

the Thund Pot stream which is on the *lower* level at the point of intersection.

PENYGHENT. We may choose our way to the summit. The easiest, though not shortest, route is the old cart-track which runs close by Thund Pot. The highest point is marked by the cairn left at the Ordnance Survey. The all-round view from this point is very fine. Pendle and Ingleborough we all know. Looking down the valley, we have on our left Scosca Moor and Fountains Fell; farther east, Great Whernside, which is higher than Penyghent by 37 feet; northward, great lengths and breadths of desolate moorland; westward, on a clear day, the Lake Mountains and Morecambe Bay.

Snow Drifts. Penyghent, like Ingleborough, is a hill of storms. Its eastern slopes are sometimes known for their deep and long-lasting snow-drifts. The snows of the winter of 1895 were not all cleared away until far into June. In walking from Gordale *via* Black Hill on the Whit-Wednesday of that year (June 5th) we saw several white streaks of snow near Penyghent House and on the skirts of Fountains Fell. The spring of that year was fine and bright, and the sun shone with growing power; but the drifts had been so deep,—some of them were 30 feet in depth,—and had been pressed by their own weight into such solid mass, that it was not until near Midsummer that the last traces of the last survivors had been melted away.

Penyghent's "Night Cap." Does our reader know the exquisite sensation of being lost?—his bearings gone, and no sun or moon or star to show him

Yorkshire Naturalists' Union.

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CHARLES P. HOBKIRK, F.L.S., Dewsbury.

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THE NINETY-SIXTH MEETING

WILL BE HELD AT

SETTLE,

FOR

HORTON-IN-RIBBLESDALE,

RIBBLEHEAD, LING GILL, and PENY-GHENT,

On SATURDAY, MAY 14th, 1892.

RAILWAY ARRANGEMENTS.—Through return tickets at pleasure party fares will be issued at all Yorkshire stations on the G. N., H. & B., L. & Y., L. & N. W., M. S. & L., Midland, and N. E. Railways, which have booking arrangements for Ribblesdale, Horton-in-Ribblesdale, or Settle, to Members and Associates of the Y.N.U. producing their signed card of membership. Members have liberty to break the return journey at Settle.

Members and Associates starting from stations which have not through booking arrangements, should book to the most convenient junction, and re-book to their destination; the reduction of fare will be granted for both portions of the journey.

ROUTES.—

I.—The Geological party, under the leadership of Mr. J. G. Goodchild, F.G.S., of the Geological Survey, will leave Horton-in-Ribblesdale station about 8.30 a.m. The party will call at Ribblesdale station at 12.14 noon for such members as may not be able to arrive earlier, and the combined party will then examine the evidences of glacial action, returning to Settle by the train which leaves Horton at 5.10 p.m. See under "Geology" for Mr. Goodchild's outline of this route. This party will include Prof. L. C. Miall and other members of the Yorkshire Boulder Committee.

II.—A party of Naturalists will examine Ling Gill and its neighbourhood under the guidance of Settle friends.

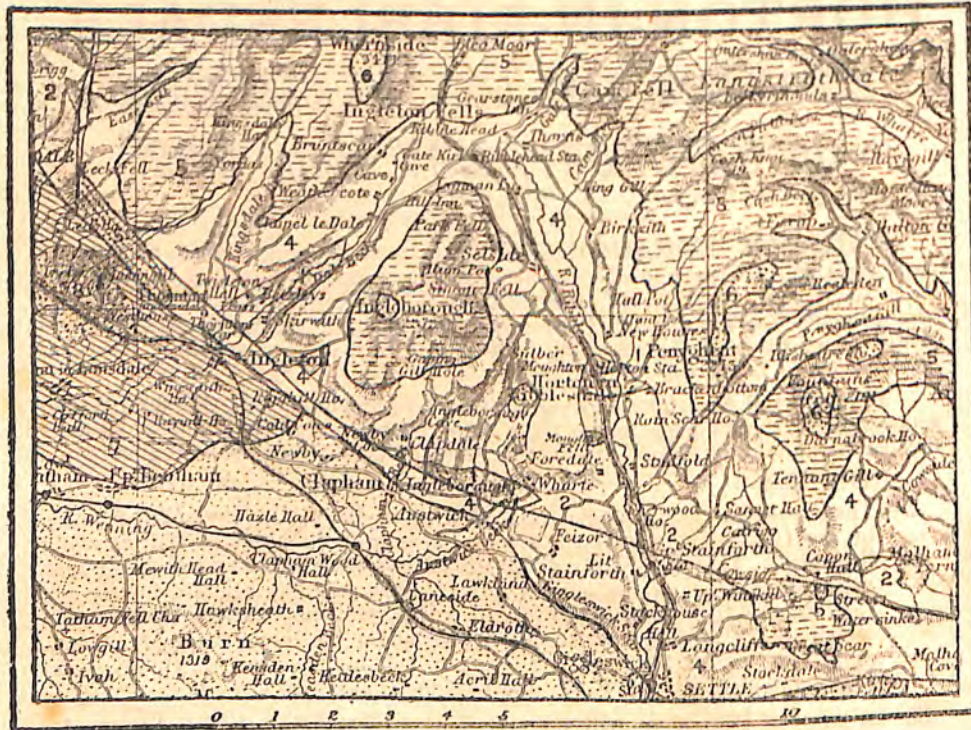
III.—Mr. John Foster will meet the trains arriving at Horton at 7.54 and 12.14 a.m., in order to advise or guide such members as are desirous of investigating Penyghent and its slopes.

The Hon. Secretaries are much indebted to the Misses R. F. and F. P. Thompson, Mr. and Mrs. Ellwood Brockbank, Rev. G. H. Brown, Messrs. F. E. Atkinson, T. Brayshaw, C. W. Buck, E. A. Peak, and Dr. W. Marshall Watts, all of Settle, and to Mr. John Foster, of Horton, for assistance in making the arrangements, and it is expected that several of them will take part in the leadership of the various parties.

Permission for the investigation of their estates has been kindly granted by Messrs. John Foster, James Farrer, J. Hammond, Ald. T. Benson P. Ford, John Slinger, and the Rev. Arthur Ingilby.

All members will return to Settle by the 5.10 p.m. train from Horton.

BOOKS AND MAPS.—The whole of the district for the day's investigation is comprised within Sheet 50 (97 S.W.) one-inch ordnance map (which may be had geologically coloured). The Geology is described by Dakyns, Tiddeman, in the Survey Memoir, etc., and in Tiddeman's paper, Q.J.G.S., 1872, p. 471 (the Ice-sheet in N. Lancs. and adjacent parts). Dr. Marshall Watts' School Flora gives notes on some of the plants, and Mr. E. Peake's privately printed Giggleswick Bird Calendar on the birds. Reference may also be made to Windsor's Flora Cravoniensis, Banks' Walks in Yorkshire (Hull Pot and Hunt Pot, p. 76), Dobson's Rambles by Ribble (Douk Ghyll Scar, p. 57), Hutton's Tour to the Caves, 1781, p. 43, Miall's Geol. and Nat. Hist. of Craven, G. H. Brown's On Foot Round Settle, Davis and Lees' West Yorkshire, as well as to Phillips' classical Works.



