river is delightful; the ſides of the deep channel covered with trees, are nearly parallel

for

for half a mile, and the water one continued ſurface, ſave here and there where a pointed rock lifts up its head above the ſtream. We walked down by the ſide of the river about a mile, and as we proceeded were continually preſented with new proſpects, while the ſoft murmurs of the river afforded a variety of different notes. The vale of *Lonſdale* dilating by degrees, preſented us in ſucceſſion with the different ſeats and villages that adorn it: *Whittington*, and *Arkholm*, to the weſt; *Tunſtal*, *Melling*, *Hornby* and its caſtle, to the ſouth; and *Leck* to the eaſt; till we arrived at *Overborough*, the ſeat of *Thomas Fenwick* Eſq; the moſt elegant in the vale. The brown and blue mountains of *Burnmore*, and *Lyth-fell*, terminated the view, which we could have wiſhed had extended ſtill farther to the ſouth.

Our ideas of the beauties of nature were mellowed and refined by thoſe of venerable antiquity. We were now on claſſic ground; *Overborough* being moſt undoubtedly a Roman ſtation and garriſon, the *Bremetonacæ* of the emperor *Antoninus*, as may be collected from *Tacitus*, and other ancient writers. *Bremetonacæ* is placed twenty Roman, or eighteen Engliſh miles north of *Coceium*, or *Ribcheſter*; and twenty ſeven Roman, or twenty four Engliſh miles ſouth of *Galacum*, which ſome antiquaries conceive to be *Apulby*, though others with more probability think it was *Brough*. The diſtances correſpond, beſides the additional argument of their being nearly in the ſame direction, whether we conceive *Galacum* to be *Apulby* or *Brough*. The Roman road is eaſily traced from *Ribcheſter* into *Yorkſhire*, running on the north ſide of *Slaidburn*, through

through *Croſſa-Greta*, then on the north ſide of *Tatham Chapel*, through *Bentham*, to *Overborough*.* Afterwards the Roman road goes through *Caſterton*, and *Middleton*, and as ſome think, by *Borough-bridge*, and *Orton* to *Apulby*. Others, and perhaps from better reaſons, are of opinion, the road went by *Sedbergh* or *Sedburg*,† over *Blewcaſter*, along *Ravenſtonedale-ſtreet*, and through *Kirkby-Stephen*, to *Brough*, or *Burgh*. For *Antoninus's* tenth *Itinerary* runs from *Glanoventa* or *Lancheſter*, in the county of *Durham*, by *Galacum*, *Bremetonacæ*, *Coccium*, *Mancunium* or *Manchester*, to *Glenoventa* or *Drayton*, in the county of *Salop*. In various places by the ſide of this road are high artificial mounts of earth, which were without doubt the ſtations of centinels, to prevent any inſurrections, or being ſurpriſed by an enemy: They may be now ſeen entire at *Burton in Lonſdale*, *Overborough*, *Kirkby-Lonſdale*, and *Sedbergh*. There are ſeveral lateral ones, as at *Lunes-bridge* near *Hornby*, at *Melling*, and *Wennington*. On our return we had the bridge full in view moſt of the way: Its antiquity and greatneſs made its preſence venerable and reſpected. About a furlong before we arrived at the bridge, the town of *Kirkby-Lonſdale* appeared in a point of view peculiarly pleaſing. The high walls of a gentleman's garden, which were between us and the town, made it look like

* A full account of the antiquities of *Bremetonacæ* or *Overborough*, may be ſeen in a quarto volume publiſhed by one *Richard Rauthmell*.

† *Cheſter* or *Caſter*, is derived from the Latin word *caſtrum*, or *camp*. *Street* is derived from the Latin word *ſtratum*, or *military road*, or *cauſeway*. *Borough* or *Burgh*, from the Greek word *purgos*, or *watch tower*.

like a fenced city in miniature; the tower ſteeple of the church riſing proudly eminent above the blue ſlated houſes, with which it was on every ſide ſurrounded.

* We mounted our horſes at the bridge about eleven o'clock, having ordered them down thither in order to ſave half an hour in going up to the town for them. We travelled near the bottoms of the mountains, on the ſide of *Lonſdale*, along the turnpike road, about an hour, being in three counties in that ſhort interval, *Weſtmorland*, *Lancaſhire*, and *Yorkſhire*, and amidſt a variety of entertaining proſpects. The number of ſmall carts laden with coals, and each dragged by one ſorry horſe, that we met, was aſtoniſhing. Many of the ſmaller farmers betwixt *Kirkby-Lonſdale* and *Kendal*, earn their bread with carrying coals, during moſt part of the year, from the pits at *Ingleton*, *Black-Burton*, or *Burton in Lonſdale*, to *Kendal*, and the neighbouring places, for fewel, and burning lime in order to manure their land. Theſe beds of coal, we were informed, are ſix or ſeven feet in thickneſs. A fire-engine was erecting at *Black-Burton*, more commodiouſly to work their beſt collieries. A ſurvey was lately ſubſcribed for to be made, in order to have a canal from theſe pits to *Lancaſter*, where coals might be exported; as alſo to *Kendal* and *Settle*, which are towns much in want of fewel.

After

* If the traveller is diſtreſſed for time, and has no inclination to take a ſecond view of the river *Lune* and its environs, he may order his horſe to be ſent to *Cowan-bridge*, and walk through the park of *Borough-hall*, where he may be entertained with a variety of other proſpects.

* After we had got about ſix miles from *Kirkby-Lonſdale*, to a public-houſe called *Thornton-church-ſtile*, we ſtopped to procure a guide, candles, lanthorn, tinder-box, &c. for the purpoſe of ſeeing *Yordas-cave*, in the vale of *Kingsdale*, about four miles off. By the advice of a friend, we took alſo with us a baſket of proviſions, which we found afterwards were of real ſervice. When we had gone a little above a mile, we were entertained with a fine caſcade, called *Thornton-force*, near ſome ſlate quarries, made by this river out of *Kingsdale*, falling down a precipice about eight or ten yards high, which afterwards runs through a deep groteſque glen to *Ingleton*. About a mile higher we came to the head of the river, which iſſues from one fountain called *Kelſehead*, to all appearance, more fluent than *St. Winifred's-well*, in *Flintſhire*; though there is a broken, ſerpentine, irregular channel, extending to the top of the vale, down which a large ſtream is poured from the mountains in rainy weather. We now found ourſelves in the midſt of a ſmall valley about two or three miles long, and ſomewhat more than half a mile broad; the moſt extraordinary of any I had yet ſeen: It was ſurrounded on all ſides by high mountains, ſome of them the loftieſt of any in *England*,—*Whernſide* to the ſouth-eaſt, and *Gragareth* to the north. There was no deſcent from this vale, except the deep

* If proper proviſion is already made, it will be more convenient to leave the turnpike road a mile before the traveller comes to *Thornton-church-ſtile*, viz. at the five mile-ſtone up a lane to the left, oppoſite a blackſmith's ſhop, near ſome houſes called *Weſthouſe*.

chaſm where we ſaw the caſcade; we were quite ſecluded from the world, not an habitation for man in view, but a lonely ſhepherd's houſe, with a little wood, and a few incloſures near it, called *Breada-garth*: It is on the north ſide of an high mountain, ſeldom viſited by man, and never by the ſun for near half a year. No monk or anchoret could deſire a more retired ſituation for his cell; or diſappointed lover to moralize on the inconſtancy of his nymph, and the vanity of the world. The ſoil ſeemed the deepeſt and richeſt in ſome parts of this vale of any I had ever obſerved, and no doubt is capable of great improvement. I could not but lament that inſtead of peopling the wilds and deſarts of *North America*, we had not peopled the fertile waſtes of the north of *England*. I have ſince indeed been informed that a plan is in agitation for having it incloſed, when I make no doubt but it will ſupport ſome ſcores of additional families. While I was muſing on the many bad effects of peopling diſtant countries and neglecting our own, we arrived at the object of this excurſion, *Yordas-cave:* It is almoſt at the top of the vale, on the north ſide of it, under the high mountain *Gragareth*. Having never been in a cave before, a thouſand ideas, which had been for many years dormant, were excited in my imagination on my entrance into this gloomy cavern. Several paſſages out of *Ovid's Metamorphoſis*, *Virgil*, and other claſſics crowded into my mind together. At one time I thought it like the den where *Cadmus* met the huge ſerpent.

Silva vetus ſtabat, nullâ violata ſecuri;
Eſt ſpecus in medio virgis ac vimine denſus,

Efficiens

Efficiens humilem lapidum compagibus arcum;
Uberibus fœcundus aquis. Hoc conditus antro
Martius anguis erat.

Ovid's Met. *B.* 3. *Fab.* 1.

Within this vale there roſe a ſhady wood
Of aged trees; in its dark boſom ſtood
A buſhy thicket, pathleſs and unworn,
O'errun with brambles, and perplex'd with thorn:
Amidſt the brake a hollow den was found,
With rocks and ſhelving arches vaulted round,
Deep in the dreary den, conceal'd from day,
Sacred to *Mars* a mighty dragon lay. *Addiſon.*

Indeed there wanted nothing but an ancient wood, to make one believe that *Ovid* had taken from hence his lively deſcription.

As we advanced within it, and the gloom and horror increaſed, the den of *Cacus* and the cave of *Poliphemus* came into my mind. I wanted nothing but a *Sybil* conductreſs with a golden rod, to imagine myſelf like *Æneas* going into the infernal regions. * The roof was ſo high, and the bottom and ſides ſo dark, that with all the light we could procure from our candles and torches, we were not able to ſee the dimenſions of this cavern. The light we had ſeemed only darkneſs viſible, and would ſerve a timid ſtranger, alone and ignorant of his ſituation,

To conceive things monſtrous, and worſe,
Than fables yet have feigned, or fear conceived,
Gorgons and Hydras and chimeras dire. *Milton.*

* See *Virgil's Æneid*, L. 3. l. 616. and L. 6. l. 205. and L. 6. l. 234.

Having paſſed a ſmall brook which one of the party called the *Stygian* lake, we came to the weſtern ſide of the cave. It is a ſolid perpendicular rock of black marble, embelliſhed with many rude ſketches, and names of perſons now long forgotten, the dates of ſome being above two hundred years old. After we had proceeded twenty or thirty yards northward, the road divided itſelf into two parts, but not like that of *Æneas* when deſcending into the realms of *Pluto;*

Hâc iter Elyſium nobis; at læva malorum
Exercet pœnas, et ad impia Tartara mittit.

Virgil Æneid, *L.* 6. *l.* 542.

'Tis here in different paths the way divides;
The right to *Pluto's* golden palace guides;
The left to that unhappy region tends,
Which to the depth of *Tartarus* deſcends;
The ſeat of night profound, and puniſh'd fiends.

No, they both had a divine tendency: On the right was the biſhop's throne, and on the left the chapter-houſe, ſo called from their reſemblance to theſe appendages of a cathedral. Here we could not but lament the devaſtation made in the ornaments of theſe ſacred places; ſome Goths not long ſince, having defaced both throne and chapter-houſe of their pendent petrified works, which had been ſome ages in forming. The little caſcades which fell in various places from the roof and ſides, with different trilling notes, ſerved to entertain the ear with their watery muſic; while the eye was buſy in amuſing itſelf with the curious reflections which were

were made by our lights from the ſtreams and petrifactions which appeared all around us. We were told by our guide, what a great effect the diſcharge of a gun or piſtol would have upon our ears: But not being deſirous to carry our experimental philoſophy ſo far as to endanger or give pain to the organs of hearing, we were not diſappointed in having no apparatus for the purpoſe. We were ſhewn a low and narrow paſſage on one of the ſhelves of the rock near the chapter-houſe, which we were informed led to a wider path, extending itſelf into the heart of the mountain; but our curioſity was ſatisfied without crawling among the rocks beſmeared with ſlime and mud. From the dome of this natural edifice fell a fine and fluent caſcade, which ſerved in a peculiar manner to embelliſh the works of nature, in a ſtile ſuperior to any thing we can have in thoſe of art.

While we were regaling ourſelves with the proviſions we had brought, we enquired of our guide, if he could furniſh us with any curious anecdotes relative to this cave. After informing us that it had been alternately the habitation of giants and fairies, as the different mythology prevailed in the country; he mentioned two circumſtances we paid ſome attention to. About fifty or ſixty years ago, a madman eſcaped from his friends at or near *Ingleton*, and lived here a week, in the winter ſeaſon, having had the precaution to take off a cheeſe and ſome other proviſions to his ſubterranean hermitage. As there was ſnow on the ground, he had the cunning of *Cacus*, (ſee *Virgil Æneid*, L. 8. l. 209) to pull the heels off his ſhoes, and ſet them on inverted at the toes, to prevent being traced: An inſtance,

ſtance, among many others, of a madman's reaſoning juſtly on ſome detached part of an abſurd plan or hypotheſis. Since that time, he told us a poor woman big with child, travelling alone up this inhoſpitable vale to that of *Dent*, was taken in labour, and found dead in this cave.

Leaving *Yordas*, we ſhaped our courſe acroſs the vale by *Twiſleton*, to *Ingleton*. The rocks on each ſide of *Kingsdale* are black marble, of which, elegant monuments, chimneys, ſlabs, and other pieces of furniture are made by a Mr. *Tomlinſon*, at *Burton in Lonſdale;* when poliſhed, this marble appears to be made up of entrochi, and various parts of teſtaceous and piſcoſous reliques. In our return down this vale we ſaw a large heap of ſmall ſtones, called an hurder: They had undoubtedly been collected by human hands, and were thrown, moſt probably, as a tumulus, over ſome dead perſon of conſequence. It may appear ſtrange that any one of diſtinction ſhould be buried in ſo ſolitary a place: We ſaw however three or four more of theſe hurders in our way from *Ingleton-fells* to *Horton*, on the bleak and barren moors by the way ſide. After we had regaled and reſted ourſelves comfortably at *Ingleton*, we took an evening walk about a mile above the town, to the ſlate quarries, by the ſide of the river *Weaſe*, or *Greta*, which comes down out of *Chapel in the dale*, and joins the *Kingsdale* river at *Ingleton*. Here we had objects both of art and nature to amuſe ourſelves with: On one hand was a precipice ten or twelve yards perpendicular, made by the labour of man, being a delve of fine large blue ſlate, affording an uſeful and ornamental cover for the

houſes

houſes in the adjoining parts of *Yorkſhire*, *Lancaſhire*, and *Weſtmorland:* On the other hand was the river rolling down from rock to rock in a narrow deep chaſm, where there was no room for human foot to tread between the ſtream aud the rugged, high, ſteep rocks on each ſide. Several pieces of the ſlate were beſpangled with yellow marcaſites of a cubic form, and different ſizes, others were gilded over with the various foliages of ferns, pines, oaks, and other vegetables. We croſſed the river by means of the broken fragments of rocks, which afforded us their rugged backs above the ſurface of the water to tread on. Here we met with a fine field for our entertainment as botaniſts. There was the lady's ſlipper, the fly orchis, rarely to be met with elſewhere, and many other ſcarce and curious plants. We croſſed over to take a ſecond view of *Thornton-force*, on the ſouth ſide of the *Kingsdale* river, and followed its murmuring ſtream down a deep glen, fortified with high precipices on each ſide, to *Ingleton.* Nor did we think ourſelves ill repaid for all the difficulties we had to encounter in our road amongſt rocks and ſtreams, as ſomething new and amuſing preſented itſelf almoſt every ſtep we took.

Ingleton is a pretty village, pleaſantly ſituated on a natural mount, yet at the bottom of a vale, near the conflux of two rivers, over which are thrown two handſome arches. When the celebrated Mr. *Gray* was here, he obſerved that great ſtones were rolled along their beds inſtead of water: But if the ſtreams are ſometimes ſmall in a drought, they are remarkably fluent and impetuous

impetuous in a flood. * The church-yard, in the middle of which ſtands a neat ſacred edifice, commands a fine view of the vale of *Lonſdale*, almoſt as far as *Lancaſter*. The murmurs of the ſtreams below ſooth the ear, while the eye is ſelecting a variety of objects for its entertainment. On the back-ground are the lofty mountains of *Gragareth*, *Whernſide*, and *Ingleborough*, the ſummits of which, when they are not enveloped in the clouds, can ſcarcely be ſeen for their high intervening baſes. When the top of *Ingleborough* is covered with a thick white miſt, or, as the country people ſay, when he puts on his night-cap, there are often ſtrong guſts, called helm winds, blowing from thence to that part of the country which adjoins to its baſe. The like obſervation is made by mariners of the table land at the *Cape of Good Hope*, on the coaſt of *Africa*. They are called helm winds from their blowing from the cloud or helmet that covers the head of the mountain. Amongſt other entertainments, the civil uſage and good accommodations we met with at our inn, the *Bay-horſe*, contributed not a little to heighten the amuſements and pleaſures of the day.

Early next morning we ſet off for *Ingleton-fells*, or *Chapel in the dale*, along the turnpike road leading to *Aſkrigg* and *Richmond*. We had not

* The editor of *Barnaby's Journal* has this diſtich on *Ingleton*.

Pirgus ineſt fano, fanum ſub acumine collis;
Collis ab elatis actus & auctus aquis.

The poor man's box is in the temple ſet;
Church under hill, the hill by waters beat.

not travelled much above a mile before we came into the dale, which is about three quarters of a mile broad. For near three miles it had ſomething in its appearance very ſtriking to the naturaliſt: There were high precipices of lime-ſtone rock on each ſide; and the intermediate vale to a lively imagination would ſeem once to have been of the ſame height, but ſunk down by the breaking of pillars, which had ſupported the roof of an enormous vault. About three miles from *Ingleton* is the head of the river *Weaſe*, or *Greta*, on the left hand ſide of the road, only a few yards diſtant from it. It guſhes out of ſeveral fountains at once, all within twenty or thirty yards of each other; having run about two miles underground, though making its appearance in two or three places within that diſtance. When there are floods, it runs alſo above ground, though not in all places, except the rains are extraordinary great. This is the ſubterranean river mentioned by Dr. *Goldſmith* in his entertaining *Natural Hiſtory*, Vol 1.

When we had gone about a mile farther, being four miles from *Ingleton*, we turned off the turnpike road to ſome houſes near the chapel, where we left our horſes. At firſt we imagined we had here met with an exception to the maxim of poet *Butler*, the author of *Hudibras*, viz.

