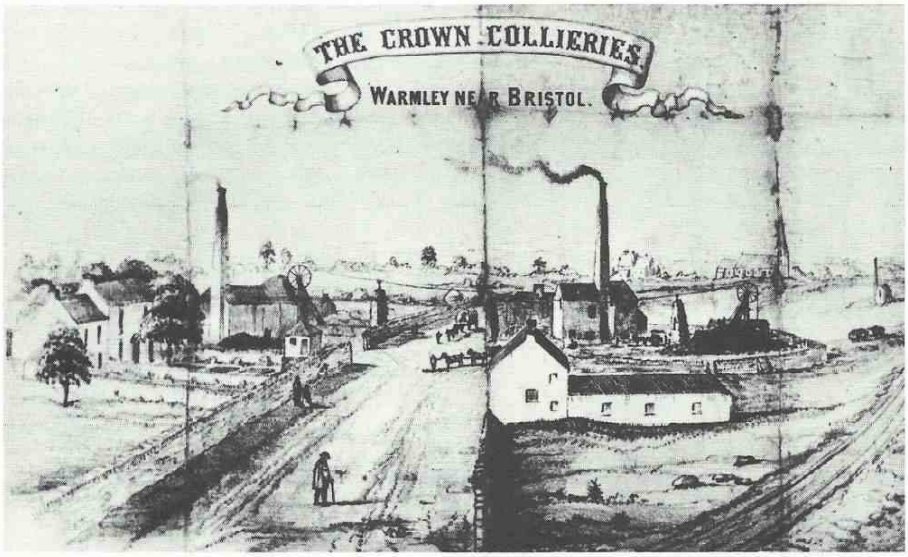
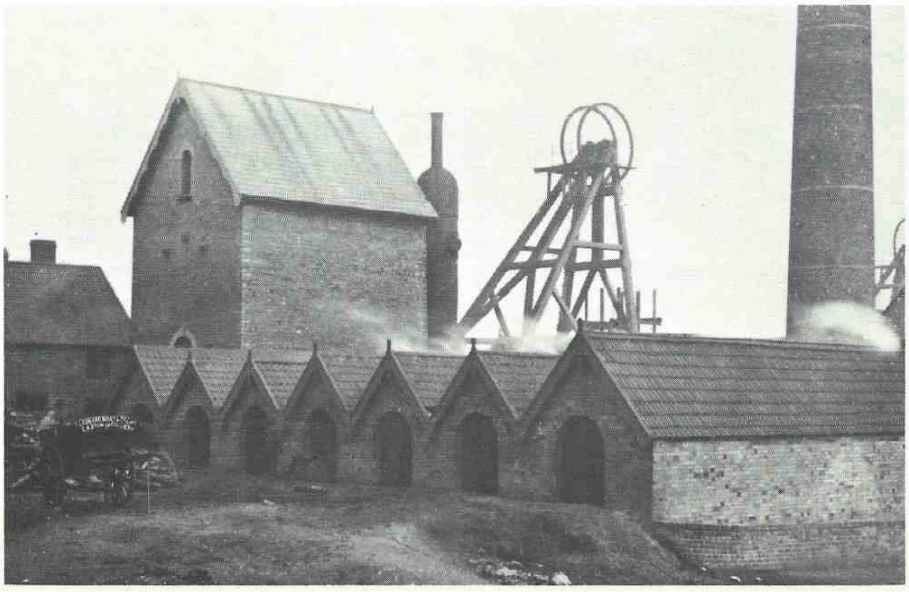


WARMLEY COLLIERIES
A nineteenth century print showing a group of collieries with Warmley Church in the background (right)



A BRISTOL COLLIERY
A photograph from early in the present century showing wooden headstocks, circular chimney, boiler sheds, and a wagon with a nameboard: "Leonard Boult & Co. Ltd. – Easton Colliery – 29"
(Photo: Bristol City Museum)

KINGSWOOD COAL

by M.J.H. Southway

In this, the first of two articles, the author examines the history and industrial archaeology of the southern half of the Bristol coalfield.

Before the Industrial Revolution

The first mention of coal working in the Royal Hunting Forest of Kingswood occurs in the Great Pipe Roll of 1228. Five years later the area was largely disafforested, but over 4,000 acres remained as a Chase. This Chase was attached to Barton Regis Hundred, but when the latter was sold by the Crown in 1564 the Chase was not mentioned in the Deeds. It consequently became a very tempting prize, as the area contained some of the best coal veins, hitherto only worked under licence from the Crown, but now in dispute.

The local Lords of the Manors, Chester, Player, Newton, Lord Stafford, the Berkeleys, Langley and Weston, made a planned carve-up between themselves, and began to encroach and set up their own meare stones as boundaries. A complaint in 1615 reads "Claymes do swallow up the whole forest, not allowing His Majestie the breadth of a foote, the timber, wood, bushes, soyle, coal mines and all other proffites altogether carryed from his Majestie by unknown rights. His Majestie is only allowed herbiage for his deere".

The map of 1610 reproduced in Ellacombe and Braine shows great open spaces with very few houses intervening, but the later map of 1672, whilst not the best example of the cartographer's art, shows the pretended Liberties in great detail, with vast numbers of coal pits, houses and cottages. Sir Baynham Throckmorton, the king's Commissioner, had a 60 year lease of the Chase and restocked it with 500 deer, but in a writ dated 1681 he complained "The said Lords of the Manors against whom this decree is made, having in the time of the late war (the Civil War) made a division of the said Chase amongst themselves, and called them Liberties after their own names, and afterwards on such their pretended Liberties built houses and cottages above 300, and enclosed 1000 acres of ground and made 2000 cole pits and other pits, and have thereby spoil 500 acres of ground, and by means of these cottages inhabiting the said Chase there are 1000 horses yearly kept therein by them which have right of common".