EXPLANATION OF MAP.—The following formations are shown: 8 Permian; 7 Coal Measures; 6 Millstone Grit; 5 Yoredale Beds, &c. (with Pendleside Limestone); 4 Carboniferous Limestone; 3 Basement Carboniferous, and Upper Old Red; 2 Silurian, 1 Ordovician.

PHYSICAL GEOGRAPHY AND GEOLOGY.—Mr. J. G. Goodchild, F.G.S., writes: The early contingent will leave Horton about 8.30 a.m., with the object of making a cursory examination of the leading features of geological interest on the west side of the Horton valley. Should time permit, this part of the excursion may embrace a visit to Combs Quarry, where the mountain limestone is seen lying on the upturned ends of the Coniston Flags.

In order to meet the party arriving at Ribblesdale by the train due at 12.14, a move towards the north will have to be made early in the forenoon, and it is proposed that this shall be, as far as possible, over the limestone scars of Moughton.

On the arrival of the second contingent at Ribblesdale, the glacial phenomena of the neighbourhood will be examined and discussed in some detail, and then a move will be made towards the south, taking the east side of the valley on the return journey. It will be necessary to arrive at Horton Station in time to catch the 5.10 p.m. train to Settle, but, if time permit, attention will be directed to some of the many features of geological interest connected with the older Palaeozoic rocks in the neighbourhood of the town itself.

Papyrographed copies of some of the more important sections in the neighbourhood will be distributed amongst the geologists, and it is believed with these, the map, and the demonstrations on the ground, the party may gain as much insight into the geological structure of the district as will be possible in the course of so brief a visit.

Mr. R. H. Tiddeman, M.A., F.G.S., writes:—The most important features of the drift in Upper Ribblesdale are the very well-marked series of mounds or drumlins lying between the crests of Ingleborough and Penyghent. They are best seen about Ribblesdale, looking north-east from the Scars above the station, in the direction of Gearstones Inn. The arrangement of the long axes of these mounds shows the direction in which the ice travelled from Newby Head and Cam Fell. The stream spreads out into Ribblesdale in a fan shape, hugging on one side the west side of Penyghent and on the other impinging against the east side of Ingleborough. Some of the drumlins travel across the head of Ribblesdale at the station and are cut through by the railway, showing glaciated Limestone in the cutting. This is an excellent spot for taking a photograph of the general view, if it can be done in the forenoon with good relief of light and shade. Some of the mounds in the neighbourhood of Helm Pot and Fell Close hug the side of Simon Fell, closely curving round with it; and the scratches on the rocks beneath (if found) will be seen to be taking a corresponding course.

BOTANY.—From information supplied by Mrs. Ellwood Brockbank, Miss Rachel F. Thompson, and Mr. Wm. Whitwell, it appears that the district is exceptionally rich botanically, but the time of year is rather unfavourable, as typical limestone plants are much later in flowering. Ling Ghyll furnishes in proper season *Daphne mezereum*, *Saxifraga umbrosa*, *Vicia sylvatica*, *Epilobium angustifolium*, *Polypodium dryopteris* and *P. phegopteris*. Eight years ago *Galium mollugo* grew at Horton Station, and *Saxifraga aizoides* near Douk Ghyll Scar. On Penyghent occur *Saxifraga oppositifolia*, *Rubus chamaemorus*, *Draba incana*, *Hieracium anglicum*, and *Allosorus crispus*. Other rare plants mentioned as occurring in the Horton district are—*Chelidonium majus*, *Meconopsis cambrica*, *Orchis pyramidalis* and *O. morio*, *Gymnadenia conopsea*, *Ophrys muscifera*, *Galanthus nivalis*, *Convalaria majalis*, *Polygonatum multiflorum* and *P. officinale*, *Hippocrepis comosa*, *Rosa mollis*, *Polemonium caeruleum*, *Antennaria dioica*, and *Cnicus heterophyllus*. The more noteworthy Ferns are—*Osmunda regalis*, *Polystichum lonchitis*, *P. aculeatum* and *P. angulare*, *Cystopteris fragilis*, *Lastrea spinosa* and *L. rigida*, *Asplenium trichomanes*, *A. viride* and *A. Adiantum-nigrum*, *Polypodium calcareum* and *Botrychium lunaria*.

It is particularly requested, both by the Union and the landowners who so generously facilitate its work, that every effort be made for the protection of the ferns and rare plants.

CRYPTOGAMS, etc.—Mr. Wm. West, F.L.S., writes:—The district is a very fine one for cellular Cryptogams. Among the Muscineae, such as the following occur:—*Sphagnum papillosum*, *S. recurvum*, *Andreaea petrophila*, *A. crassinervia*, *A. falcata*, *Rhabdoweissia fugax*, *Dicranum majus*, *Ditrichum flexicaule* (also its var. *densum*), *Barbula intermedia*, *Distichum capillaceum*, *Ulotia bruchii*, *Orthotrichum cupulatum*, *Splachnum sphericum*, *Mnium undulatum* (in fruit), *Polypodium strictum*, *Fissidens osmundoides*, *Cinclidotus fontinaloides*, *Antitrichia*

curtipendula, *Neckera crispa* (in fruit), *N. complanata*, *Cylindrothecium concinnum*, *Hypnum falcatum*, *Chiloscyphus polyanthus*, *Reboulia hemisphaerica*, *Jungermannia cordifolia*, *Plagiochila asplenoides* (in fruit), *Metzgeria pubescens*. Lichens are very numerous, such as *Solorina saccata*, *Physcia casia* *Evernia furfuracea*, *Cladonia cornucopioides*, *Endocarpon rufescens*, *E. minutum*, *Amphiloma lanuginosum*, *Lecanora sympagia*, *L. pavella*, *L. cupularia*, being frequent. A fair list of Algae will be found in 'The Naturalist,' about a year ago, entitled 'Additions to the Freshwater Algae of W. Yorks.'

Mr. Soppitt states that *Gymnosporangium juniperi*, *Melampsora cerastii*, and *Uromyces geranii* should be found.

ENTOMOLOGY, etc.—Crayfish are to be found in Ling Ghyll, and are supposed to have been imported from Semer Water. Otherwise nothing appears to be on record as to insects and other articulates.

CONCHOLOGY.—This portion of the Ribble basin has apparently never been systematically investigated but ought to yield a good number of terrestrial molluscs on the limestone scars which fringe the surrounding hills. The species already on record as having been collected by Messrs. Taylor, Nelson, and Roebuck, include—*Zonites radiatus*, *Z. cellarius*, *Z. nitidulus*, *Helix arborum*, *H. rupestris*, *Balea Clausilia rugosa*, *Cl. dubia*, &c.; while of slugs have been found *Limax laevis*, *L. agrestis*, *Arion minimus*, *A. circumscriptus*, *A. subfuscus*, and *A. ater*, the latter being on record for the highest summit of Penyghent. *Ancylus fluviatilis*, which is abundant in the becks, is the only water shell as yet recorded.