> A jeſuit never took in hand
> To plant a church in barren land.

For the chapelry produceth neither wheat, oats, barley, peas, or any other ſorts of grain; nor apples, pears, plumbs, cherries, or any kind of fruit: A ripe gooſe-berry was a natural curioſity

in the ſummer ſeaſon, in moſt parts of the diſtrict; even their potatoes they have from other places. Yet though they were deſtitute of theſe productions, they were bleſſed with others as valuable by way of compenſation. They abounded with excellent hay grounds and paſtures, and were rich in large flocks and herds of cattle, which enabled them to purchaſe every conveniency of life. Having little intercourſe with the luxurious, vicious, and deſigning part of mankind, they were temperate, ſubſtantial, ſincere, and hoſpitable. We found an intelligent, agreeable, and entertaining companion and guide in the curate, who ſerved them alſo as ſchool-maſter: As Dr. *Goldſmith* obſerves on a like occaſion;

A man he is to all the country dear,
And paſſing rich with thirty pounds a year.

The firſt curioſity we were conducted to was *Hurtlepot*, about eighty yards above the chapel. It is a round deep hole, between thirty and forty yards diameter, ſurrounded with rocks almoſt on all ſides, between thirty and forty feet perpendicular above a deep black water, in a ſubteranean cavity at its bottom. All round the top of this horrid place are trees, which grow ſecure from the axe; their branches almoſt meet in the center, and ſpread a gloom over a chaſm dreadful enough of itſelf without being heightened with any additional appendages: It was indeed one of the moſt diſmal proſpects I had yet been preſented with. The deſcent of *Æneas* into the infernal regions came again freſh into my imagination,

gination, and the following paſſage out of *Virgil* obtruded itſelf on my memory.

Spelunca alta fuit, vaſtéque immanis hiatu;
Scrupea, tuta lacu nigro nemorúmque tenebris;
Quam ſuper haud ullæ poterant impunè volantes
Tendere iter pennis: talis ſeſe halitus atris
Faucibus effundens ſupera ad convexa ferebat;
Unde locum Graii dixerunt nomine Avernum.

Æneid, *B.* 6. *l.* 237.

Deep was the cave; and downwards as it went
From the wide mouth, a rocky, rough deſcent;
And here th' acceſs a gloomy grove defends;
And there th' unnavigable lake extends;
O'er whoſe unhappy waters, void of light,
No bird preſumes to ſteer his airy flight:
From hence the Grecian bards their legends make,
And give the name *Avernus* to the lake.

Dryden.

After viewing for ſome time with horror and aſtoniſhment its dreadful aſpect from the top, we were emboldened to deſcend by a ſteep and ſlippery paſſage to the margin of this Avernian lake. What its depth is we could not learn; but from the length of time the ſinking ſtones we threw in continued to ſend up bubbles from the black abyſs, we concluded it to be very profound. How far it extended under the huge pendent rocks we could get no information, a ſubterranean embarkation having never yet been fitted out for diſcoveries. In great floods we were told this pot runs over; ſome traces of it then remained on the graſs. While we ſtood at the bottom, the awful ſilence was broken four or

five times in a minute, by drops of water falling into the lake from the rocks above, in different ſolemn keys. The ſun ſhining on the ſurface of the water, illuminated the bottom of the ſuper-incumbent rocks, only a few feet above; which, being viewed by reflection in the lake, cauſed a curious deception, ſcarce any where to be met with: They appeared at the like diſtance below its ſurface in form of a rugged bottom. But alas! how fatal would be the conſequence, if any adventurer ſhould attempt to wade acroſs the abyſs on this fallacious principle. This deep is not without its inhabitants; large black trouts are frequently caught in the night by the neighbouring people.

On our return we found the poet *Virgil's* maxim too true.

——— Facilis deſcenſus Averni:
Noctes atque dies patet atri janua Ditis;
Sed revocare gradum, ſuperaſque evadere ad auras,
Hoc opus, hic labor eſt.

Æneid, *B.* 6. *l.* 126.

The gates of hell are open night and day;
Smooth the deſcent, and eaſy is the way:
But to return and view the cheerful ſkies;
In this the taſk and mighty labour lies.

Dryden.

When we arrived in the ſuperior regions, we purſued our journey about a hundred and fifty yards farther up a very narrow groteſque glen, over a natural bridge of limeſtone above ten yards thick, having the ſubterranean river *Weaſe*, or *Greta* underneath. When we got to the head

head of this gill, we were ſtopt by a deep chaſm called *Ginglepot*, at the bottom of a precipice: It is of an oblong and narrow form; an enterprizing perſon with a ſteady head and active heels, regardleſs of the fatal conſequences from a falſe ſtep, might leap over it. It is filled with ſmooth pebbles at the bottom, except at the ſouth corner, where there is deep water, which in floods ſwells up to the top, and iſſues out in a vaſt torrent. The length of this chaſm is about ten yards, and the perpendicular depth, at the north corner, about twenty yards. In our way from *Hurtlepot*, we could not help remarking the ruins of two ſmall artificial mounts of earth, which we were told formerly ſerved as butts, when the inhabitants exerciſed themſelves in the ancient military accompliſhment of archery.

Returning back a little way from *Ginglepot* in order to find a paſſage out of this dreary glen, we proceeded about a hundred and twenty yards higher when we came to *Weathercoate-cave* or *cove** the moſt ſurpriſing natural curioſity of the kind in the iſland of *Great Britain*. It is a ſtupendous ſubterranean cataract in a huge cave, the top of which is on the ſame level with the adjoining lands. On our approach to its brink, our ears and eyes were equally aſtoniſhed with the ſublime and terrible. The margin was ſurrounded with trees and ſhrubs, the foliage of which was of various ſhapes and colours, which had an excellent effect, both in guarding and ornamenting the ſteep and rugged precipices on every

* The word *cave* is pronounced by the country people *cove*, or *coave*: This hint may be of ſervice to a ſtranger in his enquiries.

every ſide. Where the eye could penetrate through the leaves and branches, there was room for the imagination to conceive this cavern more dreadful and horrible, if poſſible, than it was in reality. This cave is of a lozenge form, and divided into two by a rugged and groteſque arch of limeſtone rock: The whole length from ſouth to north is about ſixty yards, and the breadth about half its length. At the ſouth end is the entrance down into the little cave; on the right of which is a ſubterranean paſſage under the rocks, and a petrifying well: A ſtranger cannot but take notice of a natural ſeat and table in a corner of this groteſque room, well ſuited for a poet or philoſopher: Here he may be ſecluded from the buſtle of the world, though not from noiſe; the uniform roaring however of the caſcade will exclude from the ear every other ſound, and his retirement will conceal him from every object that might divert the eye. Having deſcended with caution from rock to rock, we paſſed under the arch and came into the great cave, where we ſtood ſome time in ſilent aſtoniſhment to view this amazing caſcade. The perpendicular height of the north corner of this cave, was found by an exact admeaſurement to be thirty ſix yards; near eleven yards from the top iſſues a torrent of water out of an hole in the rock, about the dimenſions of the large door in a church, ſufficient to turn ſeveral mills, with a curvature which ſhews, that it has had a ſteep deſcent before it appears in open day; and falls twenty five yards at a ſingle ſtroke on the rocks at the bottom, with a noiſe that amazes the moſt intrepid ear. The water ſinks as it falls amongſt th

the rocks and pebbles at the bottom, running by a ſubterranean paſſage about a mile, where it appears again by the ſide of the turnpike road, viſiting in its way the other caverns of *Ginglepot* and *Hurtlepot*. The cave is filled with the ſpray that ariſes from the water daſhing againſt the bottom, and the ſun happening to ſhine very bright, we had a ſmall vivid rainbow within a few yards of us, for colour, ſize, and ſituation, perhaps no where elſe to be equalled. An huge rock that had ſometime been rolled down by the impetuoſity of the ſtream, and was ſuſpended between us and the top of the caſcade, like the coffin of *Mahomet* at *Medina*, had an excellent effect in the ſcene. Though the ſtream had poliſhed the ſurfaces of the pebbles on which it fell at the bottom by rolling them againſt each other; yet its whole force was not able to drive from its native place the long black moſs that firmly adhered to the large immoveable rocks. We were tempted to deſcend into a dark chamber at the very bottom of the cave, covered over with a ceiling of rock above thirty yards thick, and from thence behind the caſcade, at the expence of having our cloaths a little wet and dirtied, when the noiſe became tremendous, and the idea for perſonal ſafety awful and alarming. We were informed that in a great drought the divergency of the ſtream is ſo ſmall, that we might with ſafety go quite round the caſcade. At the bottom we were ſhewn a crevice where we might deſcend to the ſubterranean channel, which would lead us to *Ginglepot*, and perhaps much further; we were alſo ſhewn above, a ſhallow paſſage between the ſtrata of rocks, along which we might crawl to the

the orifice out of which the caſcade iſſued, where it was high enough to walk erect, and where we might have the honour of making the firſt expedition for diſcoveries; no creature having yet proceeded in that paſſage out of ſight of daylight: But as we were apprehenſive the pleaſure would not be compenſated by the dangers and difficulties to be encountered in our progreſs, we did not attempt to explore theſe new regions. After a little rain another caſcade ſimilar to the former falls nearly from the ſame height on the weſt ſide of the cave, appearing and diſappearing with great variety amongſt the rocks, as if it fell down the chimney of a ruinous building, where ſeveral holes were made into it in the gable-end. If the rains ſtill encreaſe, a large ſtream ſets in out of the room by the ſide of the little cave; and in great floods a vaſt river falls into the great cave down the precipice on the eaſtern ſide. With their united ſtreams they are ſometimes able to fill the whole capacity of the cavern and make it overflow; the ſubterranean crannies and paſſages of this leaky veſſel not being able with the encreaſed preſſure from above, to carry off the water as faſt as it is poured in; but this happens only once in ſeven or ten years.

Having ſatisfied our curioſity in viewing this wonder of nature, and moralized on the inſignificancy of all human attempts in producing any thing like it, we aſcended into our native regions and proceeded to another called *Doukcove*, about a mile ſouth, on the other ſide of the turnpike road, towards the foot of *Ingleborough*, whoſe height now appeared to great advantage from the nature of our own elevated ſituation.

Douk-

Douk-cove is ſomething ſimilar to that of *Weathercoate*, but not heightened ſo much with the vaſt and terrible: The cavity indeed is longer and wider, but not deeper; the rocks not ſo high and ſteep, except on the eaſt ſide, where the hawks and other birds build their neſts, not dreading the approach of human foot. The ſtream of this caſcade does not fall above five or ſix yards, and is not ſo large and fluent as the former; though like it, is immediately abſorbed amongſt the rocks beneath. The ſubterranean paſſage out of which it iſſued is very curious. By the help of a ladder we aſcended and went along it to ſome diſtance by means of candles: When we had gone about forty or fifty yards, we came to a chaſm ten or twelve yards in depth from the ſurface, through which we could ſee broad day. How far we could have proceeded, we know not; we returned, after we had been about a hundred yards. This would be looked on as a great curioſity in many countries; but after thoſe we had ſeen, our wonder was not eaſily excited.

We were now on the baſe or pediment on which *Ingleborough* * ſtands, and greatly elevated above all the weſtern country. Our diſtance from the bottom, where the ſteep aſcent of this high mountain begins, was about a mile in a direct horizontal line over rocks and pits. The

 fineneſs

* The word *Ingleborough* ſeems to be derived from the Saxon word *ingle*, which ſignifies *a lighted fire*; and *borough*, or *burgh*, which comes originally from the Greek word *πυργος*, and ſignifies a *watch tower*; the labials *p* and *b* being often changed into each other: For here a beacon is erected, on which a fire uſed to be made as a ſignal of alarm in times of rebellions or invaſions.

fineneſs and clearneſs however of the day induced us to aſcend its ſides and gain its ſummit: Though we had many a weary and ſlippery ſtep, we thought ourſelves amply repaid when we got to the top, with the amuſement we received in viewing the ſeveral extenſive and diverſified proſpects, and in making our obſervations as botaniſts and natural hiſtorians, on its productions and contents. All the country betwixt us and the ſea, to the extent of forty, fifty, and ſixty miles from the north-weſt, by the weſt to the ſouth-weſt, lay ſtretched out beneath us, like a large map, with the roads, rivers, villages, towns, ſeats, hills and vales, capes and bays, in ſucceſſion. Elevation is a great leveller; all the hills and little mountains in the country before us, appeared ſunk in our eyes, and in the ſame plane with the adjacent meadows. To the north-weſt, the proſpect was terminated at the diſtance of forty or fifty miles, by a chain of rugged mountains in *Weſtmorland*, *Lancaſhire*, and *Cumberland*, which appeared as barriers againſt the fury of the ocean. To the weſt the Iriſh ſea extends as far as the eye can penetrate, except where the uniformity of the watery proſpect is interrupted by the *Iſles of Man* and *Angleſey*. The blue mountains in *Wales* terminated our further progreſs, after we had traced out the winding of the coaſt all the way from *Lancaſter*, by *Preſton*, and *Liverpool*. A curious *deceptio viſus* preſented itſelf: All the vales between us and the ſea appeared lower than its ſurface; owing to the ſky and earth both apparently tending to a line drawn from the eye parallel to the horizon, where they at laſt appeared to meet. To the eaſt and north, the

proſpect

proſpect was ſoon terminated by a number of black, irregular, chaotic mountains, which by their indentations and winding ſummits, gave us reaſon to conclude they contained habitable vales between them. Their ſides afford an hardy and wholeſome paſture for ſheep, and their bowels contain rich mines of lead, ſome of which are wrought with great advantage to the proprietors.

The immenſe baſe on which *Ingleborough* ſtands, is between twenty and thirty miles in circumference: The riſe is in ſome places even and gradual, in others, as to the north and weſt, it is rugged and almoſt perpendicular. The top is plain and horizontal, being almoſt a mile round, having the ruins of an old wall about it, from which ſome ingenious antiquaries endeavour to prove that it has once been a Roman ſtation, and place of great defence. Of late years it has never been frequented by any except ſhepherds, and the curious in proſpects, and the neighbouring country people, who reſorted to the horſe races, which were formerly annually held on its top. On the weſtern edge there are the remains of what the country people call the beacon, ſome three or four yards high, aſcended by a flight of ſteps. The ruins of a little watch-houſe is alſo adjoining: No doubt in time of wars, inſurrections, and tumults, and particularly during the incurſions of the Scots, a fire was made on this beacon to give the alarm to the country round about. The ſoil on the top is ſo dry and barren that it affords little graſs, the rock being barely covered with earth: A ſpongy moſs is all the vegetable that thrives in this lofty region. The ſtones on

the ſummit, and for a great way down, are of the ſandy gritty ſort, with freeſtone ſlate amongſt them: Upon the baſe, the rocks are all limeſtone to an enormous depth. Near the top indeed, on the eaſt ſide, is a ſtratum of limeſtone like the *Derbyſhire* marble full of entrochi. Several ſprings have their origin near the ſummit, particularly one on the north ſide, of pure and well-taſted water, called *Fair-weather-ſyke*, which runs down by the ſide of a ſheep fence wall into a chaſm called *Meir-gill*. All the other ſprings, as well as this, when they come to the limeſtone baſe are ſwallowed up, and, after running perhaps a mile underground, make their appearance once again in the ſurrounding vales, and then wind in various courſes to the *Lune* or *Ribble*, which empty themſelves into the Iriſh ſea.

The other ſtones and foſſils on and about *Ingleborough*, are black and brown marbles, abounding with white ſea ſhells, ſparks of ſpar, and flakes of entrochi; ſpars of various ſorts, the ſtalactical and iſicle in the caves, ſlates pale and brown, and near *Ingleton* blue; black ſhiver, tripoli or rotten-ſtone, bloodſtone and lead ore. The ſoil on the baſe and ſides of *Ingleborough* (where there is any) is chiefly peatmoſs, which the country people get up and burn for fewel: The cover is in general ling or heath: Other vegetables are, ferns of various kinds; reindeer-moſs, and various other moſſes, heleborines white and red; the different ſorts of ſeedums; crane's bills, ſcurvy-graſs, bird's eyes, various liver-worts, orchiſes, roſe-wort, lilly of the valley, mountain columbines; the hurtle-berry or bill-berry, knout-berry, cran-berry, whartle-berry, cloud-berry, and cow-berry. Shrubs,

bird,

bird-cherry, mountain-aſh, gelder-roſe, burnet-roſe, ſtone-bramble, red and black currants. In the *Foal-foot*, which is in the north-weſt corner of this mountain, is found the viviparous graſs, and the roſe-of-the-root, which has a yellow flower, and is like houſe-leek. Near *Ingleton*, as was before obſerved, is the lady's ſlipper, and fly orchis. The chief animals found on and about *Ingleborough* are, grouſe, the ring-ouſle, and wheat-ear; the fox, mountain-cat, wild-cat, pole-cat, weaſle, ſtoat, badger, and martin.

The perpendicular height of this mountain above the level of the ſea is 3987 feet, as taken by a country gentleman, though it is marked 1760 yards, or exactly one mile high, in the new map of *Yorkſhire*. It is agreed on all hands, and is obvious enough to the eye, that *Whernſide*, which is on the north ſide of the vale of *Chapel in the dale*, is the higher, though not ſo well ſituated for extenſive proſpects. If this mountain is one mile high, it may be calculated from the principles of mathematics, that the proſpect along the ſea will extend above ninety miles from the eye. The top of *Ingleborough* is the firſt land however that ſailors deſcry in their voyage from *Dublin* to *Lancaſter*, though above thirty miles from the ſea, which ſhews the great elevation of this mountain.