Francis Creswicke of Hanham Abbots bought out the lease from Sir Baynham Throckmorton's daughter, but in 1718 he wrote "Sir John Newton, Mr. Berkeley, Mr. Chester and Mr. Player are soe related to several great families of ye County that noe Peer can cope with them - (The Chase) 'tis now utterly destroyed and not possible to be restored". It is worth noting that Mr. Chester's brother~in-law was Chancellor of the Exchequer!

The culprits could produce no patents or proof to establish title, but hid behind the Act of Indemnity of 1660 which pardoned all Civil War transgressors, and by 1691 Sir John Newton was already granting leases of from seven to 21 years duration, to companies of "Adventurers" to work the coal on his claims. Lords Rent varied from 2s6d to 4s per 20s worth of coal raised, and an interesting and worthy stipulation was that "When pittes are fully wrought out, they shall be filled up, and the ground levelled, without prejudice to Draines or Gouts". Would that a similar requirement had been attached to every lease or licence and continually enforced. We should have been spared many ugly eyesores of our own times.

Finally, in 1734, Onesiphorous Tyndall (of Tyndall's Park) obtained a lease of the Chase from the Crown, and attempted to enforce it by persuading the existing small lessees and tenants that they were being exploited, and offering them new cut-price leases in his own name. He also attempted physical dispossession of the Lords' site agents. It is most amusing to read of the righteous indignation with which the original pirate Lords condemned these intrusions, but though legal proceedings dragged on for years, with some of the Lords hiding behind the skirts of Mrs. Archer, Sir John Newton's daughter and heir, and leaving her to defend all their interests, Tyndall was finally unsuccessful.

Mr. Player's Manors

The 1750 "Plan of Mr. Players Manors, and those of Sir John Newtons", also produced in Ellacombe's History of Bitton, shows over 10 miles of "Levels" which had been tunnelled by that time to drain their Kingswood pits into the Warmley and Strad brooks, and a further 10-15 miles were excavated by 1820 to drain the Duke of Beaufort's workings into the Combe brook and thence to the river Froom, and to drain the workings of Whittuck, Newton and others into the river Avon. The centre of Kingswood Hill stands at over 360 ft. above Ordnance Datum, and the mouths of the Levels were at about 60-90 ft. A.O.D. As the Levels only required a fall of 1 in 720, or just over seven feet per mile, it was possible to sink a shaft in the high ground to a depth of 250 ft. or more, and still drain the workings, or a whole string of "Gin pits" could be sunk along the line of a Level and easily drained in this way. Player's map clearly shows this.

Where deeper pits were sunk in lower ground the pits were drained first by "Horse Whimsey" to raise the water and later by "Fire Engines". Donn's 1769 map of 11 miles around Bristol shows two Fire Engines at Hanham, one at Two Mile Hill, and two between Lodge Hill and Staple Hill, and a very intriguing correspondence of 1724, included in the Newton Barrs Court papers in G.R.O. refers to "a nue Ingen to be worked with oute Horses Drahing of it", and a reference to a "patterne" or patent being applied for. Then in 1741, the partners in the Clink Close coalworks in Bitton parish agreed to have their "ffire Engine" valued.

Player's 1750 plan includes a number of sites of coal workings away from the Levels, and as the scale and positioning are of reasonable accuracy, it is possible to lay these, suitably adjusted for scale, on to a modern 6 inch scale O.S. map, marrying up with known sites and projecting the others. Indeed, the late Lands Commission seems to have adopted this method on their own revised O.S. Maps.

We can therefore locate **Peacocks** at ST657732, **Flashaway** at ST663739 and **Isaac Smiths** at ST665737, the latter being confirmed in the recent construction of the new 6th Form Science Room at Kingsfield School when the foundation concrete disappeared and turned up later in storm water drains, etc. From these locations we can project **Josias Jefferies Work** at ST661732, **Charles Jones'** at ST655730 adjacent to the later **Gee Moor** pits, and Owls Head Works around ST652730, completely vanished now.

These were of course "first generation" workings, and were followed by the second generation workings such as those shown on the maps of around 1790/1810 prepared by Sturge and others for the Duke of Beaufort and now in G.R.O. and Bristol Archives. These include **Tylers** (later **Deep Pit**) at ST626746, and its drainage shaft **Cottles Engine Pit** at ST626748, together with **Starveall Engine Pit** (later **Speedwell Pit**) at ST632744, **Donkham** or **Duncombe** at ST636745 and **Deep Pit** (later **Belgium Pit**) at ST635743. Associated pits were **Holly Bush** at ST628745, **Fudges** at ST624749, **Ragg** at ST631746, **Reubens** at ST633745, **Doctors** ST634746 **Pearces** ST637745, **Kitts** ST638743, **Smiths, Parsons** and a number of unnamed and "Level" shafts.