VERTEBRATE ZOOLOGY.—Mr. E. Peake informs us that grain-eating birds seem to have decreased in numbers within the memory of man. The Goldfinch used to occur but is not found now. The Bullfinch, Redpoll, and Twite still occur, and a colony of the latter birds exists near Horton, where also the Sedge Warbler (the local 'Nightingale') is common. At the date of the excursion many migrants will have returned, and will include Spotted Flycatcher, Ring Ouzel, Cuckoo, Yellow Wagtail, Wheatear, Landrail, Sandpiper, &c. On Penyghent, the Peregrine, Merlin and Raven are still to be seen, and fortunately are strictly preserved by Mr. John Foster, who has some interesting local birds in his house, including Honey Buzzard, Slavonian Grebe, Great Grey Shrike, &c. On the Moors, the Golden Plover, Curlew, Red Grouse, and Snipe are certain to be seen. The more rocky parts will supply the Kestrel and Stockdove; while the water-courses will yield Dipper, Mallard, Waterhen, Coot, and Little Grebe.

Mr. John Foster states that the Badger has been killed lately, but the Polecat, which was formerly to be found in the district, does not now occur. The Otter and Fox are common, as are also the Hedgehog, Mole, Weazel, and Stoat. Many of the smaller Mammals and Bats no doubt are to be met with, but they have hitherto not received attention. Trout, Minnows, and Bullheads are to be found in the streams.

MICRO-ZOOLOGY AND MICRO-BOTANY.—There appears to be no information under this heading.

Amateur Photographers will be able to change their plates by the kindness of Mrs. John Foster, Horton, who will place her DARK ROOM at the service of the Union.

PROGRAMME OF MEETINGS.—

5-10 p.m.—Train leaves Horton for Settle.	} All at the Ashfield Hotel, Settle.
5-30 p.m.—Meat Tea, 2/- each	
6-15 p.m.—Sectional Meetings	
6-45 p.m.—General Meeting	

which way to set his face. The writer has had such an experience, and it was on the top of this same hill. Three of us had climbed it when the head of the hill was swathed in mist. It was not quite wise to do this, without so much as a small watch-chain compass to keep us right. But boys—and old boys—sometimes do foolish things. We got ourselves beautifully entangled in the folds of Penyghent's "night-cap." We had climbed a wall, and then re-climbed it. This lost us our bearings and divided our counsels. Two of the three were sure that Horton lay "over there;" the third, pointing the opposite way, was not less sure that it lay over *there*. We were two to one; but the one was an "old parliamentary hand," a practised mountaineer. There was a keen debate, but we could none of us "verify our references." It was simply the "I say" of one against the "We say" of two. We had already walked from Horton to Selside, and then to Hellen Pot; had crossed the valley to Horton Moor; had in a large field been set—and in our nerves been somewhat *upset*—by a savage bull; and had at last climbed Penyghent; and after all this, there was a very pathetic desire that we might not have to walk all the way home that night. But we had not much more than an hour in which to get to Horton for the last train. There was not time to try one way, and, if that proved wrong, to seek another. And thus if ever there was a debate that was *ad rem*, that kept to the point, it was that. As it turned out, and only just in time, we found a hole in the "night-cap" through which we got a glimpse of Horton; but that was enough, and we just caught our train. We will not say which side was right, but if we had gone as

one finger pointed we should have descended into Littondale, or might have found ourselves maundering amongst the "giant's graves." Our experience of Penyghent's "night-cap" was not long, but it was acute; and from that day to this the writer has never on the hills and moors been without that useful little instrument that shows such an abiding attachment to the north.

The tourist may wish to walk back to Settle. In that case, let him descend the south face of the hill, and cross the moor until he reaches the Arncliffe road, which will bring him through Stainforth and Langcliffe to Settle.

Should he wish to get back to the station, the descent may be made by the south-west corner of the hill, and in a direct line for Horton; and for this an hour will suffice. On approaching Horton we pass the very beautiful glen, Douk Gill, which is part of Mr. Foster's private grounds.



*Third pot.
or Hull pot.
(see p. 1.)*

Yorkshire Naturalists' Union.

President:

EMERITUS-PROF. F. O. BOWER, D.Sc., F.R.S., F.L.S.

Hon. Secretaries:

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W. H. PEARSALL, D.Sc., F.L.S., The University, Leeds.

Hon. Treasurer:

S. D. PERSY FISHER, Sackville Street, Leeds.

Local Secretary:

RILEY FORTUNE, F.Z.S., 'Moorlands,' Harlow Hill, Harrogate.

The 341st MEETING

WILL BE HELD AT

AUSTWICK

for the investigation of

Oxenber, Feizor and Wharfe Woods,

ON

SATURDAY, JUNE 16th, 1928.

HEADQUARTERS.—The Game-cock Inn, Austwick.

TRAVEL FACILITIES.—Train from Leeds to Skipton, L.M. & S. Railway, 7-0 a.m. From Skipton to Austwick by bus, leaving Skipton at 9-0 a.m. The same bus pick up passengers at Hellifield 9-37, and at Settle at 10-0 a.m., arriving at Austwick 10-15 a.m. A return bus leaves Austwick for Skipton at 7-25 p.m. A bus leaves Hellifield at, and hourly after, 9-53 a.m. for Cross Streets, Austwick.

BOOKS AND MAPS.—The area to be investigated is included in the 1" Ordnance Survey Map, Large Sheet Series, Coloured Edition, Sheet 25. Lee's 'Flora of West Yorks.'; Kendall and Wroot's 'Geology of Yorkshire'; C. A. Cheetham, 'Field Notes from Austwick,' *Naturalist*, 1927, pp. 201-3, and Circulars Nos. 136 and 212; Prof. Garwood's 'Settle Area,' *Yorks. Geol. Proc.*, 1924.

PERMISSION to visit Feizor Wood has been kindly given by Mrs. Clapham.

ROUTE.—Start from the Game-cock Inn at 10-30 a.m. for Oxenber Wood. Leader: Mr. Chris. A. Cheetham.

[P.T.O.]

XI.

TO THE SOURCES OF THE RIBBLE.

SO far we have kept within a circle whose centre is Settle and its radius eight miles. The ramble we are about to sketch lies outside this radius, but is brought by the railway within such easy reach, and is itself so full of interest, that there need be no scruple about including it in these routes. We ought to have a whole day before us, and the best course would be to leave for Horton by the early morning train. On leaving the station we must take the first road to the left for Selside, which is an hour's walk from Horton. On reaching Selside we turn up the lane on the left, and a few minutes' walk brings us to Hellen Pot (locally, Alum Pot).

HELLEN POT. When the railway was being made, a good bridge was placed across the chasm, and it was then possible, if there was a small in-fall of water and therefore little spray, to look straight down into the awful pit. But the decay of the wood-work has made it necessary to take away the bridge, and the Pot cannot now be seen to such advantage. Professor Radford Thompson speaks of Hellen Pot as being "the most frightful place in England." Certainly there is in this district nothing that makes us "stand in awe" and hold our breath, as does this great, deep chasm. Yet Nature has tried to soften the dreadful features of the place by planting its margin with bushes and with ferns. At its mouth

THE DISTRICT AND ITS NATURAL HISTORY.—Mr. Cheetham writes:—Oxenber, the area to be investigated, is the limestone capped and wooded hill half a mile east of Austwick village; the northern branch of the Craven Fault divides it from Moughton Fell on the north, the high ground of which it is the westerly portion extends to Smeasett on the east, but the area to be worked is defined by the road through Feizor Nick from Feizor to Wharfe and the road from Feizor to Austwick; this is roughly circular and half a mile in diameter. It is divided into Wharfe, Feizor and Oxenber or Austwick Woods, one dividing line being the old parish boundary between Austwick and Lawkland.