In our return we viſited the long, deep, and dreadful chaſm of *Meir-gill*, on the weſt ſide of the ſheep-fence wall, running north and ſouth over the baſe of *Ingleborough*: It is about eighty yards long, but in moſt places ſo narrow that a perſon may ſtride over it, and is no where above two or three yards wide; in one place there is a curious

a curious natural bridge over it. The depth is very different, in different places; at one place we found it a hundred feet, forty eight of which was in the water. One part will admit a bold and active adventurer down almoſt to the water by a gradual, but ſlippery deſcent: Here the ſhadow of the ſuperincumbent rocks, like that in *Hurtlepot*, forms a very deceitful appearance in the water: The bottom ſeems not above two feet below the ſurface; but how fatal would be the attempt to wade this abyſs in queſt of farther diſcoveries, from this ſhadow of encouragement? The narrowneſs of this crevice at the top has ſomething dreadful and alarming in it: How fatal would one falſe ſtep prove to the unwary ſhepherd amongſt the ſnow, when the mouth is drifted up; or to a ſtranger bewildered in the fog, and looking forwards with eager eyes for ſome habitation, or frequented path? Harmleſs and heedleſs ſheep have often been ſuddenly ſwallowed up by this gaping wonder of nature. To ſay that no living creature ever came out of its womb, would be a propoſition too general. Trouts of a protuberant ſize have been drawn out of it, where they had long been nouriſhed in ſafety, their habitation being ſeldom diſturbed by the inſidious fiſherman.

A little further to the eaſt we came to another curioſity of nature, called *Barfoot-wive's-hole*: We had noticed it in our aſcent up the ſide of *Ingleborough*. It is a large round pit in form of a funnel, the diameter at top being about fifty or ſixty yards, and its depth twenty ſix. It is eaſily deſcended in moſt places, though on the ſouth ſide there is an high rocky precipice,

but

but is dry, the waters that are emptied into it, being fwallowed up among the rocks and looſe ſtones at the bottom. In our way back we alſo ſaw *Hardrawkin*, and ſome other ſubterranean paſſages of leſs note, which had been formed by the waters in their deſcent from the mountain adjoining to *Ingleborough* to the vale beneath. Indeed the whole limeſtone baſe of this monſter of nature is perforated and excavated in all directions like a honeycomb.

From the *Chapel in the dale*, we ſhaped our courſe towards the ſouth-eaſt corner of *Whernſide*, along the road leading to the village of *Dent*. As we proceeded, the curate entertained us with an account of ſome ſingular properties obſervable in the black earth, which compoſes the ſoil in the higher parts of the vale, in various moraſſy places. It is a kind of *igneum lutum*, or rather a ſort of putrified earth, which in the night reſembles fire, when it is agitated by being trod upon: The effects it produces in a dark evening are truly curious and amazing. Strangers are always ſurpriſed, and often frightened, to ſee their own and horſes legs beſprinkled to all appearance with fire, and ſparks of it flying in every direction, as if ſtruck out of the ground from under their feet. They are as much alarmed with it, as the country people are with the *Will with the wiſp*, or mariners with the luminous vapour of the delapſed *Caſtor and Pollux*. Though the dark and dreary moor is broke into thouſands of luminous particles, like ſo many glow-worms, when troubled by the benighted traveller, yet if any part of this natural phoſphorus is brought before a lighted candle, its ſplendour immediately vaniſhes, and it ſhrinks back

back into its original dull and dark ſtate of ſordid dirt. While we were endeavouring to account for this curious phænomenon on the principles of putrifaction and electricity, we arrived at the firſt object of this lateral excurſion from the turnpike road, *Gate-kirk-cave*: * The brook which runs through it forms a fine natural baſon of tranſparent water at its egreſs, where we entered the cave, gradually encreaſing in depth till about five or ſix feet at moſt: I believe every one preſent thought it reſembled the cave deſcribed by *Ovid* in the ſecond book of his *Metamorphoſis*, where *Actæon* unfortunately met with *Diana* and her nymphs amuſing themſelves with bathing, when ſeparated from his companions during the chace.

Vallis erat piceis, & acutâ denſa cupreſſu,
Nomine Gargaphiæ; ſuccinctæ ſacra Dianæ;
Cujus in extremo eſt antrum nemorale receſſu,
Arte laboratum nullâ: ſimulaverat artem
Ingenio naturæ ſuo: nam pumice vivo,
Et levibus tophis nativum duxerat arcum.
Fons ſonat à dextrâ, tenui pellucidus undâ,
Margine gramineo patulos ſuccinctus hiatus.
Hic Dea ſilvarum venatu feſſa ſolebat
Virgineos artus liquido perfundere rore.

Ovid, *B.* 3. *Fab.* 2.

Down in a vale, with pine and cypreſs clad,
Refreſh'd with gentle winds, and brown with ſhade,

The

* A furlong or two before we arrived at *Gate-kirk*, we paſſed a little caſcade among ſome hollow limeſtone rocks, which would be a fine embelliſhment to a gentleman's garden or park.

The chaſte *Diana's* private haunt there ſtood,
Full in the center of a darkſome wood,
A ſpacious grotto, all around o'ergrown
With hoary moſs, and arch'd with pumice-ſtone.
From out its rocky clefts the waters flow,
And trickling ſwell into a lake below:
Nature had every where ſo play'd her part,
That every where ſhe ſeem'd to vie with art.
Here the bright goddeſs, toil'd and chaf'd with heat,
Was wont to bathe her in the cool retreat.

Addiſon.

Over the cave, where the water flows, is another ſubterranean paſſage, of about twenty four feet in length, and from three to ten in height: It enters the other obliquely, and looks like a natural orcheſtra, and where indeed a band of muſic would exhibit to great advantage to an audience below. The roof is at leaſt ſix yards high at the firſt entrance: When we had proceeded out of ſight of day, a new train of ideas were excited in our imaginations. We could not but fancy that it was like the cave of *Polypheme*, or of ſome giant in modern romance, who hung up the mangled limbs of the unhappy victims that fell into his hands, to the dome of his murky den. From the roof were pendent large petrifactions in every groteſque ſhape; ſome like hams, others like neat's tongues, many like the heads and various parts of different animals. As we proceeded along we met with ſeveral bye ſtreets or lanes, down ſome of which came tinkling little currents; but they ſeemed not to admit a paſſenger with eaſe to any great diſtance: As we went along we obſerved that the way divided for a conſiderable

part of the whole length into two main ſtreets, which united again, made by the current dividing above into two ſtreams. After we had gone about ſeventy yards we met with an oriſice, which eaſily admitted us above ground: We had no curioſity to explore any farther, as the roof was now become only ſome four feet high, and not admitting us with eaſe beyond this aperture. The brook which runs through this cave is the main ſtream of the river *Greta*, which runs underground for at leaſt two miles, making its appearance here, at *Weather-coat*, and a few other places in its way down to its open channel. The pools that are formed by the brook after its exit out of the cave, exhibit a pleaſing and rural ſcene, being ſhaded with rocks, weeping willows, and the mountain aſh.

Having travelled a mile or two farther, and paſſed through the little remote village of *Winterſcales*, we came to the natural curioſity we were in queſt of, *Greenſide-cave:* It is under the ſouth-eaſt corner of the lofty mountain, *Whernſide*: The mouth was wide and high, and the road rugged; but the roof gradually ſunk, or the bottom aroſe, till it was troubleſome getting along, ſoon after we were out of ſight of day. A ſmall brook ran along the bottom, as in the other caves, but there were none of the curious petrifactions we ſaw in moſt of them to delight the eye. *Churchill's* deſcription of the Caledonian cave of famine, with a few alterations, will convey a juſt idea of *Greenſide-cave.*

This lonely cave (hard tax on Scottiſh pride!)
Shelter at once for man and beaſt ſupply'd:

Their

Their ſnares without, entangling briers ſpread,
And thiſtles arm'd againſt th' invader's head:
Here webs were ſpread of more than common ſize,
And half ſtarv'd ſpiders prey'd on half ſtarv'd flies;
In queſt of food, efts ſtrove in vain to crawl,
Slugs, pinch'd with hunger, ſmear'd the ſlimy wall—
The cave around with falling rivulets rung,
And on the roof unhealthy vapours hung.

Near the mouth of this cave is a thin ſtratum of coal, not many inches thick: Some attempts had been made to work it, but affording ſo ſmall gains, and the inhabitants being ſo well ſupplied with this article from *Ingleton*, it was ſoon deſerted. Being ſo near the top of *Whernſide*, we ventured to aſcend to the ſummit. The proſpects were not diverſified with many pleaſing objects, being ſurrounded almoſt on all ſides with brown and blue chaotic mountains. We had a peep into the pleaſant vale of *Dent* beneath us, which made us wiſh to ſee it all. *Pendle-hill* appeared over the top of *Ingleborough*, which gave us an high idea of our own elevation, this latter mountain being much higher than the former. We were ſurpriſed to ſee four or five tarns or pools of water, on a plain very near the ſummit of *Whernſide*. Two of them were large, being two or three hundred yards in length, and nearly of the ſame breadth; for one was almoſt circular, but the other oblong. There was a very thin bed of coal almoſt on the top of this mountain, and we were told, another correſponded with it on the top of great *Coln*, a lofty mountain on the other ſide of that branch of the vale of *Dent* called *Dibdale*. We were told ſome curious anecdotes of the vaſt

cunning and ſagacity of the ſheep dogs in this country, in diſcovering the ſheep that had been buried under large drifts of ſnow for ſome days, and that muſt inevitably have periſhed with hunger, or been drowned with the melting of that vapour, if not diſcovered by theſe uſeful animals.

We now ſhaped our courſe back to *Winter-ſcales*, and from thence to a public-houſe called *Gearſtones*, by the ſide of the turnpike road, at the bottom of the mountain *Cam*. Here we refreſhed ourſelves and left our horſes, while we went about half a mile to the ſouth, to explore another ſubterranean wonder of nature called *Catknot-hole*. The entrance into it at firſt is not above three or four feet high, but almoſt immediately encreaſes to as many yards. We had not gone out of ſight of day, before we were obliged to wade up to the mid-leg a few yards, through a little pool made by the rill, that comes out of this cave. The paſſage grew narrower, but wide enough to walk along with eaſe, except in one or two places, where we were in danger of daubing our cloaths with a red ſlime. We proceeded above a quarter of a mile, when the road grew wider, but the roof was ſo low, that we could not go on with eaſe and pleaſure: Perhaps if we had muſtered humility and fortitude enough, to have crouched and crawled a little, we might have come to where the roof again would have been as high as we ſhould have deſired. In ſome places there were alleys out of the main ſtreet, but not extending to any great diſtance, ſo as to admit of paſſengers. The rocks jutted out, and were pendent in every groteſque and fantaſtic ſhape; moſt of them were covered

over

over with a fine coating of spar, that looked like alabaster, while icicles of various shapes and colours were pendent from the roof; all generated by the fine particles of stone that exist in the water, which transudes through the roof and sides, and leaves them adhering to the rock in their descent to the bottom. The various coloured reflections made by the spars and petrifactions that abounded in every part, entertained the eye with the greatest novelty and variety; while at the same time, the different notes made by the rill in its little cascades, and reverberated from the hollow rocks, amused the ear with a new sort of rude and subterraneau music, but well enough suited to our slow and gloomy march. This was the longest subterranean excursion we had yet made, and if we might have formed our own computation of its extent, from the time we were in going and coming, and not from the real admeasurement of our guide, we should have thought it two or three times as long as it was; so much were we deceived in our estimate of a road, unlike any we had ever before travelled. The romantic cascades, pools, and precipices in the channel of the river *Ribble*, that runs by the the mouth of this cave, are not unworthy the notice of a stranger.

We were in some suspense whether we should pursue the turnpike road over *Cam*, to see the natural curiosities in *Wensleydale*: But as we learnt there was only one remarkable object of the genus of those we were now in quest of, *Hardraw-scar*, we desisted; as we should have lost others more valuable, which lay in a different route. The description, however, which

was

was given of it by our reverend guide, was ſo lively and picturesque, that its own merit will be a ſufficient apology for its inſertion.

" *Hardraw-ſcar* is near the town of *Hawes*, in *Wenſleydale*, and bears ſome diſtant affinity to the tremendous *Gordal* (hereafter taken notice of.) The chaſm is pervious at the bottom, and extends above three hundred yards in length, fortified with huge ſhattered rocks on each ſide, which are in ſome places thirty three yards perpendicular, and the intervallum above eighty. At the far end is an amazing cataract, which pours forth a vaſt quantity of water, that falls into a deep baſon. Behind the waterfall is a deep receſs excavated out of the ſolid rock: Here the ſpectator may ſtand behind the ſtream ſecure from its madefying effects, and may go quite round it upon one of the numerous *ſaxa ſedilia*, at the diſtance of ten yards from the water. In the year 1740, when fairs were held upon the *Thames*, this caſcade was frozen and conſtituted a prodigious iſicle of a conic form, thirty two yards and three quarters in circumference which was alſo its height."

After having determined to go by *Settle*, we had our doubt, whether we ſhould proceed by *Ling-gill*, which is a curious and romantic channel of a ſmall river, having high and groteſque rocks on each ſide; or take a more weſtern direction on the other ſide of the river *Ribble*, in order to ſee ſome other caves and chaſms. Our taſte for curioſities of this ſort induced us to adopt the latter plan. We returned about a mile before we left the turnpike road, and then turning off to the left, proceeding almoſt to the ſame diſtance, we came to *Alan* or *Alumn-pot*,

two

two or three furlongs above the little village of *Selſide*. It is a round ſteep hole in the lime-ſtone rock, about eight or ten yards in diameter, and of a tremendous depth, ſomewhat reſembling *Eden-hole*, in *Derbyſhire*. We ſtood for ſome time on its margin, which is fringed round with ſhrubs, in ſilent aſtoniſhment, not thinking it ſafe to venture near enough to its brim, to try if we could ſee to its bottom. The profundity ſeemed vaſt and horrible from the continued hollow gingling noiſe, excited by the ſtones we tumbled into it. We plummed it to the depth of a hundred and ſixty five feet, forty three of which were in water, and this in an extraordinary dry ſeaſon; As the direction of this hole was not exactly perpendicular but ſomewhat ſloping, it is very probable we were not quite at the bottom. A ſubterranean rivulet deſcends into this terrible hiatus, which cauſed ſuch a dreadful gloom from the ſpray it raiſed up as to make us ſhrink back with horrour, when we could get a peep into the vaſt abyſs. We were informed, that not long ſince ſome animals, an ox and a calf at different times, had the misfortune to tumble into this dreary pit, being tempted by the untaſted herbage to venture on its ſlippery margin. Only a low mound of earth ſurrounds its brim; for a ſtone wall would anſwer no other purpoſe, than to afford the curious traveller materials to throw in for his amuſement. Any advantage ariſing from the ſkins and careaſes of theſe animals, were not ſufficient inducements to tempt a neighbouring adventurous youth to be let down by ropes to the bottom of this frightful chaſm. The waters run from its bottom above a mile underground, and

then

then appear again in the open air, below the little village of *Selfide*. After having excited the feveral paſſions of curioſity, dread, and horrour, from the negative knowledge we got of the capacity and depth of this huge pot, we went a little way higher up the mountain, and came to another hiatus called *Long-churn*. We deſcended down till we came to a ſubterraneau brook: We firſt aſcended the cavern, down which the ſtream ran, proceeding in a weſtern direction, for at leaſt, as we imagined, a quarter of a mile, till we came to a crevice which admitted us into our native region. We meaſured the diſtance between the two extremities above ground, and found it two hundred and forty one yards, but it muſt be nearly double that diſtance along the paſſage below, on account of all the turnings and windings. The petrifactions here were the moſt numerous of any we had yet ſeen, few people coming hither to break them off or deface them. When we were almoſt arrived at the weſtern extremity, we came to a fine round baſon of pellucid water, from three to twelve feet deep, known by the name of *Dr. Banniſter's hand baſon*. A lofty, ſpacious, and elegant dome is placed immediately over it, which nicely correſponds to the hollowed receptacle at the bottom: Into this baſon a rivulet falls down a ſteep rock above ſix feet high, which is very dangerous to get up, and muſt be done at the expence of a wet ſkin, except a ladder is taken along with the party, or the waters are leſs fluent, than when we were there: There is alſo ſome danger leſt the adventurer ſhould fall back, and have his bones broken by circumjacent rocks, or be drowned

in

in the doctor's baſon. After having ſurmounted this obſtacle, and proceeded ſome yards farther, we were favoured with an egreſs into our own element, as was before obſerved; no unwelcome change, after having been ſo long excluded from it. After having reſted ourſelves a little, we returned to the chaſm, where we firſt entered *Long-churn*, and deſcending again, purſued the rivulet eaſtward along another extenſive ſubterranean paſſage, called *Dicken-pot*, which ſlopes and winds by degrees till it enters the ghaſtly and tremendous *Alan-pot*. We went a hundred and fifty ſeven yards along this *antre vaſt* * till we came to a ſteep rock full twelve feet perpendicular; Here we ſtopped; a wiſe conſideration! We might have deſcended perhaps without danger, but the queſtion was how we were to get up again; which, without ropes or a ladder, would be totally impracticable: At the far end was an elegant lofty dome, called by the country people *St. Paul's*. There is no doubt, but if we had ventured farther, we might have come to *Alan-pot*, at leaſt ſo near, as either to have ſeen the water that ſtagnates at its bottom, or the light that is admitted into this gaping monſter of nature.

There are ſeveral other caves all along from hence on the ſouth ſide of *Ingleborough*, above the village of *Clapham*, to *Ingleton*: But we poſtponed the pleaſure of exploring theſe hidden receſſes of nature till another ſummer. We deſcended from hence along the banks of the river *Ribble* four or five miles farther to the village of *Harton*, ſituated at the bottom of the

* See *Shakſpeare's Othello*, Act I.

lofty and elegant mountain *Penegent*. As we went along we paſſed a large heap of ſmall round ſtones, called an *hurder*: We were told there were two other by the ſide of the turnpike road, in a field called the *Slights*, one about a mile, and the others a mile and a half eaſt of the *Chapel in the dale*. They ſeem evidently placed there by human hands, and what was moſt extraordinary, they were all ſmall, round, ſandy, and gritty ſtones, and all the ſtones on the ſurface of the ground near them are limeſtone. No doubt they were *tumuli* of ſome deceaſed chieftains in the neighbourhood, or who died on their travels.