The territory to the south of the Combe brook, now corresponding with the south east Bristol ward, was held by the Chester and Chester-Master families, and that to the north of Combe brook, now corresponding with the north east Bristol ward, was held by the Berkeley/Botetourt/Beaufort dynasty, but the area immediately to the south of the brook was leased by the latter from 1764 onwards. In 1822 it was subleased to F. Falkner, Aaron Brain, William Brain and Moses Brain. They obtained a further lease in 1826 direct from Lord Thynne, who was trustee for the Chester-Master family. In 1839, we read, "Brain and Company's pit at Kingswood was drowned out" but it was certainly at work in 1854.

The era of Handel Cossham

The next lease was from William Chester-Master to Cossham, Wethered and Brain in 1863, as the firm of Wethered, Cossham and Wethered were developing the separate collieries of Speedwell and Deep Pit from 1861 onwards, and in 1867 floated their new Kingswood Coal and Iron Company with Cossham and Wethered as Directors, and obtained a further lease from Wm. Chester-Master. Then in 1875, Handel Cossham, the erstwhile colliery clerk who largely taught himself geology and mining engineering and married his employer's daughter, bought out the Lordship of the Manor and the freehold of the minerals of St. George, together with the Lordship of the Manor and mining properties of the Duke of Beaufort in Stapleton. In 1879 he bought out the Wethered family and formed a limited company, The Kingswood and Parkfield Colliery Company Ltd., in which a minority shareholding was held by C.S. Wills, son of H.O. Wills, and by senior members of Cossham's staff.

Intensive development then took place at **Speedwell**, and by driving a new cross measure to the north in workings supposed to be exhausted, Cossham found an entirely new unworked series which proved most productive. In all he listed 45 seams with an aggregate thickness of 90 ft. throughout the 7000-8000 ft. thickness of the carboniferous formation. Cossham had a highly developed intuitive sense for coal, and we read that after his death in 1889 the gravediggers preparing for his burial at Avon View cemetery, St. George, struck a coal seam there, so he may be said to be buried in coal! He was a great philanthropist, and left instructions in his will that his mining properties should be sold and the proceeds used to build a hospital for the working people of East Bristol and South Gloucestershire, who were of course largely miners' families. It was not until 1900 that his estate was finally sorted out and the properties put up for sale.

Five shafts were in use at that time, **Speedwell** and **Deep Pit** for winding, **Belgium** for ventilation and **Donkham** and **Cottles Engine** for drainage. The seams being worked were Five Coals (3 ft. 6 ins. at 335 yds.) Kingswood Great (4 ft 6 ins. at 367 yds) and the Two Foot (1 ft. 10 ins. at 400 yds.). The mineral area totalled 1600 acres. **Speedwell** had a twin double-acting horizontal steam winder, 30 ins. diameter x 48 ins. stroke with a 14 ft. diameter winding drum with steam brake. The headstock was of pitchpine with two 10 ft. diameter wheels. An old man, one-time maintenance engineer at **Speedwell**, told me that some very old pumping equipment still remained in the upper levels, and he had often wondered at its purpose. This was no doubt the original pump of the early **Starveall Engine** pit.

Deep Pit also had a twin double-acting horizontal D winding engine 30 ins. diameter x 60 ins. stroke, 16 ft. winding drum, pitchpine headstock 30 ft. high with two 13 ft diameter wheels. Cottles had a 3 valve

Cornish beam pumping engine with cylinder 56¾ in diameter x 7 ft. 9 ins. stroke and a 12 in. diameter pump lifting 65 fathoms and an 11 in. diameter plunger pump for a further 35 fathoms.

Donkham had a double-acting vertical engine 26⅝ ins. diameter x 8 ft. stroke. Its lift pump was 10⅞ ins. diameter for 40 fathoms and plunger pump 14 ins. diameter 30 fathoms. It should be appreciated that these two pumping engines, **Cottles** and **Donkham**, did not lift to the surface, but to a branch of the Combe Brook level some 150 ft. down. Ventilation was provided by a Capel fan with 7 ft. diameter inlet, driven by a twin marine type vertical engine 14 ins. x 14 ins. with 6 ft. diameter flywheel, together with a Schiele fan driven by a horizontal engine 14 ins. x 30 ins. stroke, also with a 6 ft. diameter flywheel. Much of the underground machinery was driven by compressed air supplied from a pair of horizontal air compressors 36 ins. diameter x 60 ins. stroke with 40 ins. diameter air cylinders.

The colliery was very well equipped with blacksmith's shop, fitting shop, sawmill, wheelwright's shop, carpenter's shop and saddler's shop. Screens and washeries graded the coal, and the slurry from the washeries was fed, after draining, into a battery of 24 coke ovens for conversion into blast-furnace coke for sale to the South Wales ironworks. Two Fox-Walker 6-wheel coupled locomotives with 3 ft. 6 ins. diameter wheels dealt with rail transport on the private branch line complex down to Kingswood Junction at Whitehall on the Midland line. They were "Speedwell" with 12 ins. x 20 ins. cylinders, and "Mayflower" with 13 ins. x 20 ins. cylinders. Incidentally, the Fox-Walker works adjoined **Deep Pit** and paid an annual fee for running rights over the branch railway line. Six hundred men were employed in 1899 and they raised 77,000 tons from **Deep Pit** and 54,000 tons from **Speedwell** during that year, mostly steam coal. This was actually much less than in peak years during Cossham's lifetime.

