The Grand Contour

Mark Baldwin presents, in the first of two articles, some of his findings after two years research into the life and ideas of J. F. Pownall, deviser and life-long promoter of the remarkable Grand Contour Canal Project

John Frederick Pownall was born at Pembroke Dock on 17th March, 1900, the son of a successful civil engineer. The family later moved to South London and Pownall went to the local Rutlish School at Merton Park. His education was interrupted by service in the Army of the Rhine but resumed after the War, and in 1922 he graduated from King's College, London, with a degree in Civil Engineering.

His early years as a civil engineer were spent with Surrey County Council, followed by a spell on the Great North Road in Scotland. Venturing further afield, he went to work in Kenya and the Sudan on irrigation schemes. Despite this varied experience, he never joined the Institution of Civil Engineers, although his father was a member for over 40 years. His interest in all forms of transport was already manifest, and before the Second World War he spent several years without employment to develop his ideas more fully.

Amongst his personal papers are numerous typescripts, one of the earliest of which, dated 1925, discusses, most perceptively, the problems of space travel. However, his first published work, "Organised Publication" (1926) was solely concerned with the preparation, indexing and abstracting of technical papers. Of the 41 of his published books, articles and letters located by the author, this first is unique in that it is unrelated in any way to transport.

His second venture into print proved far more important. In 1933 he published privately a booklet entitled "Transport Reform in Great Britain", and this contains the earliest form of his famous brainchild - a long level canal of Continental proportions at about 300 feet above sea level. It had not yet been christened, and was referred to as the "all-at-one-level canal". The booklet also outlined proposals for railway re-organisation.

In 1940, he joined a firm of consulting civil engineers and was employed on the building of an ordnance factory at Swinnerton. After a couple of years he left to work for the London County Council, but his restless nature would not let him stay, and he soon found a new job in South Wales with a general civil engineering contractor. Here he established a much-needed relationship, he was allowed to take time off to work on his own ideas. In contrast to his previous frequent moves, he stayed with this firm for the rest of his working life. On retirement, he returned to Wimbledon and it was there he died on 21st March, 1971, aged 71.

The freedom he found in South Wales afforded Pownall the opportunity to research and write. His widely quoted (though rarely read) book “The Projected Grand Contour Canal” was published in 1942. He also wrote several books on railways, the last, in 1949, being the splendidly titled "The Rank Bad Planning of London Transport". Although he never entirely abandoned this interest in railways, soon after the war his major concern was clear: between 1951 and 1966 he wrote more than twenty papers on the Grand Contour Canal.

Although invariably referred to as if it were crystallised forever in 1942, the Canal scheme was revised by Pownall almost continuously for over thirty years. In 1933 the Canal was to be 1,300

miles long extending from Cornwall almost as far north as Edinburgh, and into Wales and East Anglia. Eighteen lifts were to connect with the sea and major waterways. Rails in the bed would carry a moving steel band to tow barge trains. The Canal was to have a surface gradient of an inch per mile, inducing a flow to enable it to act as a water grid, but no indication was given of how this gradient was to be accommodated. Some provision would have been essential, as, without locks, the contour could not be followed if the gradient were maintained.

By 1935 the Canal had acquired its present name, a contribution from J. M. Lacey, a retired Indian public works engineer who supported Pownall's ideas from about 1934 onwards. The route length had been drastically pruned to 848 miles with only five lifts and the first estimate of cost is given - £150m. The only serious critic of the scheme to make his thoughts public was Wilson, then engineer to the Grand Union Canal Company, who were actively pursuing a policy of improvement on their London to Birmingham line. Wilson felt the scheme so absurd as to be unworthy of serious consideration.

In 1942 came the historic book "The Projected Grand Contour Canal to connect with estuaries and canals in England", whose proposals differed little from those of 1935 except that the number of lifts had been increased to thirty-three. The waterway was to have a top width of 100 feet and depth of 17 feet to accommodate 1,500-ton vessels. Pownall again falters over the locks - a most serious matter as they are the key to the ability of the Canal to cater for both transport and water supply - on one page saying there would be no locks, yet on another stating that these would be required at 12-mile intervals.

They are omitted from the cost estimate.

In contrast, details of the financing and management of the Canal are extensive. Pownall had an undisguised hatred of any form of Government intervention and insisted to the last that private interests could provide sufficient capital and skill to build and run the Canal. (This attitude led him to canvass local business interests for backing - an approach which has frequently been described as eighteenth-century). The book was widely reviewed, generally with greater suspicion than enthusiasm, and it was these financing proposals which aroused the most reservations.

