

EAST MIDLANDS GEOLOGICAL SOCIETY

EXCURSION REPORTS, 1964

THE DUDLEY CANAL TUNNEL AND MINES, WORCESTERSHIRE

(Inaugural Excursion held jointly with the Peak District Mines Historical Society and the Swinnerton Geological Society, University of Nottingham).

Leader: Dr. W. A. S. Sarjeant

Sunday, 8th March 1964

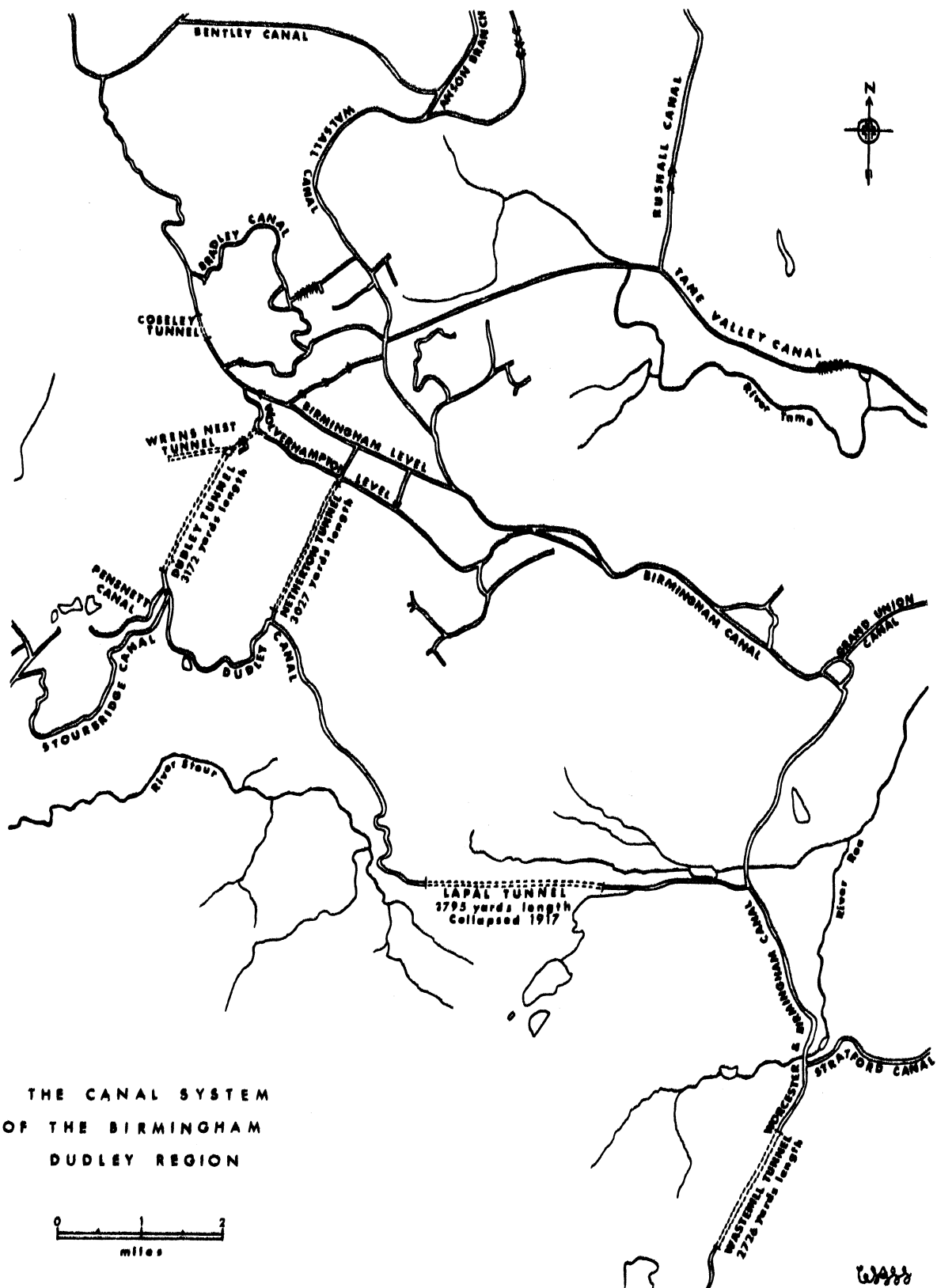
The twin hills of Dudley, Castle Hill and Wren's Nest Hill, are among the most famous of geological localities. They comprise two periclinal folds, formed of Silurian limestone and shales, surrounded by an unconformable cover of Middle Coal Measures; as such, they have for long been extensively quarried as a source of lime, the lime being used as a flux in the ironworks of the Black Country. The limestones are richly fossiliferous, one trilobite, *Calymene blumenbachi*, occurring in such numbers as to be known as the "Dudley locust". A flourishing sideline among nineteenth-century quarrymen was the sale of fossils to collectors: complete trilobites fetched a better price than mere headshields or pygidia, and the writer has seen specimens in which a wholly artificial body has been carved and added to render a headshield more saleable!