Twentieth Century Troubles

The colliery was purchased by a new company, The Bedminster, Easton, Kingswood and Parkfield Collieries Ltd., who also owned the **Hanham Colliery** at that time. Their head office was at first at **Easton Colliery**, but after closure of those pits in 1911 in a period of labour troubles, the management moved to **Speedwell**. Labour troubles continued and the writer can well remember, as a boy, seeing the striking pitmen in procession down through Lawrence Hill with their candles in their caps. (The pits were mainly non-fiery). There was much local hardship, children going to school barefoot for lack of footwear and "feeding centres" being opened up in local drill-halls, etc., to provide a mid-day meal for the schoolchildren whose fathers were on strike. Education of the boys in local schools was slanted towards training them for working in the pits, and the writer has a strong recollection of general science lessons devoted to the "King Hook", a newly invented device to prevent overwind of the cage, a frequent source of disaster. The new invention had a double trigger mechanism to disconnect the cage suspension and lock the cage to the guide rails in the event of overwind. There were also lessons on "fire damp", methane or marsh gas, and "black damp" or "choke damp" carbon dioxide, together with many descriptions and demonstrations of the principle of the Miners' Safety Lamp.

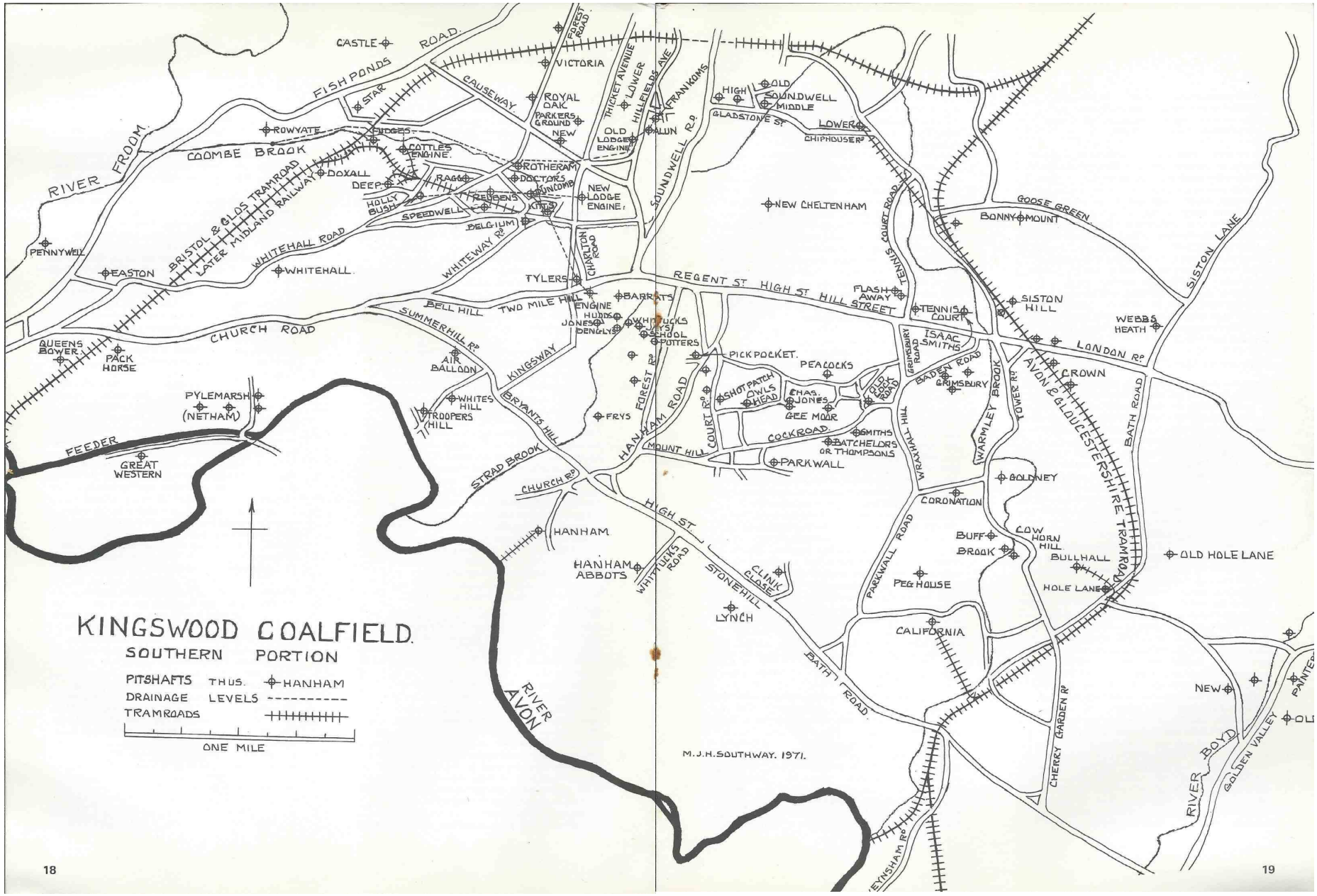
The general frustration and depression of the years just before the Great War culminated in the collieries again being put up for sale in 1914, but they were withdrawn at £28,000 and a new company floated, East Bristol Collieries Ltd. Following the Great War came another series of depressions from 1920 onwards, and **Hanham** finally closed in 1926. **Kingswood** struggled on through the depression of 1930, but finally succumbed in 1936 after a public subscription had been raised to keep it open and the men in employment. Various excuses were made, loss of seams by intervening faults, excess flooding, etc., but local management insisted that at least 100,000,000 tons remains unbroken, and that "Water is a secondary matter and could comfortably be dealt with".