Before we left *Horton* we viſited ſome natural curioſities of the cavern kind on the baſe of *Penegent*.* *Dowgill-ſcar*, a little above *Horton* is a groteſque amphitheatre of limeſtone rocks compoſing an high precipice, which muſt appear awful and grand in a flood, when a large torrent of water falls from the top, full in view: A ſmall ſubterranean paſſage was able to take all the water, when we were there. A romantic gallery on the north ſide in the rocks, had a good effect in the ſcene. About a mile or two above *Horton*, upon the baſe of *Penegent*, we viſited *Hulpit*, and *Huntpit holes*: The one, if we could have deſcended into it, would have appeared like the inſide of an enormous old Gothic caſtle, the high ruinous walls of which were left ſtanding after

* The word *Pen* is of Phænician extraction, and ſignifies *head* or *eminence*. It was firſt introduced into *Cornwall*, where the *Phænicians* had a colony, who wrought the tin mines. Hence we have many names in *Cornwall* which begin with *pen*. Moſt mountains in *Wales* begin with *pen*. In *Scotland* the labial letter *P* is changed into *B*, and *Pen* into *Ben*, as *Benlemond*, *Beneviſh*, &c.

after the roof was fallen in. The other was like a deep funnel, and it was dangerous to come near its edges. *Horton-beck* or *brook* runs through the one, and *Branſil-beck* through the other of theſe pits, but through which I cannot remember; they each run underground near a mile; *Horton-beck* appearing again at *Dowgil-ſcar*, and *Branſil-beck*, at a place called *Branſil-head*. But what is moſt extraordinary, theſe ſubterranean brooks croſs each other underground without mixing waters, the bed of one being on a ſtratum above the other: This was diſcovered by the muddy water after a ſheep waſhing, going down the one paſſage, and the ſeeds or huſks of oats that were ſent down the other. About a couple of miles from *Horton*, on the right hand ſide of the road to *Settle*, is a curious ſtone quarry, at a place called *Culms* or *Coums*: The ſtones are of a blue kind, like ſlate, from one to three inches thick: Some are two or three yards broad, and five or ſix yards long; they are made uſe of for floors in houſes, being ſometimes laid over cellars on joiſts; they are alſo uſed for gate-poſts, foot-bridges, and partitions between the ſtalls in ſtables and cow-houſes.

At *Stainforth*, which is about three miles from *Horton*, and two from *Settle*, we were entertained with two caſcades, one in the *Ribble*, near the road, about ſix or eight yards high, and another a little above the village, perhaps twenty or thirty yards perpendicular.

About a quarter of a mile before we arrived at *Settle*, we turned to the right, along the road towards *Kirkby-Lonſdale*, about a mile, under the high and romantic rocks called *Giggleſwick-*

ſcar; in order to ſee the well by the way ſide, that ebbs and flows. We were in luck, ſeeing it reciprocate ſeveral times while we were there, and not ſtaying above an hour. We could not however learn, with any degree of certainty, by what intervals of time, and to what heights and depths the reciprocation was carried on. We were informed that if the weather was either very droughty or very wet, the phænomenon ceaſed. I have ſeen ſome philoſophical attempts to ſolve this extraordinary curioſity on the principle of the ſyphon, but in vain; as on that hypotheſis, if the ſyphon is filled by the ſpring, it will flow on uniformly for ever. We are told by drunken *Barnaby*, a hundred and fifty years ago, that it puzzled the wits of his age.

Veni Giggleſwick, *parum frugis*
Profert tellus, clauſa jugis:
Ibi vena prope viæ
Fluit, refluit, nocte, die;
Neque norunt unde vena,
An a ſale vel arenâ.

Thence to *Giggleſwick* moſt ſteril,
Hem'd with ſhelves and rocks of peril,
Near to th' way, as a traveller goes,
A fine freſh ſpring both ebbs and flows;
Neither know the learn'd that travel,
What procures it, ſalt or gravel.

Two country gentlemen, about thirty or forty years ago, promiſed ſomething more ſucceſsful in the iſſue of a paper war that was carried on between them, to the great amuſement of the neigh-

neighbourhood: Nothing however was determined or contended for about this well, ſo famous in hiſtory, but whether it was a natural curioſity or not.

As we approached towards *Settle*, in our return, a white rock like a tower, called *Caſtleber*, immediately above the town, and about twenty or thirty yards in perpendicular height, engaged our attention. We were told a curious anecdote of this rotky mount. As limeſtone was daily got there to ſupply a kiln at the bottom, the inhabitants had the lime-burner preſented at the court of the lord of the manor, fearing that if any more was dug out, the rock might fall and bury the whole town in ruins, a ſtone having once tumbled down and broken through a garden wall beneath, in its impetuous courſe towards the houſes. Twelve wiſe and juſt men were impannelled as jurors, and ſent to view this impending nuiſance; the verdict they returned was, that if ever it fell, it would tumble not towards the town, but the direct contrary way. On the other ſide, it reſts againſt the baſe of an high mountain. The hills and mountains all round were limeſtone to a prodigious depth; yet, ſtrange to tell, we were informed there was a monopoly of this commodity, one lime-burner or company of lime-burners having engroſſed the whole of it.

Settle is irregularly built, has a large and ſpacious market-place, but not many good houſes in it: Though by no means an inconſiderable town either for trade, riches or number of inhabitants, it has no church or chapel. The church is at *Giggleſwick*, about a mile off, which appeared to be the court end of the pariſh.

From

From *Settle* we proceeded eaſtward over the moors and mountains about half a dozen miles, to *Malham* or *Maum*, in order to ſee ſome other natural curioſities of the precipice and cataract kind. We had already indeed ſeen ſo many, that our wonder could not eaſily be excited, except they were more great and terrible: As ſuch we had them repreſented at *Settle*, or elſe we ſhould ſcarce have left the turnpike road; and when we ſaw them we were not diſappointed, for great and terrible they are. The firſt was *Malham-cave* (or vulgarly *Maum-cove*) though it has properly nothing of the cave about it. It is a fine amphitheatre of perpendicular limeſtone rock on the ſide of the moor, at leaſt a hundred yards high in the middle. The rocks lie ſtratum upon ſtratum, and on ſome there are *ſaxa ſedilia* or ſhelves, ſo that a perſon of great ſpirit and agility, but of ſmall and ſlender body, might almoſt walk round. A ſmall brook ſprings out at the bottom of the rocks; but in floods the narrow ſubterranean paſſage is not able to give vent to all the water, when there pours down a ſtupendous cataract, in height almoſt double that of *Niagara*. This is the higheſt perpendicular precipice I have ever ſeen, and I think not enough known or admired by travellers for its greatneſs and regularity. After purſuing our journey near a mile, by the ſide of the deep and romantic channel of the river *Air*, which waſhes the baſe of many a rugged and high precipice in its impetuous courſe to the vale beneath, we came to *Gordal*, the higheſt and moſt ſtupendous of them all. The proſpect of it from the ſide of the oppoſite weſtern bank is awful, great and grand. After viewing

viewing for ſome time its horrid front with wonder and aſtoniſhment, we were tempted to deſcend with care and circumſpection down the ſteep bank on the weſt ſide to this river, which being interſperſed with trees and ſhrubs, enabled us to rely on our hands, where we could find no ſure foot hold. The water being low we met with no difficulty in ſtepping from one broken fragment of the rocks to another, till we got on the other ſide, when we found ourſelves underneath this huge impending block of ſolid limeſtone, near a hundred yards high. The idea for perſonal ſafety excited ſome awful ſenſations accompanied with a tremor. The mind is not always able to diveſt itſelf of prejudices and unpleaſing aſſociations of ideas: Reaſon told us that this rock could not be moved out of its place by human force, blind chance, or the eſtabliſhed laws of nature. We ſtood too far under its margin to be affected by any crumbled deſcending fragment, and a very ſmall one would have cruſhed us to atoms, if it had fallen upon us; yet in ſpite of reaſon and judgment, the ſame unpleaſing ſenſations of terror ran coldly through our veins, which we ſhould have felt, if we had looked down, though ſecure, from its lofty top. Nothing however fell upon us but a few large drops, which ſweat from out its horrid prominent front. Some goats friſked about with ſeemingly a wanton careleſneſs, on the brink of this dreadful precipice, where none of us would have ſtood for all the pleaſant vales waſhed by the river *Air*. Some lines in *Virgil's Eclogues* ſeemed to receive additional beauties when repeated in this groteſque ſcene.

Non ego vos poſthac, viridi projectus in antro,
Dumoſa pendere procul de rupe videbo;

Virgil Ecl. I. l. 76.

No more extended in the grot below,
Shall I e'er ſee my goats high up the brow,
Eating the prickly ſhrubs, or void of care
Lean down the precipice and hang in air.

A little higher up is a fine caſcade, where the river ſtriving for an eaſier and gentler deſcent, has forced a way through the rocks, leaving a rude natural arch remaining above. If a painter wanted to have embelliſhed his drawing of this romantic ſcene with ſome groteſque object, he could have added nothing which would have ſuited his purpoſe better, if nature had not done the work for him.

* From *Gordal* we proceeded to a curious lake called *Maum* or *Malham-tarn*, abounding with fine trout, upon the top of the moor; and from thence by *Kilſey-crag* to *Graſſington*, on the banks of the river *Wharf*. Coming unexpectedly to the crags of *Kilſey*, I was a good deal amazed at the proſpect. They are by the ſide of the vale, along which deſcends the river *Wharf*: Like thoſe at *Giggleſwick*, they extend in a line to ſome diſtance, but are higher and more prominent. The road we came along winded down amongſt theſe crags, ſo that we were preſented with a full view of them on a ſudden, which cauſed the greater ſurpriſe. After having refreſhed ourſelves at *Graſſington*, we

* If *Kilſey-crag* ſhould not be thought an object worth going ſix or ſeven miles to ſee, the beſt way from *Gordal* to *Skipton*, will be by *Kirkby*, *Malhamdale*, and *Gargrave*.

we travelled about nine miles further and came to *Skipton*. The country all round is uneven and rugged; the vales are fertile on the ſurface, and the mountains beneath it abound with rich mines of lead. After we had viſited the caſtle (which belongs to the Earl of *Thanet*) and the curious canal behind it, above the mills, which leads to the limeſtone quarry, by the ſide of a romantic deep glen, we left *Skipton*. Before our departure we were for ſome time in doubt, whether we ſhould aſcend the ſteep and black hill of *Romaldſmoor*, and ſo proceed down the vale of *Whardale*, one of the pleaſanteſt in *England*, to *Otley*, and ſo to *Leeds*,—or go by *Keighley*, *Bingley*, and *Bradford*, along the ſide of the new canal, and view the locks and other contrivances on this new and uſeful work of art. Moſt of us having been the former road, and this with its objects being quite new, we were induced to proceed along it. At *Kildwick*, about four miles from *Skipton*, we paſſed under this aquæduct, where it was banked up a great height above the adjoining lands at a vaſt labour and expence: There have been ſome violent ſtruggles between the elements of earth and water; the mounds have not always been able to keep the water within its proper limits, they having, oftner than once, been broken through by the preſſure on their ſides. About a mile further, at *Steeton*, we could not but obſerve the ſteep aſcent and deſcent of the road over a hill, when a level path might have been made almoſt equally near along the ſide of the river. The inconveniences that muſt attend carriage in carts and waggons, from ſuch ill-concerted roads, perhaps might ſuggeſt the expediency of a canal.

The uſe and practicability of ſuch an undertaking in a mountainous country, one would imagine might give the inhabitants a hint to make their roads wind with eaſy aſcents and deſcents along the ſides of the vale. From *Skipton* to *Otley* the road is carried up and down the corner of the ſteep mountain *Romaldſmoor*, when as near a one might have been conducted along the vale beneath. The inhabitants might have carried to the market the produce of their lands, and brought coals and manure at a little expence, if this plan had been adopted; but the prejudices againſt improvements and innovations are not eaſily removed. At *Bingley* we were entertained with the locks; there are five or ſix of them together, where the barges aſcend or deſcend eighty or ninety feet perpendicular, in the diſtance of about a hundred yards. They are elegant and well finiſhed, but ſeem too deep not to leak and be frequently out of repair. The act was procured ſome eight or ten years ago, to make a navigable canal from *Leeds* up to *Skipton*, and *Colne*, and from thence by *Whalley*, *Layland*, and *Ormſkirk*, to *Liverpool*, being quite acroſs the kingdom. As in moſt works of this nature, which are extenſive and of a new kind, the eſtimate fell far ſhort of the expence. Only the two extremities are finiſhed at preſent, from *Leeds* to about four miles above *Skipton*, at one end, and from *Liverpool* to *Wigan* on the other. If the whole was completed, no doubt but it would prove of great public and national advantage. Like that of the new river to *London*, undertakings of this ſort often ruin the firſt adventurers, and make the fortunes of thoſe who are able to complete and extend the original plan.

About

About four miles before we arrived at *Leeds*, in our way from *Bradford*, we were ſuddenly preſented with the grand and venerable ruins of *Kirkſtal-abbey*, full in view from the road: We ſtood ſome minutes looking with ſilent reſpect and reverence on the havock which had been made by time on this ſacred edifice. How much ſoever we might condemn the miſtaken notions of monkiſh piety, that induced the devotees to a lethargic ſupineneſs, and to forſake all the ſocial duties of life in order to be good men; yet we ſecretly revered that holy zeal which inſpirited them to exert every power in erecting ſtructures, the magnitude and beauty of which might excite ideas worthy of the Deity to whom they were dedicated; and alſo reprobated that fanatic bigotry which ſuffered them to decay and go to ruin, becauſe they were once inhabited by a ſet of chriſtians whoſe manner of worſhip was not orthodox. While we were moralizing thus on religious prejudices, the inſtability of the work of men's hands, and the fading glories of this world, we came to *Leeds*.

As the largeneſs and extent of this thriving manufacturing town, with all its elegant buildings in and about it, are well known to you, and, as you have alſo ſeen every thing worth notice in and near the road from thence, I ſhall here take my leave of you, and no longer tire you with a relation of the adventures and curioſities I met with in my ſummer's journey.

Before I finiſh my letter, however, I cannot but lay before you a few concluſions of a philoſophic nature, which, I think, I was able to draw with ſome degree of exactneſs, from the data or natural principles I met with amongſt the mountains.

I. It appears to me obvious enough, that all the marbles and limeſtones we ſaw, were made up of teſtaceous and piſcoſous relicks, or of the ſhells and other parts of fiſh. There were viſible in all the rocks, whether of the higher or lower ſtrata, ſhells of all the different ſpecies, and in every ſtage of exiſtence; ſome ſmall or young, others full grown; ſome in a ſtate of decay, broken and eat through in holes by worms to get at the fiſh; others bivalve, with both their valves entire The teeth and bones of various ſorts of fiſh are diſcernible in the midſt of the ſolid rocks. The ſhells found at the bottom of the ſea, and in the limeſtone, have the ſame properties and effects, whether analyſed chemically, or made uſe of in medicine or agriculture. It has been contended for by ſome, that they are nothing elſe but the ſportings of nature, or the effects of cryſtallization, when the ſoft pulpy matter in which they inhered, became fixed and ſolid. But the laws of cryſtallization ſeem exceedingly different to theſe; the cryſtals in any one ſalt or compoſition are all ſimilar and homogeneous, and not diverſified thus with imitations of all the animals, or ſeparate parts of animals, in the moſt prolific and inhabited element. The nitrous acid, and foſſil alcali, cryſtallize always in cubes; ſome calxes of metals united with acids, ſhoot into ſtars, and every new generated compoſition has its parts formed by its own peculiar rule. If a perſon had never ſeen a hay-ſtack before, he would have no doubt, after a little examination, but that its contents were once in a ſtate of vegetation. Whoever obſerves the ſtems, leaves, and roots of different vegetables, and nuts, acorns, and the decayed fruits of

plants,

plants, ſhrubs, and trees, in the middle of peat-moſs, though many feet below the ſurface of the earth; will not heſitate, after a proper inſpection, to pronounce, that they once vegetated like thoſe of the kind they ſo exactly reſemble. I believe, no propoſition in natural hiſtory is more obvious, than that all the calcarious ſtones, viz, chalks, marbles, gypſums, and limeſtone, in this kingdom, are made up of ſhells and other parts of marine animals. *

II. From every appearance we ſaw, it was obvious that the marbles and limeſtone had been once in a ſoft pulpy ſtate, approaching nearly to fluidity. † Upon the baſes of *Ingleborough*, *Penegent*, and *Maum-moor*, the tops of the rocks were channelled and ſcalloped in different directions. The excavations were narroweſt and ſhalloweſt in the higher parts, and encreaſed in depth and wideneſs down to the edges of the rocks: They had the ſame appearance as thoſe little channels upon the banks of the ſea ſands, made by the tide draining off near the courſe of ſome ſtream; or thoſe that are formed by heavy rains running down the ſides of roads in

* The rock at *Gibraltar*, and ſeveral mountains in *Dalmatia*, and no doubt, many others in different parts of the world, are made up of bones, not only of every animal extant in nature, but particularly of thoſe of the human ſpecies.

† This propoſition follows indeed without any further proof from the preceding. For if theſe rocks be made up of ſhells, they muſt have been diſſolved in ſome menſtruum, or mixed up in ſome mucilage, like plumbs in a pudding. If my intelligence is right, the compoſition of ſand, ſalt, mud, and marine exuviæ, which was dug up in making the docks at *Liverpool*, became hard and concreted, when expoſed to the action of the ſun and air.

in a ſandy or miry country. There is no poſſibility of their being worn by all the rain ſince the creation, if the rocks were ſtill in their preſent hard and durable ſtate. The rocks were not ever continued entire above a few yards, but were broken into chaſms and fiſſures from one, to two, or three yards deep: No doubt this was the effect of the ſoft matter of which they originally conſiſted, being dryed by the rays of the ſun, and of conſequence being made to ſhrink up into leſs dimenſions. Something ſimilar to this, though in an inferior degree, we perceive on the mud in the bottom of a pool, when the water is exhaled by the ſun and the bottom dried up. Wherever the waters of an adjoining ſpring were diffuſed and ſpread on the ſurface of the rocks, ſo as always to keep them moiſt, they were the moſt free from chinks and crevices. The under ſtrata of rocks, and thoſe beneath the ſoil, were found to be much more compact than thoſe expoſed to the ſun and air. From theſe principles we accounted for the channels of the river, being worn ſo deep in a limeſtone country, where the bed was originally ſo ſoft; and alſo for the caves and ſubterranean rivers. If a ſmall ſtream at firſt found a paſſage between the ſtrata and fiſſures of the rocks, it would ſoon waſh itſelf a wider paſſage amongſt matter that had ſo little tenacity. The deeper below the ſurface of the ground the vein might lay, the longer it would continue to waſte the body of ſtone through which it paſſed, as it would be a ſeries of years before the ſun and air would produce any conſiderable rigeſcent effects, ſo far out of their direct influence. Why the parts of which marbles and limeſtones are compoſed cohere ſo firmly

firmly, and become ſo hard by being expoſed to the ſun and air, I leave the chymiſts to determine. Perhaps it may be in a great meaſure, if not entirely, owing to the fixt air they contain; for when it is expelled by fire and they are expoſed to the open atmoſphere, they crumble and diſſolve into particles ſmaller than ſand; after this duſt has again imbibed the particles of fixt air, it becomes a ſecond time marble or limeſtone.