There is plenty of glacial drift and occasional boulders, and this must be remembered when the vegetation is examined; some portions have been enclosed and grazed, but much of it is common land and covered with remains of the original scrub woodland which probably covered all such limestone areas previously.

The hill top is from 800 feet to 975 feet above O.D., whilst the lower land towards Austwick is about 500 feet.

There is a general agreement in aspect, vegetation and entomological features with the higher parts of Grass Wood, and it is the desire of the Entomological Section to see if some of the varieties known at Grassington occur on Oxenber.

The Botanical Features are the abundance of the Blue Sesleria grass the great variety of the Primrose and Cowslip hybrids (the Oxlip of the poets, though not the *Primula elatior* Jacq. of the botanist); then the Rock rose makes a fine display as does the Mossy Saxifrage, this may interest the entomologists. *Potentilla alpestris* Hal. is very plentiful, and should be examined carefully; it grows in the open and is procumbent with the habit of *P. verna* L. *Geranium sanguineum* L. is abundant, so are the Small Scabious, Salad Burnet, Carline Thistle, Stone Bramble, Lesser Meadow Rue and Columbines, these being the large flowered blue or white form which only occurs on the limestone.

Lilies of the Valley are getting scarce, and other scarce species are Herb Paris, Globe Flower, Solomon's Seal, Horse Shoe Vetch, Nodding Melick, Spiney Rose, Mountain Everlasting, Alpine Bistort, and Melancholy Thistle. An *Epipactis* grows in the limestone crevices, but is cropped by sheep or rabbits and seldom flowers; the White Clove Orchid has been found here, but not recently.

Amongst the trees and shrubs are the Juniper, Yew, Spiney Buckthorn, Spindle Tree, Bird Cherry, Mezereum and Laurel-leaved Daphne. It is interesting to note the abundance of Holly.

Amongst the ferns the Beech, Limestone, Polypody, Green Spleenwort and Moonwort are the more interesting, and the Northern Hard Fern will be seen on some of the drift-covered places.

The Mosses and Hepatics, which are most evident on the limestone rocks, are *Hypnum molluscum* Hedw., *Camptothecium sericeum* Kin., *Anomodon viticolorus* H. and T., *Neckera crispa* Hedw., *Grimmia pulvinata* Sm., *G. apocarpa* Hedw., *Bryum capillare* L., and a special feature is the abundance and variety of the *Trichostomum tortuosum* Dix. and *Crispulum* Bruch. In the crevices of the limestone pavement the shelter produces very fine growths of *Neckera crispa* Hedw., *Hylocomium splendens* B. and S., *H. triquetrum* B. and S., *H. squarrosum* B. and S., *Hypnum cupressiforme* L., *H. molluscum* Hedw., *Encalypta streptocarpa* Hedw., *Racomitrium lanuginosum* Brid., *Ditrichum flexicaule* Ham., *Trichostomum tortuosum* Dix., *Scapania nemorosa* Dum., *Frullania tamarisci* Dum.

On open places and screes two rare species, *Cylindrothecium concinnum* Schp. and *Hylocomium rugosum* De Not. will be found, and in slightly damper places *Breutelia arcuata* Schp.

Bryologists will have the opportunity of seeing four species of *Thuidium*, viz., *tamariscinum* B. and S., *delicatulum* Mitt., *recognitum* Lindb., and *philiberti* Limpr., and the delicate *Amblystegium confervoides* B. and S.

The foregoing remarks apply to the limestone area, but there is a damp part on the north in Wharfe Wood, which is on the Silurian rock, and where

many marsh plants grow, Bird's eye primrose, Cranberry, Sundew, Bog Asphodel, etc., and here the Lesser Winter-green was found last year. *Trientalis* has been reported from Wharfe Wood, but the records needs verification.

ENTOMOLOGY.—Little work has been done on the entomological side; the ants seem worth examination; the fly, *Microdon mutabilis* L., which lives as a larva with *Formica fusca* L., has been found here. Two flies which seem to live as larvæ in the limestone crevices are *Tipula variicornis* Schum. and *Dactylolabis sexmaculata* Mcq. (*Frauenfeldi* Egg.), and the woods are the only place where *Tipula flavolineata* Mg. has been found in the district.

Two interesting moths from here are *Pyrausta purpuralis* L. (*ostrinalis* Hb.) and *P. cingulata* L.

VERTEBRATE ZOOLOGY.—Mr. W. K. Mattinson has prepared a list of birds which have been seen here, and he states that the Rock Dove has nested in Feizor Nick, the Woodcock has nested on the hill, and the Nightjar has been heard there; others include Long-eared and Tawny Owls, Tree Creeper, Tree Pipit, Bullfinch, Redstart and Wheatear. The Buzzard and Raven may be seen flying overhead. He also says that Blind Worms are to be found here.

The Brown Squirrel finds plenty of food on the hazels.

Some sixty years ago there was a Nutting Sunday in October, when people came from far and wide to gather the hazel nuts. A guard was placed some weeks previously to prevent them being taken beforehand, and a bell was rung on Nutting Sunday, but there is no evidence as to whether a payment was made to the guard, or where the bell was rung.

FRESHWATER BIOLOGY.—Mr. H. Whitehead, B.Sc., writes:—The streams in the Austwick district have yielded so far 14 species of Mayflies, 10 species of Stone-flies and 22 species of Caddis-flies.

Several types of stream are represented, each with its own special fauna. Austwick Beck, from its source, through Crummack Dale to Mill Bridge, is a typical mountain stream with *Philopotamus montanus* abundant. In its course through the village there is abundant life under loose stones and swarms of *Ephemerella ignita* may sometimes be seen ovipositing below Austwick Bridge. Norber Syke is torrential after heavy rains, and contains an interesting Mayfly—*Ecdyurus lateralis*. Fen Beck yields *Ephemerella danica*, *Centroptilum luteolum* and other species typical of a stream bed with sand and detritus.

The streams on the sides of Ingleborough are practically unworked, and are worthy of investigation.

ARACHNIDA.—Mr. Wm. Falconer, F.E.S., writes:—No particular attention has been given to the arachnida in the immediate neighbourhood of Austwick, but of the few which have been incidentally collected these two species are uncommon in Yorkshire, viz., *Panamomops sulcifrons* Wid. (*bicuspis* Cb.) and *Lophocarenum nemorale* Bl. The mountainous area of which Ingleborough is the centre has been productive of several rare species which have not been recorded elsewhere in the county, *Leptyphantus angulatus* Cb., *Walckenaera capito* West., *W. nodosa* Cb. and *Diplocephalus castaneipes* Sim. Other noteworthy forms are *Caledonia evansii* Cb., *Centromerus arcanus* Cb., *C. expertus* Cb., *Diplocephalus rivalis* Cb. and the false scorpion *Chernes dubius* Cb.