The Duke of Beaufort's Mines

Now back to the Duke of Beaufort's other early workings. These included Joseph Frankcom's **Soundwell Deep** at ST644752, **Alun Pit** at ST644751, Thomas Newman's **Lower Pit** at ST642752, **Old Lodge Engine** at ST643749, which drained quite a large number of small adjacent workings, **New Lodge Engine** ST639745, **New Pit** ST638749 and **Rotheram** at ST635747, later worked by the Monk family. Then there was **Tyler's** at ST640739, which suffered a serious accident in 1753, when the workings were suddenly flooded by a torrent of water which trapped three men and a boy for ten days and nights. They were eventually rescued alive, but remained blinded for some days due to their stay in darkness, though their sight eventually returned.

It seems highly probable that it was as a result of this flooding that the Combe Brook level, or at least the south branch of it, was commenced. At all events, by 1769 a new shaft had been sunk just across the main Marshfield road at ST640738, and a beam pumping engine installed to drain the workings. This is clearly shown on Donn's 1769 map, and Rudder also tells us that "by 1779 the Duke of Beaufort's Pit at Two Mile Hill was 107 fathoms deep, and fire engines were in use for pumping out the water." The Duke of Beaufort's maps of 1790-1791 also confirm this shaft as "Two Mile Hill Engine Pit," and the 1803 map also shows coke ovens there.

In Chester's territory nearby were Barrett's pit at ST642738, Dengley's at ST642735, **Jones'** at ST641735 and **Hudd's** at ST642736, and just over the boundary in Whittuck's territory to the east, was a group including **Jays** or **Joys** at ST644735, **School**, also at ST644735, **Potter's** at ST645735 and **Pickpocket** at ST648733. All has ceased by 1893. Road widening


KINGSWOOD COALFIELD.
SOUTHERN PORTION
PITSHAFTS THUS. HANHAM
DRAINAGE LEVELS
TRAMROADS
ONE MILE
M.J.H.SOUTHWAY. 1971.
RIVER AVON
RIVER FROME
RIVER BOYD
CASTLE ROAD
FISH PONDS
CAUSEWAY
VICTORIA
ROYAL OAK
PARKERS GROUND
NEW
OLD LODGE ENGINE
THICKET AVENUE
LOWER HILLFIELDS AVE
FRANKOMS
ALUN
HIGH
OLD SOUNDWELL
MIDDLE SOUNDWELL
GLADSTONE ST
LOWER CHIPHOUSE Rd
SOUNDWELL R.D.
NEW CHELTENHAM
COURT ROAD
TENNIS COURT
GOOSE GREEN
BONNY MOUNT
SISTON LANE
SISTON HILL
WEBBS HEATH
LONDON Rd
CROWN
AVON & GLOUCESTERSHIRE TRAMROAD
BATH ROAD
ROWYATE
RIDGES
COOMBE BROOK
COTTLES ENGINE
DOXALL
DEEP
RAGG
ROTHERAM
DOCTORS
DUNCOMB
REUBENS
KITTYS
HOLLY BUSH
SPEEDWELL
NEW LODGE ENGINE
BELGIUM
BRISTOL & GLOS TRAMROAD
LATER MIDLAND RAILWAY
WHITEHALL ROAD
WHITEWAY Rd
CHARLTON ROAD
PENNYWELL
EASTON
WHITEHALL
TYLERS
BARRATTS
ENGINE
HUDIS
JONES
DENGLYS
WHITTUCKS
SCHOOL
POTTERS
REGENT ST
HIGH ST
HILL STREET
FLASH AWAY
BELL HILL
TWO MILE HILL
SUMMERHILL Rd
CHURCH ROAD
QUEENS BOWER
PACK HORSE
AIR BALLOON
KINGSWAY
PICKPOCKET
PEALOCKS
ISAAC SMITHS
GRUMSBURY ROAD
BADEN ROAD
GRIMSBURY
OLD BELL ROAD
SHOT PATCH
OWLS HEAD
CHAS. JONES
GEE MOOR
FOREST Rd
HANHAM ROAD
COURT Rd
MOUNT HILL
COCKROAD
SMITHS
BATCHELORS OR THOMPSONS
PARKWALL
WRAXHALL HILL
WARMLEY BROOK
TOWER Rd
PYLEMARSH
(NETHAM)
WHITES HILL
TROOPERS HILL
BRYANTS HILL
FRYS
FEEDER
GREAT WESTERN
STRAD BROOK
CHURCH Rd
HANHAM
HANHAM ABBOTS
WHITTUCKS ROAD
STONEHILL
CLINK CLOSE
LYNCH
GOLDNEY
CORONATION
BUFF BROOK
LOW HORN HILL
BULLHALL
OLD HOLE LANE
HOLE LANE
PEG HOUSE
PARKWALL ROAD
CALIFORNIA
BATH ROAD
CHERRY GARDEN Rd
GOLDEN VALLEY
NEW
18
19

in 1965 revealed another early pit in the group at ST643734, with a stone-walled shaft about 6 ft. 6 ins. square, with rounded corners, about 240 ft. deep, with water at 140 ft. down.