III. To account for theſe marine productions being elevated ſo far above the bottom o the ſea, is a taſk more difficult than the ſolution of either of the former propoſitions. It appears to me that no other ſecondary cauſe can ſolve this phænomenon, but an alteration in the diurnal rotation of the earth round its axis. This principle indeed would not only account for marine exuviæ being found on the higheſt mountains, in the interior parts of large continents, but for a variety of other phænomena, which appear inexplicable on any other hypotheſis. Let us ſuppoſe ſuch an alteration to take place, either by the impact of a comet, * or any other ſecondary cauſe in nature, or by the immediate agency of the creator; and inveſtigate the conſequences that would of neceſſity follow from ſuch

* Mr. *Whiſton*, in his *Theory of the Earth*, endeavours to account for the deluge, and the irregularities on the ſurface of the globe by the approach of a comet very near to it, not however by altering its diurnal rotation by impact or otherwiſe, but by the great tides and other ſurpriſing effects that would follow from its attraction, and the vapour which would fall from its tail.—The comet obſerved by Sir *Iſaac Newton*, in 1680, the period of which that great philoſopher computes to be 575 years, Mr. *Whiſton* thinks came near the earth at the deluge.

ſuch a change. If the world was originally all in a fluid ſtate, or, however, if the matter of which it was compoſed was very ſoft and pliant, as is the ſuppoſition of Sir *Iſaac Newton*, and ſome other great philoſophers, it would be perfectly round, if it had no motion round its axis. The different ſtrata would be diffuſed in concentric ſhells round it at different depths according to their ſpecific gravities: Land, moſt probably, would ſoon be accumulated in various parts, by the tides cauſed by the ſun and moon, and waves excited by the winds and ſtorms, driving the earthy parts at the bottom of the ocean into great banks and iſlands. Their greateſt altitude however above the ſurface of the adjoining ſeas could never be many yards from this cauſe. If the earth was from this ſtate, made to revolve round its axis, as it does at preſent, once almoſt in twenty four hours, the moſt violent commotions would enſue amongſt all the different elements. Firſt, there would be an impetuous eaſt wind, from the earth's revolving from weſt to eaſt, till it had communicated its motion to the atmoſphere. * Inceſſant rains and great winds and ſtorms are always concomitant, "Thus would the windows of heaven be opened." Second, as the velocity of the earth's rotation encreaſed, it would become more and more an oblate ſpheroid from the encreaſed centrifugal force at the equator. † The waters would

* This circumſtance is mentioned in the eighth chapter of *Geneſis*, verſe firſt.

† The earth revolves round its axis once in twenty three hours, fifty ſix minutes, and four ſeconds. At the equator, the

would firſt conform to this new ſhape, as moſt eaſily put in motion: In their courſe towards the equator they would flow over all the lands; for, the parts about it are at preſent at leaſt ſeventeen miles farther from the center of the earth, than thoſe near the poles. Third, As the force in the equatorial regions to fly off from the center increaſed, the terrene parts themſelves would begin to aſcend, for we cannot ſuppoſe their tenacity ſo great as not to be broken by a force equal to the weight of a column of earth and water ſeventeen miles high. The ocean no doubt would find many a ſubterranean paſſage, and by its preſſure upwards, heave up the ſuperincumbent ſtrata, and make its way through various chaſms to the ſurface. Thus would all the fountains of the great deep be broken up, as mentioned in the ſeventh chapter of *Geneſis*. The ſtrata alſo would be torn up and thrown one upon another in the moſt rude and irregular manner, with every poſſible inclination and direction, ſince there would be ſuch a great variety in their ſpecific gravities, and ſtrength of coheſion, as would render it impoſſible to reduce them to any certain laws.

IV. But this is not all, the waters would be admitted to the burning ſtrata and ſubterranean fires, which would cauſe the greateſt convulſions

the centrifugal force, is to the whole force of gravity, as 1: 289; ſo that each body loſes $\frac{1}{289}$ part of its weight. The equatorial diameter of the earth, is to its polar diameter as 230: 229.—Hence, if the diameter of the earth, according to the admeaſurement of *Picart*, be 7846 miles, the equatorial regions will be higher than the polar by $\frac{7846}{229}$ miles. See Sir *Iſaac Newton's Principia*, book III. propoſition 19.

in the bowels of this globe. Earths, ſtones, and foſſils, of various ſorts, would have their natures changed by heat, and all the different degrees of vitrification and calcination; large mountains would be heaved up above the irregular maſſes of rocks and different ſtrata that were laid in confuſion by the globe's centrifugal force; and vaſt quantities of looſe earth and ſtones would be thrown and diſperſed in every direction to a great diſtance and depth, by the burſting and exploſion of volcanos.

As ſome new principles are advanced in this fourth article, it may not be improper to explain and prove them a little more particularly. Few naturaliſts make any doubt of burning ſtrata, to a vaſt extent, at all different depths below the ſurface of the globe. Several of them emerge in conſequence of their elevated direction into open day, and ſpread terror around them in volcanos and burning mountains. The ſteam ariſing from boiling water is the moſt elaſtic vapour of any we are acquainted with in nature: It is at leaſt thirty times ſtronger than fired gunpowder; and according to Mr. *Michell's* computation (in his excellent *Treatiſe on Earthquakes*, publiſhed in the *Philoſophical Tranſactions*, Vol. 51, part II. No. 55, page 566, for 1760) ſufficient to heave up the ground at the depth of ten miles. Whenever water is poured on one of theſe burning ſtrata, from the conſumed roof above giving way, it will be immediately converted into ſteam, and proceed with an undulatory motion under the ground, ſhaking every thing above (like the air under a carpet, when the edge is taken up and ſuddenly let down) till it either get vent at the ſurface in ſome volcano, or till it arrive at the extremities of

of the ignited matter, where it will of conſequence be condenſed by the cold, and deprived of its elaſticity and force. On the firſt of November, 1755, when *Liſbon* was deſtroyed, the ſea and land were agitated to an extent of near 3000 miles in diameter. The burning ſtratum which was the cauſe of this dreadful calamity, muſt have been at leaſt of the like dimenſions.

Hiſtory abounds with a variety of examples of iſlands raiſed from the bottom of the ſea, and mountains upon land, by earthquakes. *Delos* and *Rhodes*, are recorded to have grown out of the ſea; *Thera* alſo and *Hiera*, in the ſame neighbourhood, are mentioned by *Pliny* to have a like origin. In later times we have many ſuch accounts: In 1628, one of the *Azores*, near the iſland of *St. Michael*, roſe out of the bottom of the ſea, which before was 160 fathom deep. The iſles of *St. Helena*, and *Aſcenſion*, in the *Atlantic ocean*; thoſe of *Otaheite*, &c. in the *Pacific*; and the *Moluccas*, in the *Indian* ſea, afford great room for conjecture, from their contents, to have had a like original.

For a further account of iſlands and mountains thus raiſed, ſee Mr. *Michell's* conjectures on earthquakes, before alluded to. No doubt but *Ætna*, the *Pike of Teneriffe*, and the *Andes*, in *South America*, the higheſt mountains in the world, were originally cauſed by volcanos, as they are annually augmented by this cauſe. When the thickneſs and coheſion of the ſuperincumbent ſtrata in any place becomes ſmall, in compariſon of the elaſticity of the vapour, and the weight above in every other direction, there is great reaſon to ſuppoſe the vapour will

there force its way to the ſurface, elevating the earth in its eruption.

We have a variety of caſes on record, where aſhes, ſand, looſe earth, ſtones, and cinders, were diſperſed in vaſt quantities in all directions, by the eruptions and exploſions of volcanos, covering the earth to a great depth. In the year 79, the eruption of *Veſuvius* overwhelmed the two famous cities of *Herculaneum* and *Pompeii*, four and ſix miles diſtant, and totally covered them many feet deep, as the people were ſitting at the theatre. In the year 1600, a volcano in *Peru* threw out a ſhower of aſhes, ſand, ſtones, &c. which covered all the land thirty leagues one way, and forty leagues another, from eight or nine inches, to ſix feet deep: Whence it appears that an area of ground above 34,000 ſquare miles was thus covered. From this principle we may eaſily account for detached pieces of limeſtone, freeſtone, or any other ſort of ſtone being found at a great depth, a long way diſtant from the ſtrata and rock from which they were originally ſeparated.

If ſuch ſtrange alterations have been made on the ſurface of the globe by earthquakes, ſince the commencement of hiſtory, nay, even in our own times, what terrible effects muſt have been produced when the whole world was ſhaken to its center, when fire and water were admitted to each other in every region and at every depth? It may be obſerved, that it is not neceſſary for the eſtabliſhing this theory, to ſuppoſe that the earth before the deluge had no rotation round its axis: The ſame conſequences would follow, though in a different degree, if the earth had a leſs or greater velocity round its axis

than

than at preſent, or round a different axis. * If the denſity of any planet remain the ſame, the ſpheriody, that is, the difference between the diameter of the equator, and the polar diameter divided by the diameter of the equator, will vary in an inverſe duplicate ratio of the time of rotation round its axis. See *Newton's Principia*, b. 3d, p. 19. But to return from theſe great and general principles to the ſolution of the few and inconſiderable phænomena, that came under our obſervation, whilſt among the mountains and caves.

On the ſides and tops of *Ingleborough*, *Whernſide*, *Penegent*, and the other mountains in that quarter, there were viſible marks of the effects of fire, as vitrifications, calcinations, &c. As the mountains roſe up, the ſoft matter of which the limeſtone originally conſiſted, appeared as if it had ſlipt down and been ſhoved by its own weight to their baſes and vales beneath. A thin ſtratum that was ſtill left on the level top of the fell, on the eaſt ſide of *Ingleborough*, ſeemed to favour this ſuppoſition. To account for

* This laſt hypotheſis is probable, from the bones of many tropical animals, as the elephant &c. being found in a foſſil ſtate, in *Ruſſia*, *Siberia*, and the arctic regions; for none of thoſe animals can live in theſe climates at preſent. There are no elephants, lions, tigers, rhinoceroſes, leopards, camels, dromedaries, camelopards, hippotomoſes, or many other tropical animals, to be found in *America*; a ſtrong argument for the univerſality of the deluge: For the wolves, bears, elks, and thoſe of the deer kind, and other animals that were found amongſt them, were ſuch as could bear the cold, and may be ſuppoſed to have travelled from *Europe* over the ice to the *Greenlands*, and the regions about *Hudſon's-bay*; or from the eaſtern parts of *Aſia* to *America*.

for the prodigious thickneſs of the limeſtone ſtrata about *Ingleborough*, and indeed in every other part of *Great Britain* where it is found, may perhaps be thought a taſk of ſome difficulty: Amongſt the mountains above recited, there appears to be, not only the quantity of limeſtone which covered the ſame area at the bottom of the ocean, as that on which it reſts at preſent; but alſo what has been on the baſes of the mountains themſelves, which has rolled down their ſides as they were raiſed above their firſt height: Might not alſo matter of the ſame ſpecific gravity, and of an homogeneous kind, be driven to one place, and a number of ſtrata accumulated one above another?

Mr. *Michell*, in order to ſolve this apparent difficulty, in a treatiſe he wrote on this ſubject, and publiſhed in the *Philoſophical Tranſactions* about fifteen or twenty years ago, ſuppoſes the waters were occupied by ſhell fiſh, and other marine animals, for a long duration, before the world was habitable for man. This he thinks was the caſe during the earth's chaotic ſtate, "when it was without form, and void, and when darkneſs was upon the face of the deep." *Geneſis*, chap. 1ſt, v. 2. But, if what Mr. *Whitehurſt* tells us in his enquiry, be true, we have no occaſion to have recourſe to this hypotheſis: He ſays, the increaſe of ſhell fiſh is ſo great, that it is not uncommon to take away a bed of them ſeveral fathoms in thickneſs, ſo that none are left remaining, and yet the next year there will be as many found in the ſame places as before; nor does he remember to have heard, that any place, whence they were taken, had been entirely exhauſted. See page 36.

Dr.

Dr. *Donati*, an Italian gentleman, made ſeveral experiments in the *Adriatic* ſea, all which tend to prove the vaſt encreaſe of marine exuviæ, and that all calcarious ſtones are made up of them. In the 49th vol. of the *Philoſophical Tranſactions*, part II. for the year 1756, we are told, that he contrived inſtruments, by which he took up, even from a very great depth, marine bodies and maſſes of a conſiderable bulk: He obſerved that there was very little difference between the bottom of the *Adriatic* ſea, and the ſurface of the neighbouring countries. He found at the bottom of the ſea, mountains, plains, valleys, and caverns, juſt as upon the land, with a variety of different ſoils, which he aſcribed to the nature and quantity of plants and animals found there alſo. Some places were inhabited by a number of different ſpecies of plants and animals; in others, only ſome particulars were to be found; and there were other places where neither plants or animals were to be met with: he found in ſome places human bones petrified, which formed one maſs with a mixture of marble, red earth and ſtalactites.

One of the objects, which moſt excited the attention of the doctor, was a cruſt, which he diſcovered under the water, in divers places, and to a great extent. It was a compoſition of cruſtaceous and teſtaceous bodies, and beds of polypes of different kinds, confuſedly blended with earth, ſand, and gravel. Theſe different marine bodies, which enter into the compoſition of this cruſt he found at the depth of a foot or more entirely petrified and reduced to marble: At the depth of leſs than a foot, they approach nearer to their natural ſtate; and at the ſurface of this cruſt they are either dead, though extremely well preſerved, or ſtill living. Dr.

Dr. *Donati* remarks, that in ſeveral places the polypes, ſkeletons, and marine exuviæ formed great banks and beds of conſiderable thickneſs; ſo thick, that he concludes the bottom of the ſea is continually riſing higher and higher, from the vaſt accumulation of them.

It is a received opinion amongſt many naturaliſts, that coal was originally peatmoſs, this foſſil having been found in every intermediate ſtate, nay, ſometimes with wood in it, and often with the marks of leaves, roots, branches, and fruits of different plants, ſhrubs, and trees, on the ſides of broken fragments. To this doctrine we were made proſelytes, being preſented with ſome pieces of coal that were got near the top of *Wbernſide* and the other mountains, that ſeemed more like dry clods of peatmoſs than coal, though diſtinguiſhable enough to belong to the latter claſs. The principal difference in their compoſition is, that coals abound with the vitriolic, and peatmoſs with the vegetable acid. The vitriolic acid is diffuſed through every ſubterranean ſtratum; hence, if a quantity of earth ſhould be ſuperinduced above a ſtratum of peatmoſs, the vitriolic acid that would ouſe through, muſt in time change its nature and turn it into coal: The deeper it lay below the ſurface of the ground, the more it would be impregnated with this foſſil acid, and conſequently be the more inflammable. If a ſtratum ſhould lie near the top of a mountain, there is the leſs chance that it ſhould be well fed.

In all the deep winding vales which we viſited, it was curious enough to obſerve the regular deſcent of ſome river out of them. It might have been expected, that at the deluge, many

of

of them would have been left full of water as high as the mountains on each ſide, which would have remained imbanked until now. But when we conſider that the force which a fluid exerts by its preſſure to overthrow any mound, is as the cube of the depth, and the ſtrength of the mound to oppoſe it, only as the ſquare of the horizontal breadth, the ſurpriſe vaniſhes. * For if the depth of a vale was half a mile, or only a quarter, the preſſure would be able to remove any mountain that we ſaw oppoſed againſt it. It is here ſuppoſed that the banks were ſo compact as not to admit any water within their crevices; if that was not the caſe, the force to overturn them will encreaſe in a higher ratio, from the preſſure downward of the banks being leſſened by the water partly buoying them up. If they were left at the deluge in a leſs hard and tenacious ſtate than at preſent, which was moſt probably the caſe, the preſſure of the waters would have ſtill a greater effect on theſe banks than at preſent. *Windermere-water*, *Ulls-water*, *Derwent-water*, and the other lakes, are undoubtedly in the cavities of vales, but then the height of their ſurfaces above the level of the ſea is but a few yards and therefore their preſſure ſmall.

* If the ſide of a bank next the water is perpendicular, and ſo contrived, that there is as much probability that it ſhall be broke down by the preſſure of the fluid it oppoſes in one part as ſoon as another, the perpendicular ſection will be a parabola; the cube of whoſe abſciſs or depth will every where be as the ſquare of the ordinate or breadth, ſo that the bank muſt be hollow outward, and encreaſe much faſter in breadth than in depth, to be ſupported from being overthrown by the preſſure of the incloſed fluid.