Tea will be provided at Headquarters at 6 p.m., at 1/6 per head for Sweet Tea, and a Meat Tea at 2/6 per head. Members wishing to take tea should notify the Hon. Secretaries before their departure from Headquarters in the morning.

A Meeting will be held at 6-40 for general business.

the Pot measures 100 feet by 30 feet. A stream enters the Pot at the surface; another inflowing stream may be seen at a depth of 100 feet. This latter is from the mouth of Long Churn, which is half "pot," half cave. The entrance to Long Churn may be found higher up the field. It is possible to get down Long Churn and into Hellen Pot; but the man who attempts this should have a stout heart and steady head, as well as strong and supple limbs. A little below the mouth of Long Churn there is a massive stone, ten feet in length. It is doubtless a fallen block, which formed part of the original roof. It was arrested in its fall, and now spans the gulph from side to side. The mouth of Long Churn is about half-way down the chasm, the vertical depth of which is 198 feet.

The leading spirit in the exploration of Hellen Pot was the late Mr. Birkbeck, of Anley. On three occasions he descended the Pot. The first was in 1847. He had as his comrade Mr. Metcalfe, of Weathercote. They made their way down Long Churn, but the deeper recesses of the Pot were not reached. Like Julius Cæsar after his first landing on the coast of Britain, Mr. Birkbeck, with better appliances and larger forces, renewed his attack in the following year. He had beams of timber laid across the mouth of the Pot, and by means of windlass, rope and basket, he and eight others were able to reach the bottom of the vertical pit. From that point they traversed a distance of upwards of 150 feet. They had a difficult task. In the lateral reaches of the chasm there are waterfalls, pools and rapids. The farthest accessible part of the



Photographed by Godfrey Bingley, Headingley, Leeds.

Fig. 1.

MOUTH OF ALUM POT.



Photographed by S. W. Cuttriss, Leeds.

Fig. 2.

BRIDGE IN ALUM POT.

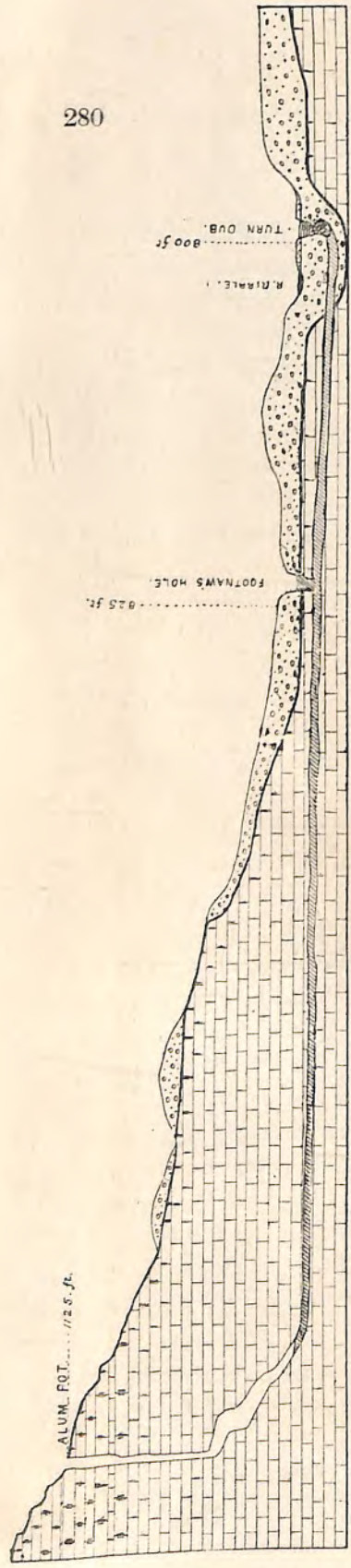
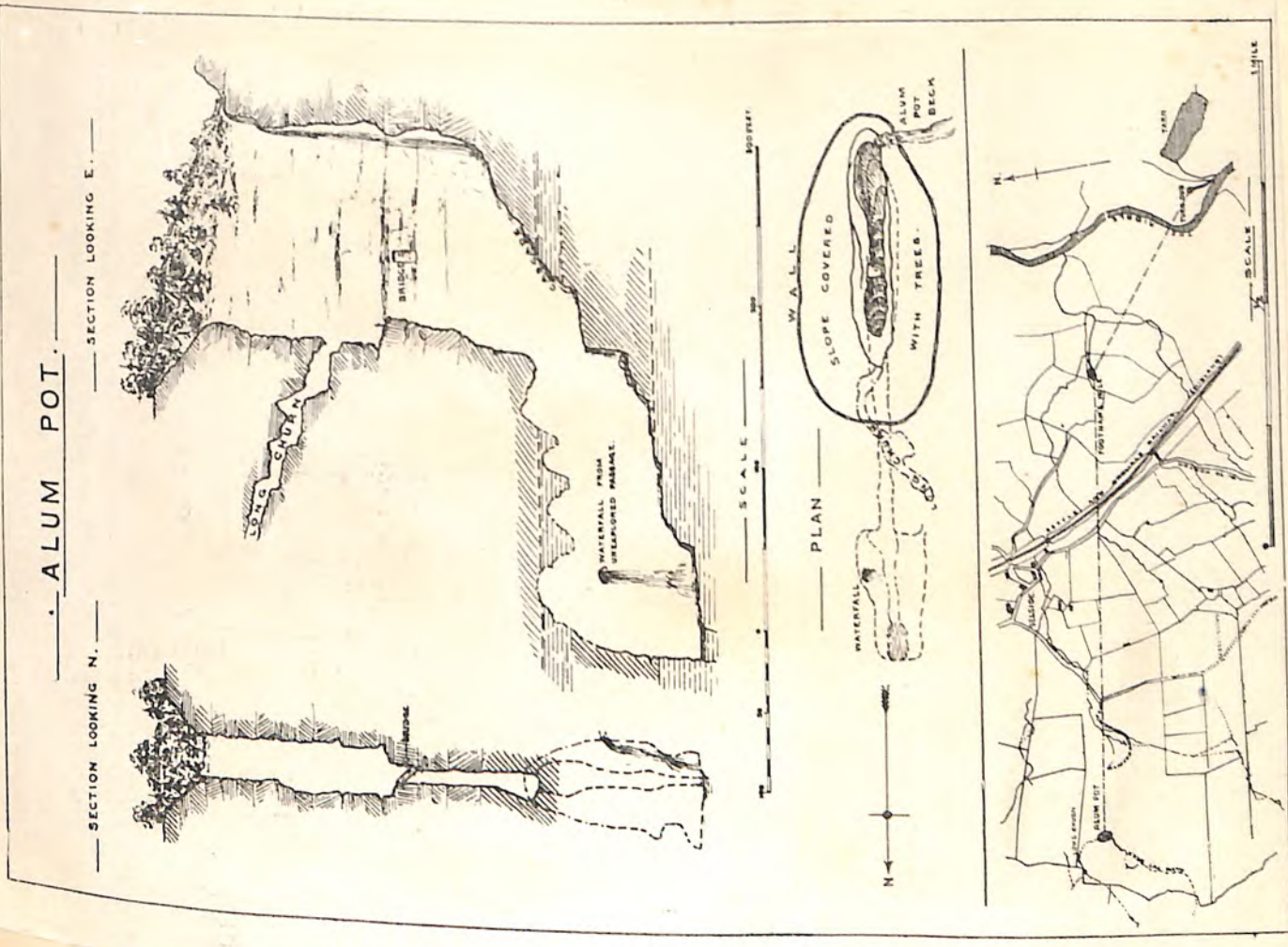
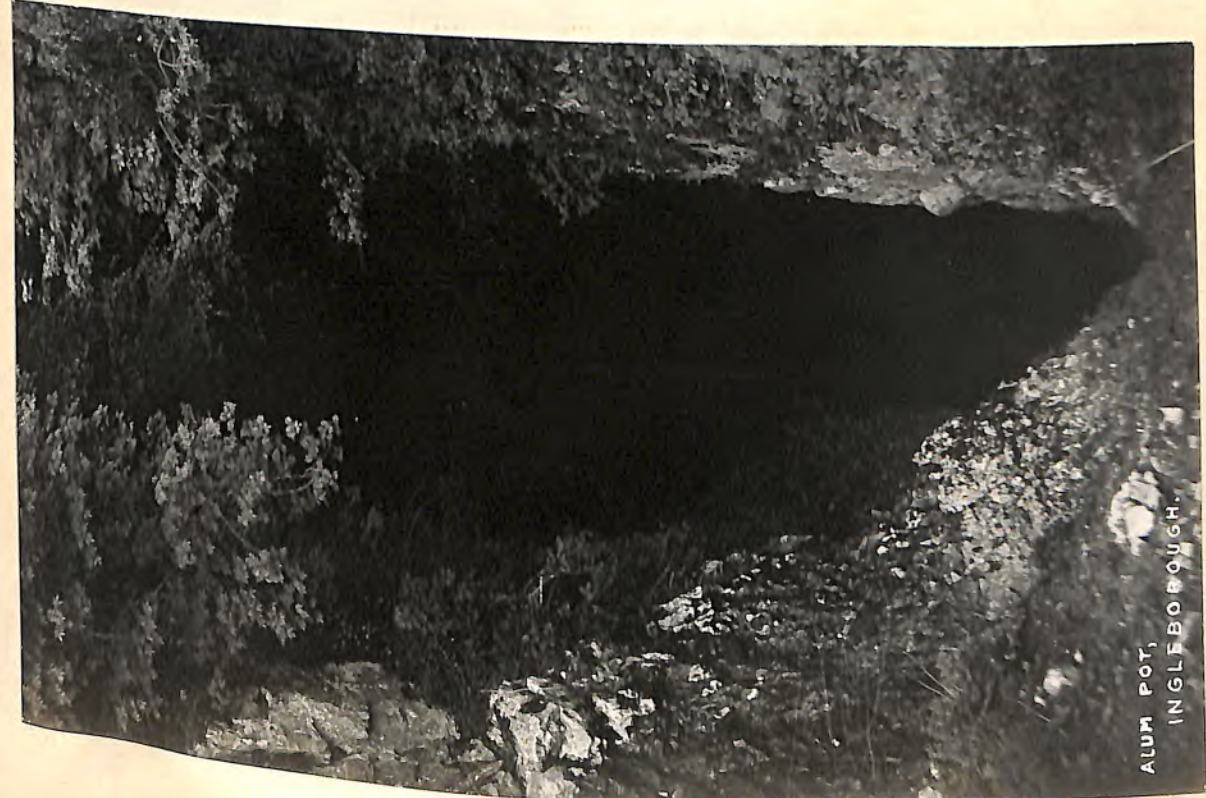