Donn's 1769 map‘ also shows the Duke of Beaufort's workings at **Whitehall**, where in 1788 "the proprietor Mr. Smith fell down the shaft to his death". These workings were much troubled by water and when, at a later date, the shaft was sunk deeper and incorpor~ ated into the **Easton pit** set-up, the old top part had to be lined very substantially for 300 feet to hold back the water. But first we should note the **Pennywell Colliery** at ST602740 where the main shaft, around 950 ft. deep, served the Kingswood Great seam at 280 ft., Kingswood Little at 396 ft. and Easton Red Ash at 945 ft., also possibly the Easton 4 ft. and Easton 7 ft. seams. Chick, Keeling & Co. were the owners in 1854; Chick, Brown & Co., 1865; Thos. Brown, 1866; Brown and Harris, 1868; G.W. Harris, 1874, and Pennywell Colliery Co., 1877. Theldate of closure is uncertain.

Easton and Whitehall

Easton Pit shaft ST606739 was commenced around 1830 by Davidson and Waters, who were joined later by Leonard, Betts and Boult, whose adjacent workings were running out. The two firms united as the Easton Coal Company in 1849, but were later succeeded in 1854 by R. Leonard, William Boult and George Hare Leonard, trading as Leonard, Boult and Co., a firm who exploited and developed many of the local collieries at different periods. They became a limited company in 1880 when Everett Leonard and two of Boult's nephews joined the firm. One of these, William Boult Monks, became manager by 1883, at which time the main shaft was 11 ft. diameter and 1080 ft. deep and was fitted with two cages wound by a 150 h.p. twin vertical engine. The pithead wheels were 11 ft. 3 ins. Diameter and the steel wire rope was rated at 30 tons breaking strain. They boasted of an indicator to show the cage position to within one inch, and an automatic device to cut off steam from the winding engine in the event of overwind, and apply it to the steam brake. This device had been working from 1868. Their beam pumping engine was of 90 h.p. with 67 ins. diameter cylinder and 9 ft. stroke, raising 40 gallons per stroke. Ventilation was effected by a 20 h.p. 25 ft. diameter fan moving 30,000 cu. ft. per min. They employed between 20 and 30 miles of underground tramroads and 50 horses. The trams held 9 cwt. of coal and were loaded two to a cage and wound at 50/60 m.p.h. Between the coalface and the main underground tramroad the coal was conveyed in wicker baskets, made in their own work-shops and fitted with steel sledge runners. The baskets held about 1 cwt. and were hauled by lads of 13 years "wearing tuggers and little else". The boys each served two hewers, hauling 2 to 3 tons per day and earning about three times the pay of a surface lad. One seam was said to be 16 ft. thick (with layers of rubbish interposed) but this apparently caused problems in supporting the roof on such long pit props.

The 1140 ft. **Whitehall** shaft ST618738 was served by a twin 200 h.p. winding engine 5 ft. stroke. The winding drum was 15ft. diameter and the winding ropes 1¼ in. diameter. The whole complex, which included a small brickworks at which the bricks were made for their own 125 ft. chimney stack, employed 800 men. It is sad to record that on one Sunday after-noon in March 1892, William Boult Monks "threw himself down the Easton shaft". No explanation was given, but one can imagine the terrible anguish of mind which would lead to such a tragic end. In the great coal strike of 1911 miners were out for some months, and eventually the then owners, The Bedminster, Easton, Kingswood and Parkfield Collieries Ltd., decided to close down the pit and the remaining 300 men were paid off on June 20th, 1911. The shaft was by then 1920 ft. deep and was working the Easton Red Ash, Kingswood Great, Kingswood Little and Gillers Inn seams. The Easton 3 ft., 4ft. and 7 ft. seams had been abandoned earlier.

In 1872 George Hare Leonard bought out the **Jefferies Hill pit** ("The Whittuck") ST637720 from the previous owner J.J. Whittuck, and this colliery was steadily developed by Leonard, Boult & Co. over the next 15 years. It was one of the partners, the brilliant young mining engineer William Boult Monks, of the Easton shaft tragedy, who was the first to recognize the potential of the Hanham workings, and to exploit them to the maximum. Hanham Red. Ash, White Ash and Steam Coal became household words. They were excellent seams with minimum ash content and much in demand. The workings extended under a considerable part of Kingswood, and there was talk of the Red Ash seam workings joining those of **Speedwell pit**, from which it would be more economical to raise the coal. Unfortunately nothing came of this and eventually the Hanham workings were absorbed first by the Bedminster Coal Company, and then by its two successors, the B.E.K. and P. Collieries Ltd. and the E.B.C. Ltd. Continued con-traction of the industry brought about closure in 1926 despite, again, local management's insistence that large areas remained undeveloped. This colliery was never connected to any rail outlet, but had extensive water-side facilities for barge loading on the river Avon, within the Kennet and Avon navigation. This may indeed have been the **Avonside Colliery** operated by Tinn and Fryar in 1866 an by J.J_ Whittuck in 1868.

Crew's Hole and Pilemarsh

Not far away were two tantalizing developments, one was **Air Balloon Colliery** at ST631734, of which little is now known except that the shaft was 606 ft. deep, and probably worked the Parrot seam. Work had ceased by 1871. The other was **Whites Hill Colliery**, mentioned several times in the Coal Commission's Report of 1871, though apparently closed by that date. Where was it? Well there was certainly a pit at ST631730, on the south east side of Trooper's Hill Road, which would apparently qualify as being on the edge of Whites Hill. On the other hand, there are two Crew's Hole pits mentioned in R. Hunt's Geological

Survey in 1878 and 1880. One was operated by H.C. Burge, the other by Johnson and Andrews, later by R.F. King. One of these was undoubtedly at ST629729 on the south western corner of Troopers' Hill Road, where a chimney and wall still remain, sometimes called **Troopers' Hill pit**. The other could have been the **Whites Hill pit** mentioned above, or it could alternatively have been a working believed to exist near ST628731. They probably worked the Millgrit and Rag seams, and are believed to have closed in 1911, after supplying the Crew's Hole industries over a long period. The Brass and Copper works alone are reputed to have required 2,000 tons of coal per week at their zenith.