We have no great reaſon to conclude, that there are many empty cavities, of any great magnitude, below the level of the ſea: They are moſt frequent in limeſtone countries, or thoſe abounding with a calcareous ſtone, and ſeem to be worn by the currents of water running among the ſtrata, while in their original ſoft ſtate; but, below the level of the ſea we can have no ſuch currents, and conſequently no cavities formed by this cauſe. The calculations to aſcertain the denſity of the earth, which were made by Mr. *Hutton*, of *Woolwich*, from the obſervations of Dr. *Maſkelyne*, the Royal Aſtronomer, on the mountain *Benſheballien*, in *Perthſhire*, prove beyond a doubt, that the earth is much more compact and denſe in its interior parts, than near its ſurface. By ſome nice obſervations, theſe ingenious gentlemen were able to aſcertain the force of attraction of this mountain, when compared with that of the whole earth, and conſequently the quantities of matter they each contained. And from an exact admeaſurement of the magnitude of the mountain, and of the earth alſo they could compare their bulks; from which principles they could eaſily find the ratio of their denſities, which is, as the quantities of matter directly and bulks inverſely. The mean denſity of the whole globe of the earth, is found to be to the denſity of this mountain in the highlands of *Scotland*, nearly as 9: 5. This mountain is compoſed of firm rock, the denſity of which is to that of water as 5 : 2. Hence, the mean denſity of the whole earth is to that of water as 9 : 2, or as $4\frac{1}{2}$: 1. It is moſt probable then, that the heavieſt and richeſt ores lie in the greateſt quantities at a vaſt depth below

low the ſurface of the globe. From hence may be ſhewn, that the depth of the ſea is not ſo immenſe as ſome vainly imagine, that there are none of thoſe vaſt abyſſes below the ſurface of the ground, which ſome have conceived, who have ſuppoſed the earth only an incruſtation over theſe vaſt profundities of waters. All foundation alſo for the ſuppoſition of a void between the ſhell of the earth and *nucleus* or kernel (if any, as ſuppoſed by Dr. *Halley*, in order to account for the variation of the mariner's compaſs) is made to vaniſh by this inveſtigation. The ſolution of this curious problem does the greateſt honour to the philoſophers and mathematicians of the preſent age. By means of this diſcovery, and of the horizontal parallax of the ſun by the tranſit of *Venus*, a few years ago, we can, not only compare the denſity of common water with that of the earth, but alſo with that of the ſun, and almoſt all the planets.

Being amongſt theſe mountains at the ſources of many rivers, we had a fine opportuity to ſpeculate on the origin of fountains. It has been ſuppoſed by ſome, that vapours are raiſed by ſubterranean fires from abyſſes in the interior parts of the earth, which become condenſed in the caves, crevices, and crannies of the mountains, and parts near its ſurface, like an alembick, and ſo diſtill out of its various orifices and perforations. In all our ſubterranean excurſions we perceived nothing of this fire, or had any reaſon to believe its exiſtence. Though we met with many ſtreams below the earth; yet we could eaſily find they originally deſcended from its ſurface, and not from any diſtillations againſt the ſides of the caves; ſo we were eaſily per-

ſuaded to explode this hypotheſis. Others have ſuppoſed, that there are various communications between the bottoms of mountains and the ſea; that the ſea water there aſcends by the attraction of coheſion, like a little tea in the bottom of a cup to the top of a piece of ſugar) till it arrives at the earth's ſurface, and ſometimes to the top of the higheſt mountains, when it iſſues out at their ſides in form of ſprings, having loſt its ſaltneſs by filtration through the different ſtrata of earth. There is no reaſon, from any diſcoveries yet made below the ground, to believe that there are any ſuch communications with the ſea. If there were, the water would ariſe but a few inches, not above a foot or two above the level of its ſurface, from this cauſe, which would alſo ſuſpend it at the height it elevated it, ſo that no reflux could take place. By the fineſt filtration that has yet been made, the ſea water is as ſalt after it, as before; ſo that it could never by this means be made freſh. After a minute examination of theſe, and ſome other hypotheſes, we had recourſe to the moſt plain and obvious cauſe, and concluded, that fountains had their origin from the deſcent of vapours. We applied the ſame rule to philoſophy, that *Horace* does for poetry, viz.

Nec Deus interſit, niſi dignus vindice nodus.

Never call in the aſſiſtance of a god, except there is work worthy of his divinity.

We found that the ſprings were entirely dependent on the rains; were dried up in a drought, were fluent in wet weather; that there were

were none on the very top of *Ingleborough*, *Whernſide*, or the other mountains; though they began to be burſt out of their ſides near their ſummits; but at a ſufficient diſtance for the rain water to be accumulated. It is found by obſervation, that evaporation is leſs, and the quantity of rain which falls is much greater on the tops of mountains, in a given time, than in a flat and level country, which may account for many rivers having their greateſt ſupplies from them: * A branch of the *Lune*, the *Ribble*, *Air*, *Wharf*, and a branch of the *Youre*, all deſcend from the mountain *Cam*, near *Ingleborough*. The *Swale*, a branch of the *Youre*, and one of the *Lune*, the *Eden*, and *Tees*, all deſcend from the mountain *Cotter*, between *Yorkſhire* and *Weſtmorland*, not above ten miles from that of *Cam*. Many of theſe rivers are in ſummer time, when the ſeaſon is dry, as fluent when they iſſue out from amongſt the mountains, as they are when they fall into the ſea; though in their courſe they receive ſeveral additional ſtreams, owing to the vaſt waſte from evaporation. All the rivers that fall into the *Mediterranean* ſea, are not able to ſupply the loſs from this cauſe, ſo that a ſtrong current ſets into the ſtraights of *Gibraltar*, out of the *Atlantic* ocean, to ſupply this deficiency. The river *Niger* in *Africa*, one of the greateſt in that quarter of the world, when it iſſues from amongſt the mountains of the moon, where it has its origin, is at laſt exhaled

* The quantity of rain which fell in a year at the foot of the *Lancaſhire* hills, facing the Iriſh ſea, was found by Mr. *Townley* to be forty inches in perpendicular depth; which was more than double the quantity in the ſame time at *Upminſter*, in *Eſſex*, as obſerved by Dr. *Derham*: Or at *Paris*, as obſerved by the French academicians.

haled and dried up in the ſandy deſerts of *Negroland*, without ever arriving at the ocean. (See Dr. *Goldſmith's Natural Hiſtory*, vol. I.) From want of a due attention to the quantity of water exhaled by evaporation in open and level countries, no doubt but many engineers will find they have made their navagable canals too broad for the ſupply of water they were able to procure, from the neighbouring ſprings and rivers. Though the brooks and rivers in this part of *Yorkſhire*, as in other mountainous countries, frequently are ſwollen with rain, ſo as to fill their channels, yet theſe floods are but of ſhort continuance, owing to the narrowneſs and the declivity of the beds of theſe channels, which cauſe the water to have a great velocity, and quickly to make its way to the ocean or more level countries, where, if the river is wide, or if it paſſes through large lakes, the effects of the flood will be more durable; the velocity of the ſtream being inverſly as the area of its perpendicular ſection: After great and ſudden rains, it is ſome days before any effects of a flood are perceived at the bottom of *Windermere* and other lakes in that neighbourhood, though the rivers which emptied themſelves in were immediately greatly encreaſed.

While we were amongſt theſe mountains, from our own obſervations, and the information of our guide, we were able to make ſome new improvements on, as well as confirm the general principles of, the new theory of the aſcent and deſcent of vapours; firſt fully explained and publiſhed to the world by Dr. *Hamilton*, of *Dublin*, about fifteen or twenty years ago. But in order to explain our refinements on the Doctor's theory,

theory, it will firſt be proper to premiſe his leading and general principles. I ſhall not trouble you, by way of introduction to it, with endeavouring to explode the ſeveral hypotheſes that have been made for this purpoſe, for they are already exploded.

Dr. *Hamilton* ſuppoſes that evaporation depends on the ſame principle as that by which ſalt or ſugar is diſſolved in water, or any one body, ſolid or fluid, in any other fluid, which he calls a diſſolvent or menſtruum. When this menſtruum will diſſolve no more, he calls it ſaturated; when the diſſolved body begins to ſeparate from the menſtruum or to ſubſide, it is ſaid to precipitate:

As the principle is chemical, chemical terms are adopted.

1. Heat or warmth he finds is not neceſſary for evaporation or ſolution, though it will promote it: Thus water and ice will evaporate in dry froſty weather, though faſter in warm weather. Warm water will diſſolve ſalt faſter than cold, and in greater quantities before it is ſaturated; which, as the water cools, will precipitate. Hence, every thing elſe remaining the ſame, it follows, that we ſhall have rain, if the weather grows colder, after a dry ſeaſon, when the atmoſphere becomes ſaturated with vapour. * Whatever encreaſes the repulſive force of the particles of air at a given diſtance from

* The air is an elaſtic fluid, whoſe denſity is as its compreſſing force; and whoſe particles repel each other with forces, that are inverſely as the diſtances between their centers. If heights are taken, encreaſing in arithmetical progreſſion, the denſity of the atmoſphere, at theſe heights will decreaſe in a geometrical progreſſion.

from their centers, may perhaps encreaſe the power of evaporation; but heat does encreaſe this repulſive force, which may probably account for this phenomenon; it will however be farther confirmed by other circumſtances we ſhall take notice of.

2. Dr. *Hamilton* found, that when the air was taken away from any place, by any cauſe whatever, the remaining quantity of air would not ſupport a proportional quantity of vapour; Thus, if the receiver of an air pump be filled with common air, and part of it exhauſted, the remainder will not hold the remaining vapour, which may be perceived by the ſides of the receiver becoming ſtriated with water. This principle accounts for wet weather being generally foretold by the ſinking of the mercury in the barometer, which indicates the quantity of air being leſſened incumbent over any place, as its preſſure is diminiſhed. In this caſe the particles of air repel each other with leſs force, and therefore perhaps are leſs able to ſupport the particles of water amongſt them. It follows from hence, alſo, that if the air in the lower regions of the atmoſphere, being ſaturated with vapour, is carried up into the higher regions, where it is leſs denſe, a precipitation or rain will enſue. The preſſure of the atmoſphere remaining the ſame, if by cold the air becomes more denſe, it will hold more water before it is ſaturated by this principle, though leſs on account of the other, that of coldneſs.

3. Evaporation is promoted by wind, as well as heat: If that air, which is contiguous to the ſurface of the waters, and ſaturated, be carried off by wind and replaced by a new quantity, it

is obvious enough, that evaporation muſt be carried faſter forward: Thus, ſalt is ſooner diſſolved in water when ſtirred up, than when at reſt on the bottom of the veſſel.

4. An hazineſs prevails in the air, while evaporation is carrying on in any great degree; as a cloudineſs does in the water, while ſalt is diſſolving in it: Both become tranſparent, on ſaturation, and are cloudy again on precipitation.

5. A cold is excited in the water, or on hard bodies wet, by evaporation. This principle does not ſeem to have been ſufficiently examined, and its conſequences purſued by Dr. *Hamilton*; for I am perſuaded, it will account for ſeveral phænomena never before properly explained.

It ſeems very probable, that electric fire is one great cauſe of the coheſion between the particles of air and water, perhaps by encreaſing the repulſive powers of the former. Let us however purſue this theory through all its principal branches: May not the coldneſs produced by evaporation, be owing to the electric fire being taken out of the ſtagnant water along with the aſcending vapour? Whenever the electric fire ſuddenly eſcapes out of the atmoſphere, as in a thunder ſtorm, the coheſion between the particles of theſe different elements is immediately broken, and the rain deſcends in the largeſt drops: A temporary cold alſo is produced, ſuperior to any in the ſummer ſeaſon of the year, when thunder is moſt frequent; for the drops of rain are almoſt inſtantly frozen into

ice or large hail-ſtones. * Hail ſtorms in the ſummer ſeaſon of the year, or in hot countries, and thunder claps, are almoſt always concomitant, one ſeldom happening without the other.

Theſe principles being premiſed, I ſhall endeavour to account firſt for ſome general phænomena, and then for thoſe particular ones we obſerved amongſt the mountains in *Yorkſhire*.

The vaſt quantity of rain which falls among the *Andes*, (a chain of the higheſt mountains in the world, running from the north acroſs the equator to *Cape-Horn*, in *South America*, and continually covered with ſnow) muſt be owing to the trade winds blowing off the warm *Atlantic* ocean, being ſaturated with vapour, which coming amongſt theſe lofty and cold regions, will part with it in form of rain and ſnow, by the firſt, ſecond, and laſt principles laid down. In conſequence of theſe frequent rains, ſome of the largeſt rivers in the world empty themſelves in *South America*, into the *Atlantic* ocean, as the river *Amazonia*, *Rio de la Plata*, &c. On the weſtern or *Peruvian* ſide of this quarter of the globe, there is little or no rain, and conſequently none or very ſmall rivers; the wind they have coming over the *Andes*, and blowing into a warmer region, the *Pacific* ocean, where it muſt continue ſome time, before it will be again ſaturated with vapour.

From the ſame cauſes we may account why more rain falls amongſt the *Lancaſhire* mountains

* Though air in its natural ſtate is a non-conductor of the electric fire or lightening; yet, when heated beyond a certain degree, it becomes a conductor, which may account for thunder often in ſummer, and not in winter.

tains, and about *Ingleborough*, than in *Eſſex* and other inland level countries: The warm air that is brought by the ſouth-weſt winds, which blow a great part of the year, off the *Atlantic* ocean, over the Iriſh ſea, is made to go into a colder and rarer region in its paſſage over theſe mountains, where of conſequence the vapour will be precipitated. The attraction of theſe mountains will have no inconſiderable effect, both in drawing the adjacent clouds towards them, and extracting the electrical fire out of them, which will, as before obſerved, be the cauſe of a precipitation or rain. It is a very common phænomenon for the clouds or miſts, incumbent over the vale of *Chapel in the dale*, to part; one half being attracted to the top of *Ingleborough*, and the other to the top of *Whernſide*, the mountains on different ſides of the vale. Whether they are influenced by the attraction of gravity, or that from electricity, I will not take upon me to determine; perhaps both may contribute. It is found by obſervation, that a greater quantity of vapour falls at the bottom of an high ſteeple or other building, than at the top; perhaps owing to the electric fire eſcaping in its deſcent, more than to the quantity of intermediate atmoſphere or the drops coaleſcing in their fall. The helm winds, as they are called, which blow from the top of *Ingleborough*, and other high mountains on the ſurrounding level countries, are moſt probably owing to the air on their ſummits loſing much of its repulſive force by the electric fire being attracted out of it, and conſequently, becoming more denſe than that in the regions beneath,

to which by its greater ſpecific gravity it will flow: The cloud or helmet being generated at the ſame time ſeems to imply it.

Why the north-eaſt winds are generally dry, may eaſily be accounted for from this theory: Being met by a ſouth-weſt wind, which generally blows from about thirty five degrees north latitude up to the coaſts of *England*, the air will be accumulated over this iſland by theſe two oppoſite winds, and ſo be the better able to ſupport the vapour; beſides, that the air which comes out of the cold northern regions into a warmer climate, muſt remain ſometime before it can be ſaturated with vapour. Between theſe mountains in *Yorkſhire* and the Iriſh ſea, the eaſterly winds are the moſt irregular; every guſt coming in a different direction, both as to the point of the compaſs, and elevation or depreſſion; owing no doubt to the interruptions they meet with in coming over the mountains and down the ſeveral vales, which wind in various directions: Few houſes in this country are free from ſmoky chimneys on theſe occaſions.

As the weather is affected not only by the hotneſs and coldneſs of the air, which is meaſured by the thermometer; and by the quantity or weight of the atmoſphere, which is meaſured by the barometer; but alſo by its denſity, which depends both on its temperature and weight; in order to predict its changes with any tolerable degree of certainty, an inſtrument is wanted to meaſure the denſity of the air at any place. The manometer was invented for this purpoſe: Lord *Mulgrave*, in his voyage of diſcoveries towards the pole, made uſe of ſuch an

an inſtrument, on which he beſtows ſome high encomiums, as by means of it and the barometer together, he could foretel the changes in the weather with great certainty, though one alone was not to be relied on.

The preſent theory of meteorology, though by much the beſt, ſeems yet incomplete, or however not extenſive enough to account for all the various phænomena and changes obſervable in the atmoſphere. Though the ſun by its heat is able to rarefy the air, and conſequently to cauſe a wind towards that place, where there is a partial rarefaction, which may in a few caſes, account for the riſing or falling of the barometer; yet how often do we perceive great alterations in this inſtrument, without any apparent wind whatever? Perhaps it may be ſaid, that there may be briſk gales in the higher regions of the atmoſphere, though all is apparently clear, calm, and ſerene, and we are quite ſtill beneath. If this be the caſe, which can hardly be probable, how ſhall we be able to account for the ſudden whirlwinds, waterſpouts, * tornadoes, and hurricanes, that frequently happen, from the uniform and gradual alteration made by the ſun's influence? In the three great oceans within thirty degrees of the equator, particularly in the *Pacific*, the winds are

* A waterſpout is cauſed by a whirlwind on the ſea: The air having acquired a circular motion, by ſome ſudden partial rarefaction in the higher parts of the atmoſphere, is able by its centrifugal force to counterbalance the preſſure inwards of the whole atmoſphere, and the water will of conſequence riſe out of the ſea up the vacuum made by this whirlwind, as it does in a pump, but never higher than thirty or thirty three feet.

are always uniform and regular, and the barometer at the ſame height. The variations in the weather, and the height of the barometer are much more extenſive at or near land, than on the wide ocean; and in the northern regions, than near the equator, excepting when there are hurricanes: One cauſe may be, that the waters conduct heat or cold more readily than land. Yet I think it has never been ſufficiently examined, how far air may be abſorbed or diſſolved in water, or converted into vegetables or other terrene ſubſtances, and the converſe; as alſo how far theſe tranſitions are gradual, or ſudden, depending perhaps on the accumulation or emiſſion of electric fire, which is ſometimes ſlow and uniform, and at other times almoſt inſtantaneous. All vegetables undoubtedly contain a vaſt quantity of fixed air, as do alſo all calcareous ſtones and earths; This air eſcapes out of one by fire or by ſolution in acids, and out of the other by corruption and putrefaction. Some cauſes however ſimilar to theſe, by which air is converted into earth or water, or water and earth into air, ſeem requiſite to ſolve many phænomena, which no other principle, as yet adopted in philoſophy, can pretend to, particularly the ſun's influence in rarefying the air. The quantity of air however contained in the whole atmoſphere ſeems ſtill to remain nearly the ſame, or the variations in its magnitude to be within narrow limits; though we have not had obſervations, which we can rely on for the purpoſe, of any very great antiquity. As any advancement in this branch of natural knowledge would be of the greateſt advantage to mankind, it may be ſome apology for dwell-

ing

ing ſo long on this ſubject,—for pointing out the few improvements that have been made,—the difficulties which the ſubject ſtill labours under,—and for ſuggeſting ſome hints, which may induce curious and ingenious men to extend their obſervations and reſearches into ſo uſeful a branch of natural philoſophy.