In 1769, the Birmingham Canal, surveyed by James Brindley, was cut, passing Dudley on the north side. An extension was constructed to the limestone mines and collieries of Dudley Castle Hill by their owner, the Earl of Dudley: this involved the building of two short tunnels (Tipton Tunnel and Castle Mill Tunnel) leading to a Canal basin where boats were loaded. In 1779, a second canal was built from Park Head, south west of Dudley, to Black Delph to link up with the Stourbridge Canal and to form an alternative outlet for locally-produced iron ore and limestone.

In 1784, the proposal was made that these two canals should be joined by the building of a canal tunnel, the idea being to short-circuit the journey from Park Head to Birmingham, which at that time involved a lengthy circuit through Stourbridge and Wolverhampton via the Staffordshire and Worcestershire Canal. The necessary Act of Parliament was passed in 1785, John Pinkerton being appointed contractor and Abraham Lees, chief engineer. By the next year, engineering difficulties necessitated a re-survey, which was duly made by Thomas Dadford, a leading engineer of his day. Even this second survey did not prove satisfactory, errors being made in the driving headings, and a third survey was made by Lees, in association with one Richard Aston. Josiah Clowes, a Cirencester engineer, was called in to take charge of the completion of the work and the work was finished in January, 1792, despite that fact that Messrs. Brown and Green, who replaced Pinkerton as contractors, had in the meantime gone bankrupt. The original junction from Castle Mill to the Birmingham Canal was found unsatisfactory, so a shorter waterway was cut: with its opening on 6th March, 1792, the Dudley Canal Tunnel was completed. The length of the tunnel itself is 3,142 yards: its waterline width is generally 8 ft. 5 in., with a headroom of 5 ft. 9 in. (See Text-figs. 1 and 2).

Josiah Clowes was associated with the construction of all four of Britain's longest canal tunnels - the Standedge Tunnel (3 miles 158 yards); the Sapperton Tunnel (2½ miles); the Lapal Tunnel (2¼ miles); and the Dudley Tunnel (1¾ miles). The first three of these are now no longer navigable.

The Dudley Tunnel continued in active use, both as a through route and as an outlet for