Further down the Avon at Netham were the famous **Pilemarsh pits** ST617730, ST613729, ST615729 and ST617729. Their age is not known, but as long ago as 1797 we read "The several collieries at Crews Hole and Pilemarsh have been converted into one concern. For Smiths Coals apply to Peter Maze, merchant, at his Tinplate and Iron Warehouse, Redcliffe Street, or to Henry Summers at the Works, Pilemarsh. Shipment above or below the Water Works at Crews Hole". The workings were purchased by William Morrison in 1803, only to be auctioned again in 1808. "Pilemarsh Colliery to be sold by Auction, 130 acres for 11 years, for coal to the value of 15£ to the Lord of the Manor. 70 acres renewable lease. 3 Pits on the Devils Vein, Buff Vein, Rag Vein, Top Millgrit Vein, Under Millgrit Vein, Fig Vein and Fran-combe 2½ to 3 feet thickness. Steam engine called Old Lifting Engine, 30 H.P. with 48 fathoms of 10½ in. Shide with rods, buckets, clacks, etc. Main oak beam, two spring beams, two Wrought Iron Boilers, Steam Engine called Thatch Pit Engine, 12 H.P. with 18 fathoms 8½ in. Shide, rods, buckets, clacks, etc., and 45 fathoms of square pump rod with splicing plates, engine boiler, flywheel etc. Sandy Ground Engine 8 H.P." These sound like Newcomen engines for pumping, and the winding could well have been carried out by horse whim gins at that time. Long and Co. were the owners in 1846, and Morgan, Walker and Raynolds purchased the property in 1854, but closed the workings in 1856.

Another very old pit was at **Gaunts Ham Park** ST607733 where in 1793 "the Common Council granted the lease of the coal seams under the Corporation Estate at Lawrence Hill for 28 years at a rent of one eighth of the produce, to T. Haynes, W. Jacks and J. Hughes". Then in 1798 an advertisement referred to a "Coal Works called the Dings, in fields adjoining the back of West Street, Old Market, with right of mining from a field near the Pack Horse at Lawrence Hill." The reference to the Dings may well tie in with the later **Queen Bower pit** at ST603732, which was possibly sunk to reach the same seams from the other end.

Not far away was the **Great Western Colliery** at ST609725, started in 1847 and closed in 1857 after being sunk to 951 feet, though the lowest coal found was at 582 ft. The company was wound up in 1860 and yet in the account of the adjacent Avonbank Power Station, started in 1900, there is a reference to the advantages of a colliery on one side. Was this over-enthusiastic optimism with regard to Great Western's potential?

From Hanham to California

We now return east to ST644718, where the **Hanham Abbots pit** was working with a Fire Engine in 1769, according to Donn's 1769 map. The seam worked appears to have been the Buff at 420 ft. This shaft is still remembered locally. According to Donn, there was another Fire Engine serving two sets of workings right in the middle of Hanham around ST643722, but no relics or even memories remain today, and it is necessary to refer back as far as 1698 to read of any coal mining activity in this particular area. At ST651715 the Rag seam was worked at 240 ft. in the **Lynch pit** at Stonehill. Immediately to the north east of this at ST654716 is a field on the western corner of Kingsfield Lane where considerable subsidence may be seen, possibly arising from the **Lynch Pit** workings, but more likely from those of an old shaft reputed to be near the Hinton Green farm. In the 1841 Tithe Roll, this field is called "Cling Close", which is near enough to the 1741 reference to "Clink Close" to make it virtually certain to be the site of the coalworks mentioned in that year, when the proprietors decided on a valuation of their "ffire engine". Indeed, an adjacent field is named as "The Engine Ground" in the 1841 Tithe Roll.

Now to ST669720, **Cowhorn Hill**, where the **Buff pit** was being worked in 1811 by Richard Haynes of Wick. After his death the workings were offered for sale by his partners in 1818, and included a Boulton and Watt 46 ins. diameter x 10 ft. stroke beam pumping engine 40 h.p. with parallel motions at both ends of the cast iron beam, a lower lift pump 10¼ ins. diameter for 120 ft. and an upper force pump 12 ins. diameter raising 240 ft. There was also a Boulton and Watt double-acting winding engine 18 ins. diameter x 60 ins. stroke 11 h.p. A considerable amount of engineering material was included and also many cast iron tramplates for use underground. Strangely enough the actual pit was put up as a separate lot for rent, with an option to purchase the machinery at valuation. The Buff shaft was eventually developed to a depth of 375 ft. tapping the Millgrit, Rag, Buff and Parrot seams.

By 1841 the Colliery was owned by Robert Leonard Jefferis, and worked by the Hole Lane Company, who also owned two pits at ST682720 and ST678717 working the same seams, but at greater depth, the Parrot being at 660 ft. The latter pit was connected with the Avon and Gloucestershire Tramroad, and indeed supplied the first load sent over its rails to the Avon. Another associated pit was **Bullhall** at ST675719, working the Millgrit and Rag seams.