Before I take my leave, ſome apology ſhould be made for troubling you with my philoſophical ſpeculations on my ſummer's tour. The amuſement from travelling is very languid and tranſitory, when it is purſued only for pleaſing the eye: Recreations of this ſort will produce a more ſincere and laſting pleaſure, if we are at the ſame time able to improve the underſtanding, to benefit ſociety, and diſplay the wiſdom and goodneſs of the creator, by an inveſtigation into the operations of his providence. How far I am right in my obſervations and conjectures on the ſeveral parts of natural hiſtory I have touched on, I leave to your own opinion. It would argue great ſelf-ſufficiency to be poſitive on a ſubject, where our data are uncertain, and every manner of reaſoning doubtful, except where we can introduce the mathematics. This I think I may ſay without preſumption, that my theory is conformable to events, as related by *Moſes*; and my reaſoning agreeable to the philoſophical principles of Sir *Iſaac Newton*, where they could be introduced. Whatever is publiſhed to the world on the natural hiſtory of the ſurface and interior parts of the earth, that is inconſiſtent with either of their doctrines, will be of no benefit to mankind, and of ſhort duration itſelf. When productions of the laſt ſort

make

make their appearance in public, like meteors in the ſky, for a little while they puzzle the learned, and make the ignorant wonder, but they ſoon diſappear, nobody knowing from whence they came, nor enquiring what is become of them. But theſe two prodigies of the human race, like the great luminaries of heaven, by their wiſdom and knowledge, diſpenſe an uniform, regular, and beneficial light to mankind.

I am, Sir,

Your moſt obliged

and humble Servant

J. H.

P. S.

I have ſent for your entertainment, a curious group of old and original words, which were brought together with ſome attention and trouble. They are all now alive and converſant in the diſtricts we have viſited, and perhaps might give ſome uſeful hints to our commentators on *Shakſpeare*, *Spencer*, *Chaucer*, and other ancient Britiſh authors. Some centuries ago, they might be in vogue in the metropolis, or perhaps at court: Though they are now baniſhed for the ſake of others more polite; yet they ſtill find a ſanctuary in the north of *England;* where they keep up much converſation, and tranſact a great deal of buſineſs. I have omitted, as much as I could, inſerting all common words, which are altered only by pronunciation, according to

the

the different dialects, that vary almoſt in every pariſh; for there would be no end of ſuch a plan. I have not attempted to derive any of them, though there is ample room for the ſpeculation of an antiquary and linguiſt, as that would make me deviate from my original rule of conciſeneſs. They are many of them of Greek, Britiſh, Saxon, Daniſh, and Norman extraction. I have endeavoured to give as ſhort an explanation of them as the ſubject would admit of. Some words are very expreſſive and emphatical, and yet ſo conciſe, that they cannot be explained without a periphraſis; no other ſingle words in the Engliſh language being proper ſubſtitutes. Their etymologies being uncertain, I have ſpelled by the pronunciation, which ſometimes I have varied, according to the different dialects. As the induſtrious bee can extract ſweets from the moſt rank weeds, ſo here the curious and ſtudious enquirer may reap ſomething worth his labour, whether amuſement, knowledge, profit, or doing good to others be his object. Obſcure paſſages in ancient authors, as was before obſerved, may be explained by them. Strangers may converſe intelligibly with the natives of thoſe places they viſit for amuſement or buſineſs. Were the gentlemen in the higher departments of the law to apply a little of their ſtudy this way, they might be better enabled to inveſtigate the truth from the evidences they examine; not to ſay, leſs apt to miſtake the true meaning of the accounts given them. The antiquary may ſee the ſeveral alterations the ſame word has undergone, and ſometimes receive hints by which he may trace it up to its origin. People who have

gone out of theſe parts to the metropolis, or other diſtant places, may not only be amuſed with their original language, and converſe familiarly with their countrymen; but be taught amongſt ſtrangers to avoid their provincial words, as well as accent; for it is often a ſeries of years before perſons, arrived at maturity, avoid their old familiar words; never diſtinguiſhing their peculiarity, except they have a catalogue of them.

A GLOSSARY

OF OLD AND ORIGINAL WORDS

NOW USED IN THE NORTH OF ENGLAND.

ABBREVIATIONS.

v. ſignifies verb; ſ. ſubſtantive; a. adjective; p participle; adv. adverb.

A.

ACCORAH-EARTH, ſ. green, arable earth

Ack, v. to mind or regard; as *never ack*, never regard

Addle, v to earn

Amackaly, adv. a little ſo

Ananters, adv. in caſe of

Ang, ſ. the hairy ear of barley, big, or rye

Arrals, ſ. pimples, or a raſh breaking out on the ſkin

Arval, ſ. a dole of ale and bread given at a funeral

Arr, ſ. a mark or ſcar on the ſkin from a wound

Attercab, or *Atercop*, ſ. a ſpider

Aund, p. doomed, or fated

B.

Bain, a. near, or willing and officious

Bang, v. to beat, or overcome

Barn, ſ. a child

Bartham, ſ. an horſe neck-collar

Barrow, ſ. the ſide of a rocky hill; or a large heap of ſtones

Baſs, ſ. the fiſh perch

Beak, v. to ſoften wood and ſticks in the fire for uſe without burning them

Beck, ſ. a brook or ſmall river

Beſom, ſ. a broom

Beet, v. to make or feed a fire

Beſt

Beeſt, ſ. the milk given immediately after a cow has calved
Beild, ſ. ſhelter
Belive, adv. ſhortly
Ber, ſ. the ſpace a perſon runs in order to leap
Big, ſ. a ſpecies of barley
Bib. v. to guzzle and drink
Blaſh, or *Splaſh*, v. to throw water, or beſpatter with water
Blea, a. a lead colour
Bobberous, a. all a cock-a hoop
Boggart, ſ. a bugbear
Boggle, v. to ſtartle or take fright at
Boneflower, ſ. a dazie
Booſe, ſ. a ſtall for a cow or horſe
Boot, v. to ſignify or matter, as, *it boots not*, it matters not
Bortree, or *burtree*, ſ. an elder tree
Bown, or *Boun*. p. going to do a thing
Brackens, ſ. ferns
Braid, v. to reach and vomit
Bran-new, a. very new
Brandreth, ſ. an iron frame on which is ſet the girdle-ſtone
Brant or *brunt*, a. ſteep
Braſh, v. to do any thing haſtily or raſhly
Brat, ſ. a coarſe apron
Bratchet, ſ. an untoward child
Breun, v. to ſweat
To bread of, to be like unto
Brock, ſ. a badger
Brogs, ſ. ſmall ſticks
Brown-leeming, ſ. a brown hazzle-nut
Broſſen, a. burſt
Bunnel, ſ. the ſtalk of hemp after it is taken off
Bull-ſeg, ſ. a bull that is gelded
Buſk. ſ. a buſh
Byſpel, ſ. a baſtard, or an outcaſt in a family

C.

Caddle, v. to attend officiouſly
Caddy, ſ. a ghoſt, or bugbear
Callet, ſ. a ſcold
Callierd, ſ. an hard ſtone
Canty, a. cheerful and talkative
Caterd, a. bound with iron as are clog-ſhoes
Cample, v. to ſcold, or talk impertinently
Caſh, v. to puzzle
Catmallifons, ſ. the cupboards round the chimneys in the north, where they preſerve their dried beef and proviſions
Chamberley, ſ. old urine
Chats, ſ. ſmall ſticks
Chigg, v. to chew
Childermas-day, ſ. innocents-day
Cleam, v. to pine to death for want of water
Claim, v. to claim up, to paſte up, as an advertiſement
Clake, v. to ſcratch
Clate, v. to daub
Clever, v. to climb
Clockin, ſ. a young chicken

Cleg, ſ. an horſe fly
Click, v. to ſnatch ſuddenly
Clints, ſ. crevices amongſt bare limeſtone rocks
Clod, v to throw ſtones, &c.
Cloggs ſ. ſhoes with wooden ſoles
Cobbles, ſ. looſe ſtones
Cobby, in good ſpirits
Coggers, or *cockers*, ſ. a ſort of yarn ſpatterdaſhes
Coak, ſ. the heart or pith of wood, horns, &c.
Cockle, v. to be unſteady and eaſily ſhaken down
Conny, or *canny*, a. pretty, or bonny
Con, ſ. a ſquirrel
Conniears, ſ. the kidnies of a beaſt
Coath, or *cauth*. ſ. cold
Corf, ſ. a wicker baſket to wind up coals from the pit
Co-terd. p. entangled, clotted
Coup, ſ. a dung cart
Coup, v. to exchange
Cove, or *coave*, ſ. a deep pit, cavern, or cave
Couer, v. to ſit ſquat down
Cow, or *cowl*, v. to rake together
Coupeat. ſ. a wild pigeon
Coupraiſe, ſ. a leaver, or crow
Coppy-ſtool, ſ. a ſtoolſtool
Copt, a. convex
Cow'd, a. without horns
Cow'd, alſo ſignifies frighted, deter'd
Crack, v. to boaſt of, alſo to forbid and threaten
Cranch. v. to chew haſtily
Creak, v. to make a rough and ſqueaking noiſe
Crean, v. to make a noiſe like a bull
Crewds, ſ. the meazles
Crinckle, v. to recede, or fall off from a promiſe or purpoſe
Cringle crangle, adv. zig zag
Crob-over, v. to be overbearing, tyrannical
Cuddle, v. to huddle
Cun thanks, v, to give thanks
Cutter, to whiſper

D.

Dab, ſ, an expert or dextrous perſon
Dacity, ſ. ſharpneſs, handineſs
Daker, ſ. a diſpute or argumentative converſation
Daly, or *dawly*, a. lonely ſolitary
Dannat, ſ. a bad perſon
That-at-dannat, the devil
To dark for betts, to hearken ſilently which ſide the opinion is of
Dave, v. to aſſuage, mitigate, or relieve
Daz'd, a. of a dun colour
Deck, v to diſcard
Deet, v. to dreſs and make clean
Deft, a. pretty, agreeable
Deg, v. to ſprinkle with water
Del, ſ. a little dale
Didder, v. to ſhake or quake
Ding, v. to kick or ſtrike
Dobby, ſ. a ſprite or apparition
Dockens, ſ. docks
Dodt, a. without horns
Dorſtment, ſ. hardſhip

Drow

Dree, v. to hold out without being tired
Dree, a. irkſome and tedious
Dub, ſ. a puddle
Dubler, ſ. a large diſh or plate

E.

Ea, ſ. a river along the ſands on the ſea ſhore
Earls, ſ. earneſt money
Eaſings, ſ. eaves
Edgeteams, ſ. edge tools
Een, ſ. eyes
Elden, ſ. fewel
Elder, ſ. udder

F.

Faegang, ſ. a gang of beggars or rogues
Faffle, *caffle*, and *maffle*, v. to be inconſiſtent in ſpeech
Fare, v. to ache
Farnteckles, ſ. freckles
Faſh, ſ. labour, hardſhip
Faugue, ſ. a dirty, ſlutiſh, idle perſon
Feaſtneſewn, ſ. ſhrovetide
Feal, v. to hide
Feck, v. to walk about in perplexity
Fell, ſ. a mountain
Fene, v. to fare, as *how fend you*, how fare you
Feſt, v. to let off any work
Fettle, v. to ſet about doing any thing
Feying, ſ. rubiſh earth cut up and thrown aſide in order to get turf
Fidge, v. to kick with the feet
Flaw, a. ſhallow
Flatch, v. to flatter
Flaws, ſ. top ſods for fire
Flay, v. to affright
Fleet, v. to ſkim the top of any thing, as cream
Flight, v. to ſcold
Flow, a. wild, untractable
Flouriſh, ſ. bloſſom
Flunt'd, p. blunt and jagged at the point
Fluring, a brood
Fluſtered, p. ſwell'd or bloated
Fond, a. ſilly, ſtupid like an ideot
Fondling, ſ. an ideot
Fooſter, ſ. a ſtroke at a foot-ball
Formal, v. to beſpeak or engage any thing
Foſe, a. cunning, crafty
Fout, ſ. a pet, a ſpoiled child
Fouzen, ſ. ſubſtantial goodneſs
Frandiſh, a. paſſionate, obſtinate
Fratch, v. to ſhuffle, or cheat in joke
Fridge, v. to rub in pieces
roſk, ſ. a frog
roff, a. brittle
Frow, ſ. an idle, dirty woman
Frum, or *frim*, a. brittle

G.

Gabbleratchets, ſ. birds which make a noiſe in the air in the ſpring e evings
Gailfat, ſ. a tub or vat in which drink ferments
Galler, ſ. plenty
Galloway, ſ. a ſmall nag or hobby

Gab,

Gaily, a. in good plight as to health and ſpirits
Gamaſhes, and *gamogins*, ſ. a ſort of ſpatterdaſhes
Gapen, ſ. as much as can be held in both hands when open together
Gar, v. to oblige or compel a perſon to do a thing
Garn, ſ. yarn
Gavelack, ſ. an iron crow
Geal, v. to be benumbed with cold
Geb, v. to hold up the eyes and face
Gib, ſ. an hooked ſtick
Gike, or *jike*, v. to creak as wheels or doors do
Gill, ſ. a large deep channel for a ſmall brook
Gimmer-lamb, ſ. an ewe-lamb
Ginners, ſ. the gills of a fiſh
Girn, v. to grin with the teeth
Gliſh, v. to glitter or ſhine
Gizle, or *jizle*, v. to walk mincingly
Glead, ſ. a kite
Glen, or *gladden*, ſ. a glade
Glent, v. to look aſkew
Glender, v. to look with twinkling eyes
Gliff, ſ. a tranſient ſight.
Gloar, v. to ſtare with fixed eyes
Gloo, v. to ſquint
Gloppen, v. to ſtartle
Goats, ſ. ſtones to ſtep over a river on
Gob, ſ. the mouth
Goff, ſ. a fooliſh clown
Game, v. to ſee, percieve, or underſtand
Goggy, ſ. a child's name for an egg
Goſter, v. to bully
Gouk, ſ. a fool
Greet, v. to weep or cry
Greet-ſtones, ſ. a ſort of free-ſtones
Greidley, a well-meaning, or any thing good in its kind
Grike ſ a rut, crevice, or chink
Grhime, ſ. ſut or ſmut
Grewſome, a. ugly, diſagreeable
Grew, or *graw*, v. to be aguiſh

H.

Hackſlaver, ſ. a ſloven
Haffle, v. to prevaricate
Hagworm, ſ. a viper ſnake
Haver-meal, ſ. oat-meal
Haiking, p. idle, lounging
Halah, a. modeſt, baſhful, ſqueamiſh
Hanckle, v. to entangle
Harp againſt a perſon, v. to inſinuate to his diſadvantage
Haſpin, ſ. an hunx
Haſk, a. cold and dry
Hap, v. to tuck in the bed cloths
Hattock, ſ. a ſhock of corn
To heald to, v. to rely on; alſo *to heald a veſſel*, to incline it in order to empty it
Heams, ſ. part of a cart-horſes neck furniture
Heave, ſ. the place on which a particular flock of ſheep feeds on a common

Haden,

Haden, or *beiden*, a. ugly, obſtinate, untoward
Heck, ſ. a ſmall door, or half door
Henting, ſ. a furrow
Hebbleſtrut, ſ. the hand rail on a foot bridge
Hig, ſ. diſguſt, enmity
Hippen-ſtones, ſ. ſtones ſet to ſtep on over a river
Hirſt, ſ. a bank or ſudden riſing of the ground
Hiſk, v. to breath ſhort through cold or pain
Hirple, v. to limp in walking
Hobbald, ſ. a fooliſh clown
Hobbruſh, ſ. an hobgoblin, called ſometimes *Robin good-fellow*
Hog, ſ. a ſheep of a year old
Hog, v. to carry on the back
Holmes, ſ. the lowlands near a river
Hoppled, p. having the feet or legs tied together ſo as only to walk by ſhort ſteps
Hoſe, or *horſe*, ſ. a deep vale between two mountains
Hots, ſ. a ſort of panniers to carry turf or ſlate in
How-ſeeds, ſ. the huſks of oats
Hurder, ſ. an heap of ſtones
Hurkle, v, to ſhudder
Hull, ſ. a place to put in calves or ſwine
Hullet, ſ. an owl
Huve, v. to throw any thing as a ſtone
Hummer, v. to make a low rumbling noiſe
Hutch, ſ. an hoard
Hunniel, ſ. an hunx, or covetous perſon
Huzzin, ſ. an huſk

I.

Item, ſ. an hint
Incling, ſ. an hint
Ingle, ſ. fire

J.

Jannacks, ſ. a loaf of leavened oat-meal
Jarbled, p. draggled
Jenny-balk, ſ. a ſmall beam near the roof of the houſe
Joggle, v. to ſhake gently
Jor, v. to joſtle or puſh
Jony-crone, ſ. a crane
Joſſel, ſ. an hodge podge
Joup, v. to ſhake up or toſs to and fro

K.

Kaffle, v. to perplex a perſon or entangle him in converſation
Kail, v. to pelt
Kay, or *Kai*, ſ. cows
Kep, v. to catch
Kead, ſ. a ſheep's louſe
Kaik, or *keak*, v. to ſtrain or taint
Keal, or *kail*, ſ. broth
Keel, v, to keep the pot from boiling over
Kelk, ſ. a kick
Kevel, v. to ſprawl or gambol
Kedge, ſ. a miſchievous child
Kenſpack, a. marked ſo as to be known again
Ket, ſ. carrion
Keſlop, ſ. a calves ſtomach, ſometimes called *runnet*
Kirk-garth, ſ. church-yard

Kimo,

Kinns, ſ. chinks and crevices in rocks, or breaks in the ſkin of the human body
Kite, ſ. the belly
Kiſt, ſ. a cheſt
Kittle, v. to tickle
Kirtle, v. to flaunt and give airs
Kipe, v. to inſinuate to the diſadvantage of a perſon
Knaig, *knatter*, and *knarl*, v. to graw with the teeth
Knott, ſ. a rocky mountain
Know, v. to toll a bell
Know, ſ. the ſharp riſe of a hill
Knack, v. to aim at talking with fine words
Knudge, v. to kick with the elbow.
Kreel, or *krath*, ſ. a frame to lay a ſheep on
Kyſty, a. ſqueamiſh

L.