THE CANAL SYSTEM
OF THE BIRMINGHAM
DUDLEY REGION



FIG. 1

WASS

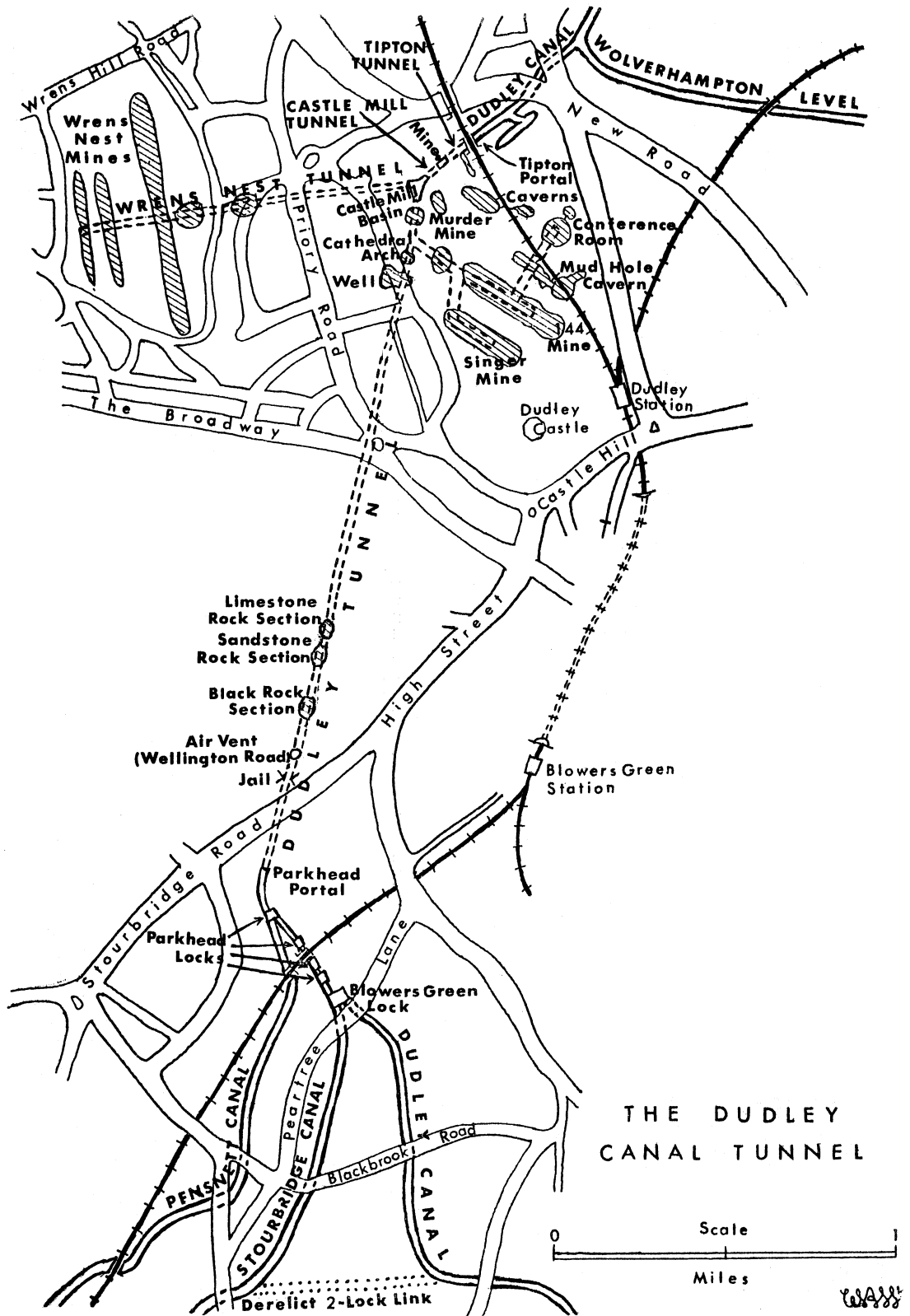


FIG. 2

local mineral products, for over 150 years. In 1845, the great Scottish geologist, Hugh Miller, visited Dudley Castle Hill and comments in his "First Impressions of England and its People":-

"The recesses of the hill, like those of the Wren's Nest, are threaded by a subterranean canal, which, in passing under the excavation of an ancient quarry, opens to the light; and so in a thickly wooded walk, profoundly solitary, when one is least thinking of the possibility of such a thing, one comes full upon a wide and very deep chasm, overhung by trees, the bottom of which is occupied by a dark basin, crowded by boats. We may mark the boatmen emerging from out the darkness by one chasm, and re-entering it by another."