Fig. 6.
SECTION FROM ALUM POT TO TURN DUB.



Photographed by Godfrey Bingley, Headingley, Leeds.
Fig. 2.
TURN DUB.



The Wonderland of England.

POTTING IN THE CRAVEN HIGHLANDS.

By HAROLD DAWSON.

VERY few energetic Englishmen, who wander as far as the Alps, or even the Himalayas, spending their holidays climbing dangerous mountain peaks and testing their nerves and their endurance by performing feats of daring in these snow-clad heights, are perhaps aware that there is in England, within a few hours' run from London, a whole district as yet, in one sense, unexplored, where they can equally well test their nerve and their staying power without going so far afield.

The wonders of this district have the charm of being as yet a *terra incognita* to the outside public; and to those adventurous spirits who are willing "to do and dare," there is perhaps an added attraction in the knowledge that the Columbus of this new world has yet to arrive.

The risks to be run to life and limb are many, but with proper care and preparation they can be reduced to a minimum, and are certainly not greater than those run in ordinary Alpine climbing.

As far as health and excitement go, I should call the two "sports" equal; in the one case, however, your battle-cry is, "Excelsior!" and in the other, "Downward, ever downward!"

After leaving Skipton in Yorkshire, travelling to Scotland by the Midland route, you enter what are known as the Craven Highlands. Perhaps many passengers have not even noticed this district, passing, as they do, swiftly to their journey's end; but those who have, will remember that for mile after mile the line ascends, until, after leaving Settle, it enters into a wild and barren moorland district, practically uninhabited for many miles as far as Hawes, the horizon bounded on the one side by the mountains Ingleboro and Whernside, and on the other by Penygent.

It is in this district, bleak and unattractive-looking as it is, that there abound innumerable "pot-holes" or fissure caves, not unlike irregular and broken mining shafts, how many even the best-informed dalesman cannot tell you. Till quite recent years these have been totally unexplored, but with-

in the last seven or eight years, three or four of the better-known ones have been successfully descended, leaving a balance of perhaps a hundred to be attacked by some hardy explorer of the future.

Only those who have lived up in these inhospitable-looking dales, however, can form any idea how charming they are, and how wonderfully healthy. There are lovely spots to be found, too, hidden away in the mountain ravines, luxuriant with their summer vegetation, rich in ferns and mosses, a choice field for the botanist.

The whole district is limestone formation, and lower down in the valleys there are many caves that are the show places of the neighbourhood, such as Clapham Cave, Yordas Cave, Weathercote and Victoria Caves; but the purpose of this article does not concern these, which, although charming in their way, are easy of access and well known.

In a short article of this nature it is impossible to describe even a small number of these "pot-holes," but I can find space to describe the descent of one of them, which will serve to give some idea of what "potting" is, and give a few general remarks about the appliances required successfully to overcome the obstacles that one is likely to meet with in undertaking such an enterprise.

Ribblehead is the station to which one should go as the centre of this subterranean wonderland: it is situated on the Midland line between Settle and Hawes, and has the dignity of one up and one down train stopping there morning and evening. It is a bleak-looking place, with hardly a tree to break the monotony of the rising uplands. There is no village; even to call it a hamlet would cast a halo of undeserved dignity on this desolate spot. West, about two miles down the road, which runs like a huge white ribbon through the dale, is the quaint hamlet of Chapel-le-Dale, with a pretty old-fashioned church and a justly celebrated "pot," called Weathercote. Here one can find a lodging at the Hill Top Inn, but let not the party be a large one, for I believe four (if as many)

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is the utmost capacity of this moorland caravanserai.