Lam, v. to beat or ſtrike
Lairly, ſ. a diſagreeable perſon
Lake, v. to play
Langled, p. having the legs coupled together at ſmall diſtance
Langſettle, ſ. a bench like a ſettee
Late, v. to ſeek
Lea, ſ. a ſythe
Leavetail, a. being a great want of, or demand for
Leath, ſ. barn
Leesy, a. alert, active
Lerch,, v. to ſharp, or trick out of
Lep, v. to fold up
Like, v. wanting to do a thing; as *like to make water*
Lids, way or manner, as *thus-lids*, and *that-lids*, in this manner, or that manner
Lick, v. to beat or drub
Lile, a. little
Line, ſ. flax
Ling, ſ. heath or heather
Liſh, a. ſtout and active
Liſk, or *laſk*, ſ. the flank
Lite, v to expect or depend on
Lithe, v to liſten
Lither, a. idle inactive
Loave, ſ. the firſt offer
Lock, ſ. a ſmall parcel of any thing
Lopperd, a. curdled
Louk, v. to weed
Low, ſ. a flame
Lound, a. calm or out of the wind
Lum, ſ. a deep pool.
Lyring and *lach*, ſ. a gutter waſhed by the tide on the ſea ſhore

M.

Mad, a. angry, provoked
Mack, ſ. ſort
Maddle, v. to rave, or to be delirious
Maſlin, ſ. one almoſt an idiot
Maſſle, v. to talk or act ſillily or inconſiſtently
Mawelt, ſ. a ſimpleton
Maunder, v. to wander as if bewildered
Manſhat, ſ. a load of bread
Marrows, ſ. fellows, or equals

Maund

Maund, ſ. a baſket
Maun, a. meager or mellow
Mawling, or *Mawkin*, ſ. one who has not much ſenſe
Meakins, ſ. flaggs, or bulruſhes
Mell, ſ. a mallet, or large wooden hammer
Meir-ſtone, ſ. a landmark, or boundary ſtone
Melder, ſ. oat-meal when firſt ground, with all the duſt and ſeeds together
Melgreaves, ſ. quickſands
Menſe, ſ. manners, particularly in domeſtic œconomy
Mirk, ſ. dark
Mitherly, adv. pretty well, not amiſs
Mickle, a. much
Midden, ſ. dunghill
Midge, ſ. a ſmall fly
Miſcanter, ſ. a miſadventure
Moidered, p. overcome with care, exerciſe, or labour
Mowen, v. to gueſs by the handful
Moudiewarp, ſ. a mole
Muck, ſ. dung, mire, manure
Mull, ſ. duſt or ſmall crumbs broken off from turf or peats
Mun, ſ. the mouth
Munge, v. to chew
Mum-chance, ſ. a perſon who ſits ſilent and attentive
Munt, v. to hint by ſigns
Murgeon, ſ. the ſame as *ſtying*
Muſh, v. to cruſh, or crumble

N.

Naffin, ſ. the ſame as *maffin*
Naſh, a. tender, brittle
Neaf, ſ. the clinched fiſt
Neam, ſ. uncle
Neb, ſ. bill or mouth
Ner, adv. than
Neſp, ſ. to pick off the ends of gooſberries
Nenzled, p. a little drunk or intoxicated
Niffle, v. to ſteal articles of a ſmall value
Nigler, ſ. one who is clever and dexterous
Nip, v. to pinch with the fingers or nails
Nobbut, adv. only
Nope, ſ. a ſmall blow or ſtroke
Nub, and *Nudge*, v. to give a perſon an hint or ſignal by a private touch with the hand, elbow, or foot

O.

Oſs, v. to offer, intend, deſign
Ouph, ſ. an elf
Outen, ſ. out of doors
Ouner, ſ. the ſhade

P.

Paddock, ſ. a toad
Palaver, ſ. noiſe and abuſe
Pan, v. to fit or tally with
Parrock, v. a ſmall field near a farm-houſe for calves, &c.
Paſh, v. to throw down, break, and deſtroy
Paſh, ſ. a ſudden craſh
Pattiſh, v. to collude, plot, or contrive together
Pay, v. to beat or drub
Peats, ſ. turf for the fire
Pee'd, a. blind of one eye

Pelfe, ſ. a bad, or good-for-nothing perſon
Peg-ſtick, ſ. a cattſtick
Pern, v. to over-roaſt
Pettle, v. to coax, play or toy with
Pettlement, v. eaſy odd turns done with little labour
Pickt, ſ. diamonds or cards
Piannet, ſ. a magpie
Piggen, ſ. a pail
Pikelin, ſ. a bun, or muffin
Pikethank, ſ. a paraſite, or hanger on
Pill-gill, ſ. a raric-ſhow, or any initerant or public entertainment
Pippen, ſ. the ſeeds of an appie
Plean, v. to tell tales againſt a perſon
Pliſh, v. to bliſter
Plud, ſ. a puddle
Pock-ard, a. pitted with the ſmall-pox
Potter'd, p. ſituated inconveniently for want of room, or any articles in uſe
Potack, ſ. a begarly perſon
Pote, ſ. a ſmall ſtroke on the head, or elſewhere
Pouk, ſ. a pimple
Pouje, ſ. a filthy perſon
Preaſe, ſ. choice, alſo invitation
Prog, ſ. food, proviſions
Pred, v. to puſh with a ſtick
Proſs, v. to look big, and of conſequence
Prow, v. to dig, or throw up mould
Punch, v. to kick or ſtrike with the foot
Purdy, ſ. a ſhort bread and fat perſon
Put, v. to puſh with the head and horns as a bull or ram
Puter, v. to whine and cry

Q.

Quocker, v. to vomit

R.

Raddle, v. to banter
Radling, ſ. watling
Ratch, v. to tear in pieces
Rack-of-the weather, ſ. the tract in which the clouds move
Rannle-balk, ſ. a piece of wood in a chimney, from which is hung the pot-crook, or racken-crook
Raggabraſh, ſ. an idle ragged perſon
Rallack, v. to romp
Rake, ſ. rut, crack, or crevice
Ratten, ſ. a rat
Ream, v. to reach with ſtretched out body and arms
Rean, ſ. a dale, or rig in a field
Reaſted, p. tired
Reave, ſ. to blow off as wind does thatch
Reek, ſ. ſmoke
Reef, ſ. a raſh
Reetle, v. to repair, or put in better order
Renable, a. loquacious, and never at a ſtop or inconſiſtent in telling a ſtory
Rench, v. to waſh clean with water, as cloths, bottles, &c.
Rhift, v. to belch

Rhine,

Rhime, ſ. an hoar froſt
Riddle, ſ. a ſieve
Riſe, a. infectious and mortal
Ripple, v. to ſcratch
Roke, ſ. fog, or miſt
Roſtled, p. half rotten as apples ſometimes are
Rough, v. to renounce at cards
Rumgumſhaws, a. violent, bold, and raſh
Rungs, ſ. the ſteps in a ladder
Ruſh-bearing, ſ. a ceremony of carrying garlands or ruſhes to the church
Rulbing, ſ. a beaver, bait, or rearſupper

S.

Saſt, ſ. heart's eaſe, as *to be at ſaſt*, to be eaſy and contented, alſo reconciled
Samel, ſ. gritty, ſandy earth mixed with lime for mortar
Sark, ſ. a ſhirt, ſhift, or ſmock
Sawl, or *ſowl*, ſ. any liquid that is drank
Scablins, ſ. chips hewn off ſtones
Scarn, ſ. cow-dung
Scarrs, ſ. rocks, alſo potſherds
Sconce, ſ a fixed ſeat by the ſide of a fire place
Scout, ſ. an high rock
Scowder'd, over-heated with working
Scraffle, ſ. a ſcramble
Scraffle, v. to act unfairly by receding from engagements
Scramb, or *ſcrame*, v. to pull or take together with the hands
Scroggs, ſ. ſhrubs, or bruſhwood
Scruff, ſ. the nape of the neck
Scun, v. to throw a ſtone
Seetre, ſ. cloth worn till it is thread bare
Seigh, v. to ſag
Shaffle, and *Shiffle*, v. to hobble in walking, alſo to act unfairly
Shoſtin, ſ. an idle ſhuffling perſon
Shag, ſ. a piece of bread or cheeſe
Shear, v. to reap
Shearing, ſ. a ſheep a year old, or once ſhorn
Shive, ſ. a ſlice
Shippen, or *ſhuppen*, ſ. a cow-houſe
Shirl, v. to ſlide on the ice
Shoup, ſ. an hep
Side, a. long, as garments are when too big
Sind, v. rince
Sidle, v. to ſaunter
Simmer, v. to make a noiſe as water does before it boils
Sirple, v. to ſipple
Sist, v. to give over milking a cow before ſhe calves
Skale, or *ſkail*, v. to ſcatter or throw abroad, as molehills are when leveled
Skaitch, ſ. a ſhelf or ledge
Skelbooſe, ſ. a cow-ſtall
Sken, v. to ſquint
Skirl, v. to ſcream out, or ſhriek

Skirl,

Skirl, or *ſcrtes*, ſ. ſmall ſtones or pebbles
Skare, or *ſkair*, a. wild, timid, ſhy
Skit, v. to reflect on
Sleak, v. to quench
Slapper, ſ. any thing large and huge
Slaip, or *ſlape*, a. ſmooth and ſlippery
Slack, a. a dell or glade
Slaſh, v. to cut in gaſhes
Slatter, v. to ſpill careleſly
Sleak, v. to give over raining
Sleck, or *ſlocken*, v. to quench
Sleuch, v. to hunt privately for ſtealing food as dogs do
Slipe, v. to ſtrip off the ſkin or bark of any thing
Slive, v. to ſplit
Sliving, ſ. a ſlovenly clown
Slow-worm, ſ. a ſnake
Sloum, or *ſlaum*, ſ. a gentle ſleep, or ſlumber
Smittle, a. infectious
Smudge, ſ. a ſuffocating ſmoke
Snaggy, a. tetchy, peeviſh
Snape, v. to gain-ſay, diſcourage, or call off
Snaxe, v. clip an hedge
Snerpls, v. to ſhrivle up by means of fire
Sneck, ſ. a door latch
Snert, ſ. an ineffectual effort to ſtifle a laugh
Sneeo, v. to turn up the noſe
Snig, an eel
Snig, v. to drag wood without a cart
Snod, a. ſmooth
Snock/narles, a. entangled, or diſordered
Snoute-gob, ſ. the red part of a turkey's head
Snotter, to ſob or cry
Snoutbands, ſ. the iron round clog ſoles
Snuzzle, v. to hide the face in the boſom as children
Soſs, v. to lap as a dog does
Sough, or *ſuff*, ſ. a covered drain
Sotter, v, to make a noiſe in boiling as any thick ſubſtance does
Spang-new, a. very new
Spang-whew, v. to throw up into the air
Spain, or *ſpean*, v. to wean
Speals, ſ. chips, or ſmall ſplit ſticks
Speaved, p. gelded, barren
Spelks, ſ. ſmall ſticks to fix on thatch with
Spel-and-knar, ſ. the game of trapſtick
Spool, ſ. the thread in a weaver's ſhuttle
Sprint, ſ. a gin for catching birds with
Sprewl, v. to ſpurn and kick with both hands and feet when held down
Squelch, ſ. a flat fall on one ſide
Stalenge, v. to compound for by the year or number
Stangs, ſ. the ſhafts of a cart
Stag, ſ. a colt, or filly; alſo a romping girl
Start, ſ. an handle
Stainch, ſ. a root like liquorice
Starſlubber, ſ. frog ſpawn
Steak, v. to pull to, as a door or gate
Stee, ſ. a ladder
Stew, ſ. when the air is full of duſt, ſmoke, or ſteam

Stetchel'd

Stetchel'd, p. fill'd very full
Stirk, ſ. ſteer
Stidden, p. ſtood
Stead, p. tired, weary
Starken, v. to congeal, or coagulate like melted wax or tallow
Stater, or *ſtetre*, v. to ſtumble
Stoop, ſ. a poſt
Stouk, v. to raiſe a ſteam
Stouk, ſ. a ſhock of corn of ten ſheaves
Stowr, ſ. an hedge ſtake
Stracklin, ſ. one who is diſtracted
Strickle, ſ. an inſtrument to whet ſythes with
Stumch, ſ. one who is broad and ſtout though ſhort
Stripings, ſ. the laſt part of a cow's milk
Stubs, ſ. the ſtumps of trees
Stub, ſ. to dig up trees by the roots
Stut, v. to ſtammer
Summering, ſ. a ruſh-bearing, alſo a riot or ſcolding match
Stucker, ſ. when the air in a houſe is filled with ſteam and ſmoke
Swarmle, v. to climb a tree that has no boughs
Swainess, ſ. baſhful or ſheepiſh
Swaip, v. to walk proudly
Swaile, or *ſwaul*, ſ. a ſtame
Swarth, ſ a man's apparition, or likeneſs
Swoap, v. to exchange
Swill, ſ. a ſeuttle or wiſket
Swad, ſ. a pod of peas or beans
Swatch, ſ. a ſhred, remnant, or a piece clipped out of a cloth
Swatch, v. to cut or clip
Swat, v. to ſit down; alſo to ſcatter or ſpill any liquid
Swattle v. to guzzle
Sweigh, v. to play at ſee-ſaw
Swig, ſ. a liquor made of whey and herbs
Swig, v. to drink heartily
Sye, or *ſee*, ſ. a drop
Syme, ſ. a frame of ſtraw to ſet pans on
Syke, v. trickle or come drop by drop
Syke, ſ. a ſmall rivulet

T.

Tang, ſ. a pike, alſo a ſting
Tarn, ſ. a pool or ſmall lake
Taſtrail, ſ. an idle knaviſh perſon
Tawzle, or *taſſel*, ſ. a wicked drunken perſon
Tea, the one; as *tea hand*, the one hand
Teata, adv. overmuch
Teave, v. to kick with the feet
Teem, v. to pour out
Tent, v. to watch or guard from doing a thing
Teus, ſ. ſieve
Tew, v. to teaſe
Ter, ſ. anger, paſſion, headſtrong reſolution
Tharf, and *thrau*, a. unwilling
Threap, v. to hold a falſe argument
Threave, ſ. 24 ſheaves
Thrutch, v. to puſh
Thropple, ſ. the throat, or rather the windpipe
Thraddy, a. fat or fleſhy

Thwaite,

Thwaite, ſ. the ſhelving part of the ſide of a mountain
Tike, ſ. an odd queer fellow
Tidy, a. ſmall
Tipe, v. to toſs with the hand
Tiſſle, v. to entangle
Tit, ſ. an horſe or mare
Tine, v. to put to a door
Tirl, v. to turn over as leaves in a book
Titter, a. firſt, or foremoſt
Thrimmle, v. to ſumble
Tod, v. to tooth ſickles
Tome, v. to faint away
Tome, ſ. a fiſhing line
Torſle, v. to decline in health
Totter, v. to ſtagger
Tourpin, ſ. a pin belonging to a cart
Trail, v. to drag after
Trig, v. to fill, particularly the belly
Tup, *tupe* or *teap*, ſ. a ram
Twitters, ſ. *to be on the twitters*, to be in great doubt
Twinters, ſ. a beaſt of two winters old

U.

Uncouth, a. ſtrange
Urchin, ſ. an hedgehog
Url, v. to look ſickly, or to go back in health

V.

Vallidom, ſ. value of
Vomper, v. to vapour or ſwagger

W.

Walſh, a. wallow, inſipid
Wankle, a. weak
Warble, ſ. a ſwelling on the back of a cow or ox
War, a worſe
Ward, ſ. world
Warday, ſ. workday
Wark, v. to ache
Warriſons, ſ. the bowels
Wax, v. to grow in ſtature
Weab, a. ſorry for
Weat-not, v. know-not
Weather, ſ. a gelded ram
Weating, ſ. old urine
Wee, and *queny*, a. very ſmall
Welt, v. to overſet
Whain, v. to coax or entice
Whamp, ſ. a waſp
Whang, ſ. a thong
Wheaze, v. to breathe hoarſely
Wheem, a. gentle, eaſy
Whelk, v. to kick or ſtrike
Whelm, and *whemmle*, v. to turn any veſſel upſide down
Whaint, a. ſtrange
Whins, ſ. furrs, goſs
Whinge, v. to moan and complain with crying
White, v. to cut ſticks with a knife
White-it, v. the duce take it
To lay white on, to lay the blame on
Whither, v. to quake or ſhake
Whitherer, ſ. a luſty, ſtrong, or ſtout, perſon or thing
Whrine, ſ. any thing very ſour
Why, ſ. a young heifer
Windle, or *winnel*, ſ. a buſhel
Winaſlat, a. thrown on one ſide
Wig, ſ. a bun, or muffin
Wiſket, ſ. a ſwill or ſcuttle
Withy, a round hoop of ozier

Wittering,

Wittering, ſ. an hint
Wizzen'd, a. ſhrivelled up with age
To wrot againſt a perſon, to inſinuate to his diſadvantage
Wreeden, a. peeviſh, tetchy
Wrecklin, ſ. the leaſt animal in a brood or litter
Wya, adv. yes

Y.

Yark, v. to puſh or ſtrike
Yeat, ſ. a gate
Yeaw, ſ. an ewe ſheep
Yea, and *yeas*, adv. one
Yedder, ſ. a long ſtick
Yode, ſ. an horſe
Yowl, v. to yelp or howl
Yowr, ſ. the udder of a cow
Yule, ſ. chriſtmas

A TABLE

A TABLE OF THE ROADS,

AND DISTANCES OF PLACES FROM EACH OTHER.

Miles.	
	Kendal.
12	Kirkby-Lonſdale.
6	Thornton-church-ſtile,
4	Yordas-cave.
4	Ingleton,
4	Chapel in the dale.
3	To the top of Ingleborough
3	Back again to Chapel in the dale.
4	By Gatekirk, Winterſcales, and Greenſide, to the top of Whenſide.
3½	Gearſtones.
2	Alan-pot
4	Horton.
6	Settle.
5	Malham-cave.
5	Kilſey-crag.
3	Graſſington.
9	Skipton.
9	Keighley.
4	Bingley.
6	Bradford.
7	Kirkſtal-abbey.
3	Leeds.

FINIS.