The tunnel continued in use till 1950, the last boats regularly using it being those of the Harts Hill Iron Co. Its closure was threatened in 1960, but temporarily staved off by a mass cruise through by over 50 boats, organised by various canal associations. The threat was renewed in 1963: it was proposed that the railway viaduct over the Tipton portal be replaced by an embankment, construction of which would block the tunnel entrance.

A society, the Dudley Tunnel Preservation Society, was hastily formed to combat this threat. Following a broadcast by the author on the formation of the East Midlands Geological Society, the Secretary of the Preservation Society, Mr. Richard G. Amott, wrote to invite any interested geologists to visit the tunnel while it remained open. In view of its historical interest and of the fact that it affords a section, albeit incompletely visible, through the rocks of the Dudley anticline, a visit seemed well worth while. The tunnel was due to be blocked in April: an excursion, to be held jointly with the Peak District Mines Historical Society and the Swinnerton Geological Society of Nottingham University, was fixed for Sunday, 8th March.

Over 80 members of the East Midlands Geological Society attended this first excursion, joining some 30 members of the other participating Societies at Tipton Green bridge (Ordnance Survey One-Inch Sheet 131, grid reference 951918). Here the party boarded two narrow boats for the journey through the tunnel. The boat was poled to the northern (Tipton) portal: progress through the tunnels was by legging, bow hawlers and leggers being provided by the Dudley Society under the charge of its red-bearded Chairman, Dr. John Fletcher.

The first short section, the Tipton Tunnel, opens into a small basin which connected with the Earl of Dudley's Tipton Colliery: few traces remain of the latter. This section of the tunnel is extremely shallow: the narrow boats were therefore of extremely shallow draught. A second short section, the Castle Mill Tunnel, leads through into Castle Mill Basin, an open basin surrounded on three sides by cliffs of Lower Wenlock Limestone. On the west side of the basin is the entry to the tributary Wren's Nest Tunnel, 1,227 yards long, which formerly led through to an extensive system of limestone workings under Wren's Nest Hill, but which is now impassable. Entries to two limestone mines are seen on the eastern side of the basin.

The boats crossed the Basin to enter the Dudley Tunnel proper, on the south side. The greater part of the Tunnel is brick-lined, particularly its southern section where it traverses Coal Measures rocks otherwise too insecure for bargees' comfort: but in the northern section there are a number of unbricked portions exposing Silurian limestones, often coated by stalactic flow, where hammers were busy. The canal passes through a number of small caves, one of which, "The Well", affords a glimpse of daylight overhead. At the "Cathedral Arch", the canal is joined from the east by a tributary canal leading into the extensive limestone mines under Castle Hill: although now partially blocked by roof falls, this is still traversible. Towards its southern end, the tunnel passes through its narrowest section, "The Jail" (7 ft. wide): shortly after, the tunnel ends above Park Head Locks.

Here the party dispersed for lunch. Afterwards, a rather more hilarious return journey was