East, again, of Ribbleshead station, about one and a half miles up the dale, is an inn called Gearstones, standing lonely and bare on the barren fells. Here a party of similar numerical strength could perhaps find accommodation; the food at both these inns is good and plain, and I warrant that men spending their day in the open on these wind-blown uplands will not cavil at the fare put before them when they return tired and weary from a hard day's "potting" or hill-climbing.

The natives on these moors had quite a

superstitious regard for these mysterious pot-holes, and till quite recently firmly believed them to be unfathomable; and many were the tales told in the evenings round the peat-fires of the lonely homesteads that dot the dales, of "boggerts" and "dogs wi' saucer een" that inhabited their unknown depths. There is a doggerel known to every dalesman, which goes to show how convinced they were that no one could ever find their bottom—

"Hull pot and Hell pot,
Jingle pot and Joggle pot;
The one has no bottom,
And t'other's deeper still."

Alum pot, or, as it is most commonly called, Hell pot, is the largest and most picturesque "pot" in the district, it lies about half a mile off the road between Ribbleshead and Settle, near the hamlet of Horton, some five miles from the former place; and for the purpose of this article, a short description of the descent of this "pot" will serve to roughly show what are the difficulties to be met with in undertaking this form of "sport."

During the construction of the Settle and

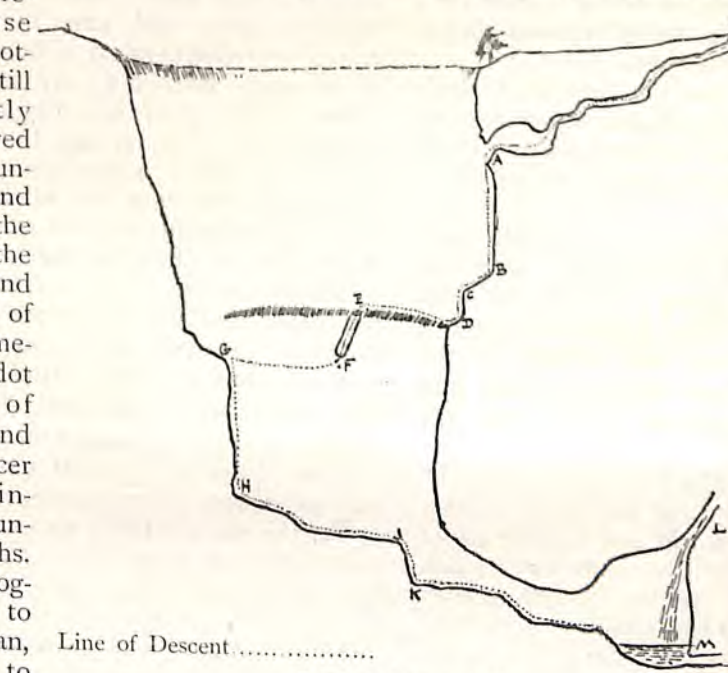
Carlisle lines, as it was then called, in the early seventies (the exact date I cannot give from memory), the presence of a large number of navvies induced the engineer of the line to attempt a descent, and this was accomplished by throwing across the yawning abyss two huge wood baulks, on which a windlass was placed, and the descent made in baskets.

As to whether the actual bottom was reached or not, I have never learned. The diagram shown will perhaps explain what I mean, for without extra laddering or appliances it would have been impossible for the party to have descended farther than

the platform HJ. When the writer descended this "pot," some five years ago, the *modus operandi* was as follows:—

A small subterranean water-course, called Long Churn, was entered at the point X, where the limestone rocks forming the roof of this under-world channel had given way, some quarter of a mile higher up the side of Ingleboro mountain. From here the party, equipped

with portable ladders, etc., made their way, following down-stream to the point marked A on the diagram, an extremely interesting little journey in itself, full of difficulties and dangers *in petto*. At A the ladders were fastened together to reach B, and a man left at A to await the return of the party (a lonely job, necessitating many weary hours' waiting in the dark). After the descent had been made to B, the ladders were lowered down and again used for the short distance CD. From here the party had the slightly dangerous task of working their way round on a ledge of rock to the point E. From E to F the route lay across the chasm, by means of a natural bridge formed by a huge stone that had fallen in some prehistoric age across the gulf. This bridge is not comfortable, for



the angle is very steep, and one has an easy chance of falling on the one side a distance of sixty feet, and on the other a distance of one hundred.

The distance F to G is the ledge of the cavern opposite to ED, and from G the ladders were again used to reach H, another man being left at G to await the return of the party.

After a downward scramble from H to J, the ladders were used for the last time for the distance JK. Here you lose the sight of day, and ultimately reach a fair-sized cave, where there is a fine cascade seemingly falling from the roof. This is the end of the journey, farther progress being barred by a lake, from which the water syphons underground to the river Ribble.

The depth of this pot is about three hundred feet, and the journey down and up again, with the time required to get there and back from your inn, will occupy you a full day.

Looking up from the bottom of this "pot-hole," the sight is most weird, with the hanging bridge far above you, and the sides of the chasm in the sheltered parts a dainty green of ferns and mosses, in the exposed portion cruel-looking, black, and grey, seemingly stretching up to the very heavens.

If you have the good fortune to reach the bottom by noon, when the sun pours directly down the orifice, you will see a sight never to be forgotten; for the numerous small cascades falling from the top, broken as they are in their fall into the smallest rain, have then the appearance of one huge ever-changing rainbow filling the interior.

This "pot-hole" has been descended by but few, and certainly not more than twenty have ever reached the bottom.

The writer himself made three distinct attempts before succeeding in so doing.

This is but a sample of the many "pot-holes," all varying in depth from one hundred and fifty to three hundred feet, with which the sides of Ingleboro are covered. Another equally well-known pot-hole is Gaping Gill, which was descended for the first time five years ago by a Frenchman, who came over specially equipped for the purpose.

Many of these pots, too, are very difficult to find on the open fell, and I mind me now of one on the western slope of Ingleboro, which is no more than a small slit in the ground, some two feet wide by four long, which, however, I have plumbed to one hundred and fifty

feet, and descended some way. The shape is that of an inverted umbrella, widening every foot you descend, and with its receding walls, finding foothold impossible, I was never able to conquer it.

The number of these "pots" is legion, but a six-mile radius from Chapel-le-Dale will embrace practically all of them.

That they are little known goes without saying, for even if you descended to the village of Ingleton, some four miles away, I doubt if you could find four people who could direct you to the multitude of lesser-known ones.

Besides these "pot-holes" proper, there are a multitude of caverns that can be safely entered, and many miles of subterranean water-channels that can be traversed by those who don't mind a thorough wetting. It is quite useless to try and enumerate them—these pot-holes, caves, and water-courses; the best, in fact the only possible guides to these mysterious spots are the herdsmen who tend the flocks on the hill-sides, and who can be most easily met with at the hamlet of Chapel-le-Dale.