Having stirred up considerable interest in his Canal, Pownall spent several years publicising his thoughts on railways. First stated in Transport Reform in Great Britain" in 1932, these were amplified in 1940 in a slim volume, "New Railway Network Principles - a Project for applying them to British Railways". This was an attempt to eliminate the difficulties of crosscountry rail travel by restructuring the operation of branch lines to provide continuity of service. The revised system was to be treated as a matrix of approximately equilateral triangles with nodes about 50 to 60 miles apart. Express trains would leave every single "hour station" (at a node) on the hour, taking 52 minutes to travel non-stop to the adjacent node, where eight minutes were scheduled for passenger interchange before the next round of departures. Stopping trains would also use the network, running at about half the speed of the expresses. Thus any journey could be easily planned and made. The finance required was again to be sought locally, obviating any dependence on either the State or the existing railway companies.

These ideas received quite favourable reviews and Pownall was encouraged to write more: books appeared, on the Midlands in 1943, Scotland in 1946 and London in 1949. However, his

railway plans never generated the interest accorded to the Canal, and after 1949, Pownall devoted little time to them.

A Change in Tactics

About 1950, Pownall fundamentally changed his tactics with regard to financing the Canal. It was by then clear that no post-war reconstruction plan was going to include it, no local support was forthcoming, and the canal authorities and carriers were in no state to back such a costly scheme. Pownall resolved that the Canal should be built in sections, and as an individual section could better fulfil a water supply role than a transport role, his logical course was to concentrate on water supply. The first such section was described in 1951 - 70 miles in the Cotswolds supplying water to London.

In the next two years Pownall made considerable progress and managed to attract a loose consortium of water supply interests - engineers, pump manufacturers and water authorities. This consortium even financed him for a time to travel the line of the Canal to study the route on the ground. The findings of this tour were embodied in a series of nine articles published in 1952 and 1953. His enthusiasm expanded, as did the Canal, whose planned route length finally totalled 1,221 miles at 310 ft and 90 miles at lower levels. Again we find the contradiction over locks: the 429 miles from Southampton to Newcastle are described as "lock-free", yet later we read that every 12 miles, sector gates and pumping stations would be required to allow the contour to be followed and the water to be moved.

In 1954 Pownall wrote a series of four papers, in a journal devoted to heavy civil engineering. This series constitutes the most readable account of the scheme, being strikingly free from the digressions which mar much of Pownall's writing. However, his earlier hopes were slipping away: the consortium disintegrated and as the years passed, major new water supply schemes were built which not only ignored the Canal but also stole its thunder by solving the very water supply problems for which the Canal sections were proposed. Pownall's co-operation with water authorities gave way to confrontation when he twice opposed their Parliamentary Bills. In 1957 he was quoted in the Commons as having prepared an alternative scheme to Liverpool's Tryweryn Reservoir, and in 1961 he unsuccessfully petitioned Parliament to reject the Bill which eventually resulted in the building of Grafham Water. At the same time the official Government "SubCommittee on the Growing Demand for Water" turned down proposals for a National Water Grid on the grounds of cost.

Encouragement from IWA

Confrontation failed and less determined men might have abandoned the 30-year battle, but not Pownall. In 1964 he announced plans for a company to harness "unsubsidised private enterprise" to provide water for Lancashire, but nothing resulted. The following year Pownall's hopes received a mighty fillip when the Inland Waterways Association produced "New Waterways," a booklet advocating major investment in new and improved commercial waterways including 600 miles of Grand Contour Canal at an estimated cost of £600 million. Although not a member of the drafting committee, Pownall was on the panel at the press conference launching the booklet. This was widely reported in the press, but the IWA's

proposals awakened no response in the British Waterways Board's "The Facts about the Waterways" published later in the year.

Heartened by IWA endorsement, Pownall took up his pen again and published, in 1966, a revised scheme for the Peterborough Arm. He now envisaged this as a martime waterway climbing from the Wash to the 310ft level at Quinton via 150 locks of unconventional design. These were to be single sector gates with a change of water level of 16 or 32 inches at each, grouped in two flights with gates 1000 feet apart. Apart from one problem of manning such structures, the succession of surges passing down the channel as a vessel locked through would have created great difficulties.

His last writings on the Canal came in 1966, but in strong contrast to a lifetime's dedication, a second paper that year, although describing a possible water supply scheme, never once mentioned the Canal. This sacrificing of an opportunity, unique in Pownall's career, provides food for speculation,

His ideas have not died with him; in fact he has perhaps as many supporters now as in the fifties, but there has been a marked change in the nature of the support. In early days canal engineers and managers welcomed the Canal, later it was the turn of the water engineers, but there are now no engineers in the ranks of those advocating the Canal as a panacea to many of the resource problems which face us today. The reason for this is simply found: many people, realising both the magnitude of our problems and the potential benefits of dual-purpose water channels, lack the ability to examine the fundamentals of the case. They therefore cast around for a ready-made canal scheme to back and Pownall's is the only one available. The fundamentals need examination and the author will present his analysis in another article.

Mr Baldwin's second article - "An analysis of the scheme" will be published in our October edition.