THE GEOLOGY OF
CASTLE HILL AND WRENS
NEST HILL, DUDLEY

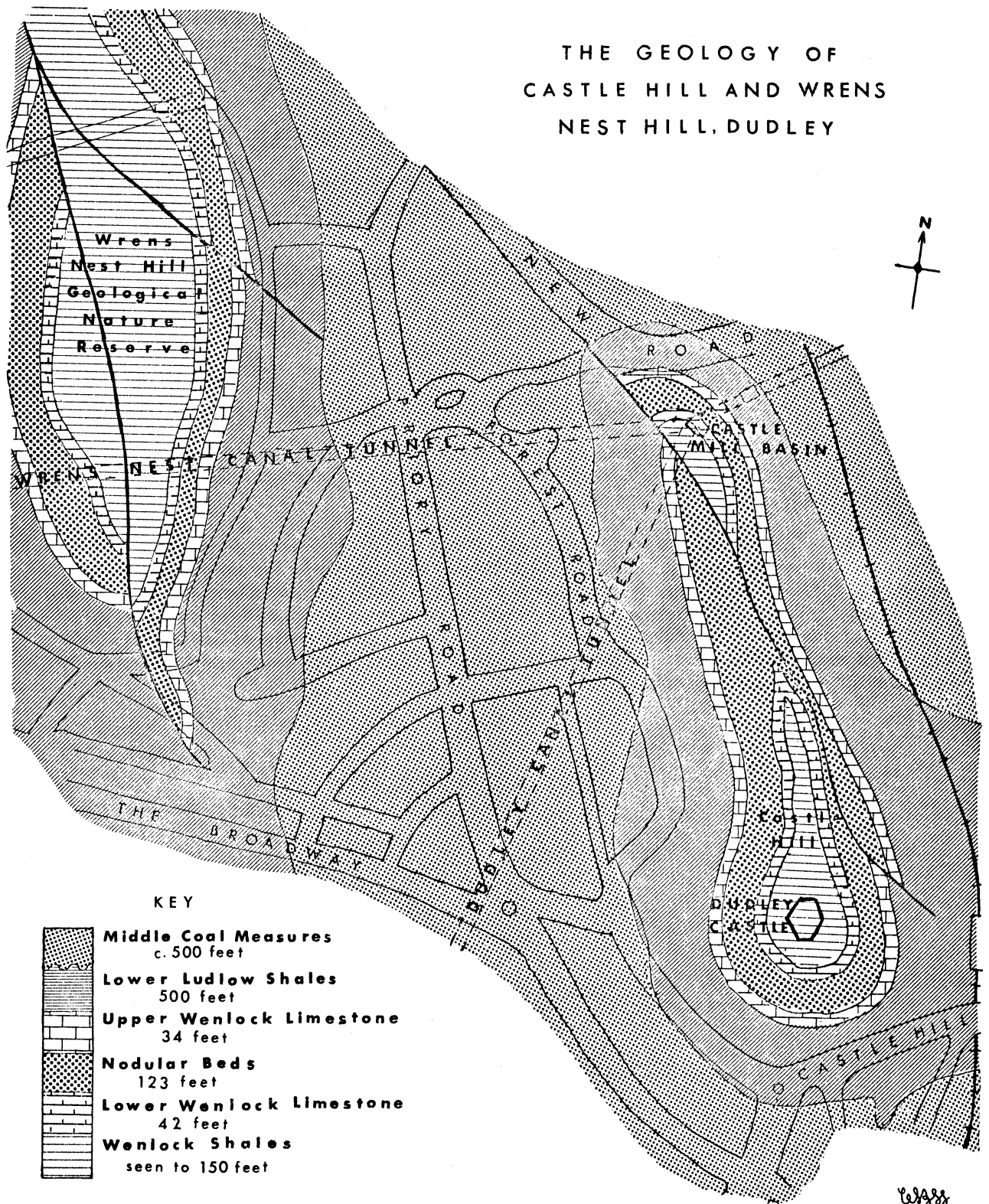


FIG. 3

made, some members attempting community singing and even trying "legging". At Castle Mill Basin, the narrow boats were left for a while and the party climbed the hill to examine exposures of Wenlock Shale and Limestone. Some members made the descent of "144" Cavern: others examined the overgrown quarries. (The geology is shown in Text-fig. 3). A large number of fossils were collected, courteously identified by Drs. F.M. Taylor and I. D. Sutton as follows:-

Tabulate corals - Favosites gothlandicus, Palaeofavosites asper, Thecia swinderniana, Coenites linearis, C. seriatopora, C. juniperinus, Heliolites intertextus, Alveolites sp., Syringopora reticularis, and the chain corals Halysites catenularius, Cystihalysites westwoodensis, C. blakewayensis, and Schedohalysites sp.