The writer has descended several of these pot-holes, and in every case their form is different; in every case you require nerve and ingenuity in surmounting the difficulties that face you. You never know what to expect; you never know how deep you may have to descend, or what obstructions you may meet with on your road.

For the sake of those who might be willing to attempt this healthy and exciting sport, I will, as an old caver, give a few necessary hints.

The principal thing in making descents of pot-holes is to go as much as possible during a spell of dry weather; you will thus avoid a superfluous amount of water, which, after rainy weather, may be sufficiently formidable to prevent you successfully finishing your task. Again, *never* make descents when the weather is unsettled. This is a most solemn warning; for the hill-sides being simply a sponge of small subterranean watercourses, a cloud-burst on the fells rapidly fills them, and they in turn fill the pots with a speed that is simply marvellous; any one unfortunate enough to be caught in one of these places at such a time would be caught like a rat in a trap, and drowned for a certainty without the least chance of rescue. I have known a half-hour suffice to fill these courses to overflowing when there has been a sharp rainfall.

Go as lightly clad as possible; your exertion will keep you warm; a flannel vest

and trousers are enough. Also use india-rubber-soled shoes; they are safer on the hard, slippery rocks than leather.

You should, however, have a good helmet or head-gear of some sort to protect your head; one of the greatest dangers is the falling of rocks, which, displaced by perhaps some of your party above or from natural causes, may crash down upon you. Your ladders should be as light as possible, steel wire, made in sections of say fifteen to twenty feet, which can be coupled together; your body ropes require to be well tested before you trust yourself to them.

You also require for your matches an indiarubber covering to prevent the water reaching them, or you may find yourself in the predicament of being left in the dark and unable to proceed with safety either backwards or forwards. It is a most horrible feeling to be in those lonely depths without light, not knowing where to move to or how you can effect your escape.

I have experienced it, and know.

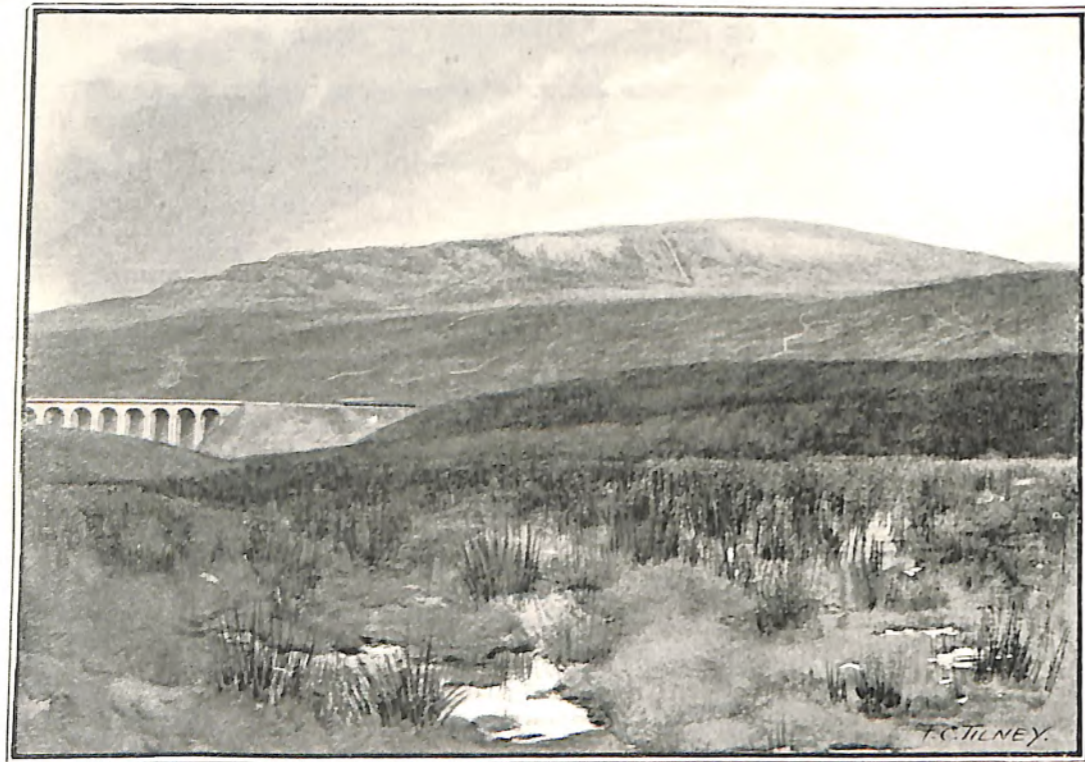
In conclusion, I may say there is work enough to give an active man occupation for a year if he would descend all these unknown depths. Healthy? There is nothing like it! The fresh breeze blows into these upland dales straight from the sea, which is plainly visible, in fine weather, some thirty miles away. The sport is exciting enough to satisfy the cravings for novelty of the most inveterate seeker after the unknown, and, carefully conducted, there should be little danger; just danger enough, however, to give that spice to pleasure that every healthy Anglo-Saxon loves.

Here is a field for you, you big-limbed Britons, a field to conquer! And after the hard day's work is done, and a good dinner eaten, to sit round the fire, and listen to the old folklore tales told by these weather-beaten dalesmen—I know nothing finer, nothing quainter, nothing more healthy.

As I write, I long again to try and conquer more of your hidden wonders, O dales! but, alas! I write from a foreign land.



Source of Ribble. Wold Fell.



WHERN SIDE



Crossing Ribbleshead Viaduct
(L.M. & S.F.R.)

J. M. Tomlinson
Poulton-le-Fylde

Pot is a lofty, wide chamber. From one side of this a stream issues and plunges into a deep basin. In this chamber all the waters of the Pot are blended in a "quiet, circling pool," at a depth of 300 feet from the surface; and beyond that their course is hidden from the eye of man.

In 1870, under the guidance of Mr. Birkbeck, another exploration was made. Professor Boyd Dawkins was one of the party of thirteen (which included three ladies) who then descended the Pot. The Professor's account of this descent and his description of the Pot form one of the most interesting chapters in his *Cave-Hunting*. We cannot do better than quote some of his words.—

"The floor of the pot and the cave was strewn with masses of limestone rounded by the action of the streams, and the water-channels were smoothed, and grooved, and polished, in a most extraordinary way, by the silt and stones carried along by the current. Some of the layers of limestone were jet-black, and others were of light fawn-colour, and as the strata were nearly horizontal, the alternation of colours gave a peculiarly striking effect to the walls. Beneath each waterfall was a pool, more or less deep, and here and there in the bed of the stream were holes drilled in the rock by stones whirled round by the force of the water. High up, out of the present reach of the water, were old channels which had evidently been watercourses before the pot and cave had been cut down to their present level. In the sides of the pot there are two vertical grooves reaching very nearly from the top to the bottom, which are unmistakably the work of ancient waterfalls. There was no stalactite, but everywhere the water was wearing away the rock and enlarging the cave."*

Leaving Hellen Pot we again make for the village, turn to the left, and keep along the road until we reach Ribbleshead Station. When we enter the Ingleton-Hawes road we turn to the right and another mile brings us to Gearstones Inn. If we cannot give

* *Cave Hunting*, p. 45.