The Hole Lane Company sank new shafts, the **Brook pits** at ST670720 and ST670719, using the old **Cowhorn Hill Buff Pit** as their engine shaft for pumping. Then in 1876 the **Cowhorn Hill Colliery** was

purchased by Abraham Fussell. His first venture was to deepen the old **Blowbottom** shaft at ST665714, which had been abandoned at 80 yds. He resank it down through hard pennant rock to 640 yds., where he reached the valuable Smiths coal, only 1 ft. 6 ins. seam thickness here, but in great demand. He renamed the shaft **California** and equipped it with a twin horizontal winding engine 16 ins. diameter x 36 ins. stroke with 9 ft. winding drum, and a Gregory double-acting condensing pumping engine 60 ins. diameter x 9 ft. stroke with three Cornish valves. The 15 ft. beam was of wrought iron. Fussell introduced machinery driven by compressed air, supplied by a pair of horizontal engines 21 ins. x 48 ins. driving 23 ins, diameter air cylinders, and with a 14ft. flywheel. The compressed air was pumped to **Cowhorn Hill** and **Brook pits** in addition. An inclined branch tramroad was built to connect **California** with the Avon and Gloucestershire tramroad, which had ceased to work in 1861, but was quickly resuscitated to carry the coals and manufactured briquettes to the Avon barges. On the way a wharf was opened at Willsbridge for "Land Sales".

The old **Peg House shaft** at ST664718 was reopened as an upcast shaft for ventilation, and fitted with a new "portable" engine with a pair of 10 ins. diameter x 12 ins. cylinders and a 6 ft. drum geared 6/1, for emergency winding. The headgear was 20 ft. high with a 6 ft. diameter pulley. By 1880, Fussell was trading as the Oldland Colliery Co. and the company became of limited liability by 1893. Abraham's son, Philip, was then managing director.

The Bullhall pit was closed and capped in 1881, but new developments continued, and an old shaft at ST666724, **Cadbury Heath**, was opened up and resunk in an endeavour to get at the Parrot seam from the far end. The shaft was renamed **Coronation Pit** in honour of Edward VII coming to the throne. The winding engine was a twin 20 ins diameter x 4 ft., with winding drum 7 ft. 3 ins. diameter, headgear 30 ft. high with 12 in. square legs and 8 ft. diameter pulley.

Unfortunately in 1904 a tremendous volume of water suddenly broke in underground, and the miners barely escaped with their lives, leaving tools and clothes behind. One who was caught up in the flood, and washed clear back to the shaft at pit bottom, bemoaned the loss of his silver watch which still lies there in his waistcoat pocket on a shelf in the flooded workings! The catastrophe bankrupted the company, and the whole complex was put up for sale in 1905 by order of the High Court of Justice, Chancery Division, with the usual glowing account of its potential. (No mention of water!). Eventually the workings were purchased by the West Gloucestershire Water Works for £6000. (Philip Fussell was a director of the Water Co.!) In 1915, during a grave water shortage, the company installed a 120 h.p. horizontal cross compound steam engine and two 11 ins. diameter x 36 ins. stroke deep well pumps raising 20,000 gallons per hour from the California No. 1 Shaft, with a stand-by plant at **Cowhorn Hill Buff shaft** to take over and relieve California. The Cowhorn Hill plant was dismantled a few years ago, but California still continues with electric pumps, its vain attempt to dewater the colliery workings by supplying water, duly treated for iron and chemical reduction, to a large area of South Gloucestershire.

Golden Valley

The nine mile Willsbridge fault, or series of faults, an almost vertical slide of 600 feet, at its Worst, severed the formation in the south-east, but there was an outlier development at Golden Valley, Bitton, where there were early workings at ST690714 and ST688711, and later workings at ST690708 **Old Pit**, ST690711 **Painters Pit** and ST686710 **New Pit**. The seams worked were the Millgrit, Rag, Buff and Parrot, the latter at 1920 ft. The Pillar and Stall method of working was used, 3 yards stall and 4 yards pillar. In later years **Old Pit** was used as the Engine or pumping pit and **Painters** as the air pit, or upcast shaft. The latter seems to have been operated by induction, with the furnace at ground level drawing up the foul air with the aid of a chimney now overgrown with ivy. The fire door may still be seen at the base of the stack. This Colliery was developed by the Brain family, farmers, millers and coal owners. Abraham, Aaron and James Brain are mentioned, also, curiously, Robert Leonard Jefferis again. In 1867 Sophia Bence of Stone Hill bequeathed "my share and interest in Golden Valley Coalworks to Robert Leonard Jefferis and to my son Thomas". In 1871, R.L. Jefferis bequeathed his share to "my late wife's daughter Elizabeth Brain". In the Whittuck family's copy of Anstie "Coal Fields of Gloucestershire and Somersetshire" a pencilled marginal note attributes the adventurous sinking of the new shaft to Samuel Whittuck, but no corroborative evidence has yet come to light. The Golden Valley Colliery finally closed in 1898, but was bought up by Philip Fussell of the Oldland Colliery Company to bar any future competitive development. The Hole Lane Workings had by that time almost connected with those of Golden Valley.

Note on Sources

In addition to extensive field work, this article was prepared from material in Bristol City Archives, Bristol Central Reference Library, and Gloucester Record Office. For the main published sources on the Coalfield, see the bibliographical notes in: R.A. Buchanan and N. Cossons - industrial Archaeology of the Bristol Region.