Rugose corals Phaulactis cyathophylloides and Ketophyllum sp.

Stromatoporoids

Trilobites - Calymene blumenbachi and Dalmanites sp.

Brachiopods - Atrypa reticularis and Leptaena rhomboidalis

The party then rejoined the boats and ultimately disembarked again in dwindling light at Tipton Green Bridge, the E.M.G.S. component travelling straight back to Nottingham after a most unusual inaugural excursion.

The attempt to preserve the Tunnel has met with a fair measure of success, as a result of the efforts of the Preservation Society. Formation of a company is proposed with the aim of developing the tunnel commercially: this would be under the patronage of the Earl of Dudley and would have the name "Dudley Canal Company Ltd.", like its 1774 predecessor. Negotiations are in progress with British Waterways, with the aim of acquiring the lease of the Canal and Tunnel: but, owing to the recent change of Government, these negotiations remain uncompleted. At the time of writing, the Tipton portal remains open: but the future of the Dudley Tunnel remains uncertain.

W.A.S.S.

References

- BUTLER, A. J. 1939. The stratigraphy of the Wenlock Limestone of Dudley. Quart. J. Geol. Soc. London, vol. 95, pp. 37 - 74, pl. 3, text-figs. 1 - 10.
- GITTINGS, J. M. 1964. The Dudley Tunnel. Warwickshire & Worcestershire Countryside, October Number, pp. 58 - 61, 4 text-figs.



Fig. 1. East Midlands Geological Society, inaugural excursion to the Dudley Canal Tunnel. The first of the narrow boats is here seen approaching the Tipton portal. Closure at the tunnel has been threatened, as a result of proposed replacement of the railway bridge by an embankment.

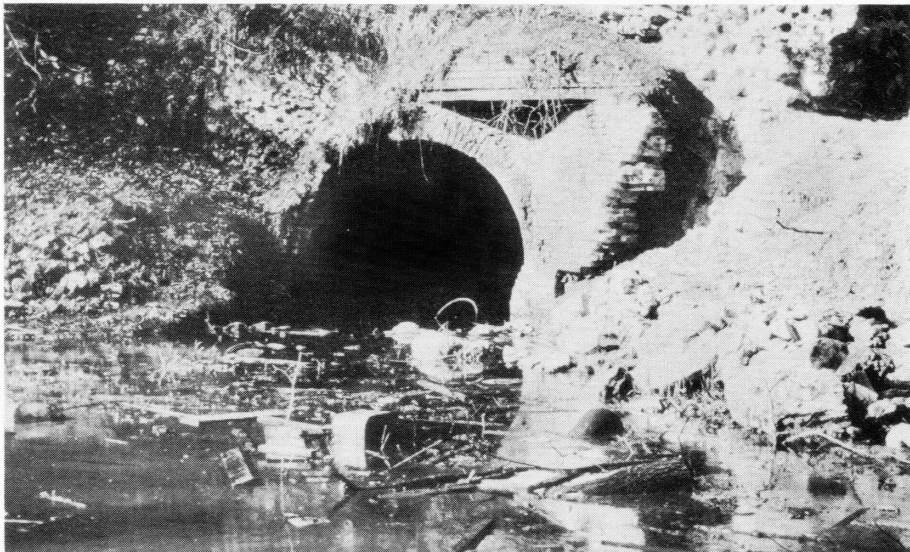


Fig. 2. The entrance to the Wren's Nest Tunnel in Castle Mill Basin. This tunnel, now blocked, formerly led to an extensive series of limestone mines. An exposure of Lower Wenlock Limestone is seen at right.

Photos: W. A. S. Sarjeant