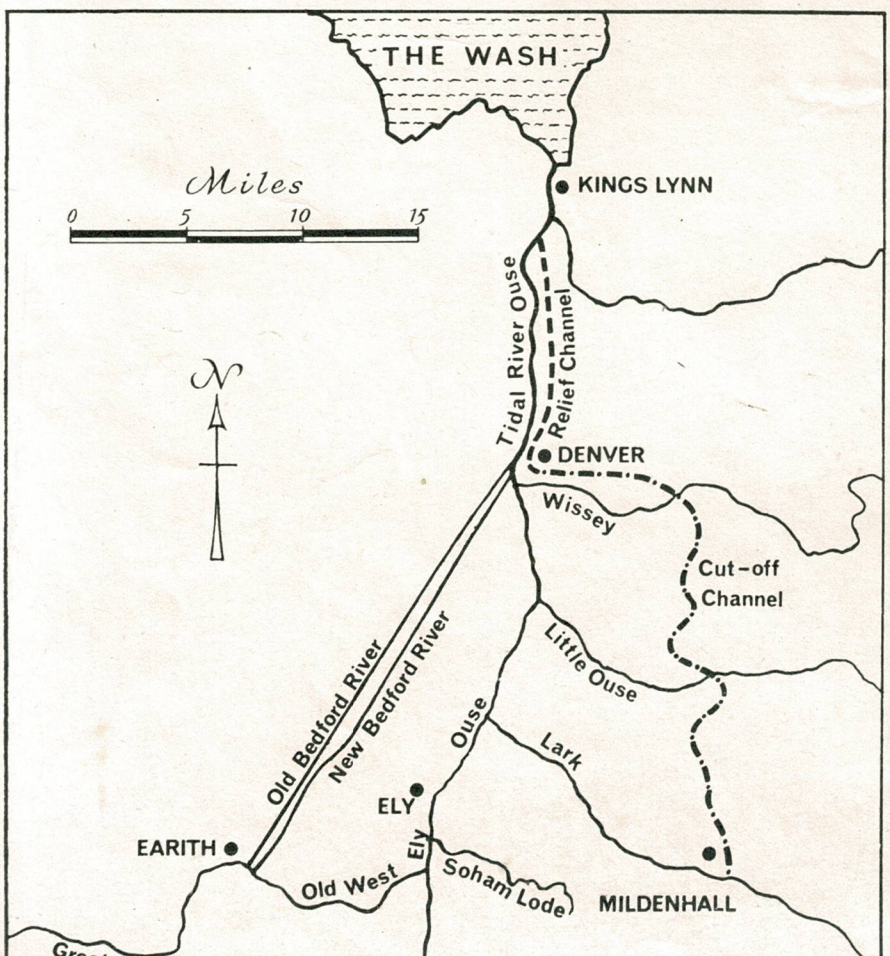
SAVING THE FENS FROM FLOODS

By JOHN BRYAN-BROWN

FLOODED FARMS NEAR HADDENHAM, CAMBRIDGESHIRE, IN MARCH, 1947. "When I visited the region the brown water lay like an inland sea"



FROM any vantage point in the Fens the eye ranges ov fields which stretch away dead-flat to the horizo it is a land swept in winter by winds off the Nor Sea, and until last year it lived under the ever-prese threat of floods. It was not until the winter of 1964-65 th the lands of the South Level were free from this dange and by the South Level is meant that part of the Fe lying between the New Bedford River to the north-west ar the uplands of Norfolk, Suffolk and Cambridgeshire to th south and east—a region that is, in some parts, as muc as 5 ft. below mean sea level and 12 ft. below high floo level.

Starting in 1954, without much publicity, the enginee have been at work to rid this land from the threat which h lain so heavily over it for centuries. This might be co sidered to be only of local importance, but the fen region East Anglia holds some of England's richest farming lan where crops of potatoes, sugar-beet and vegetables gro as nowhere else in this island. The drainage scheme, no completed, is the largest undertaken in Britain for 300 yea and cost between £10 million and £11 million, towar which the Government made a 90 per cent grant. Abou 189,000 acres are directly protected, and complete contr of flood water passing through the South Level has bee achieved.

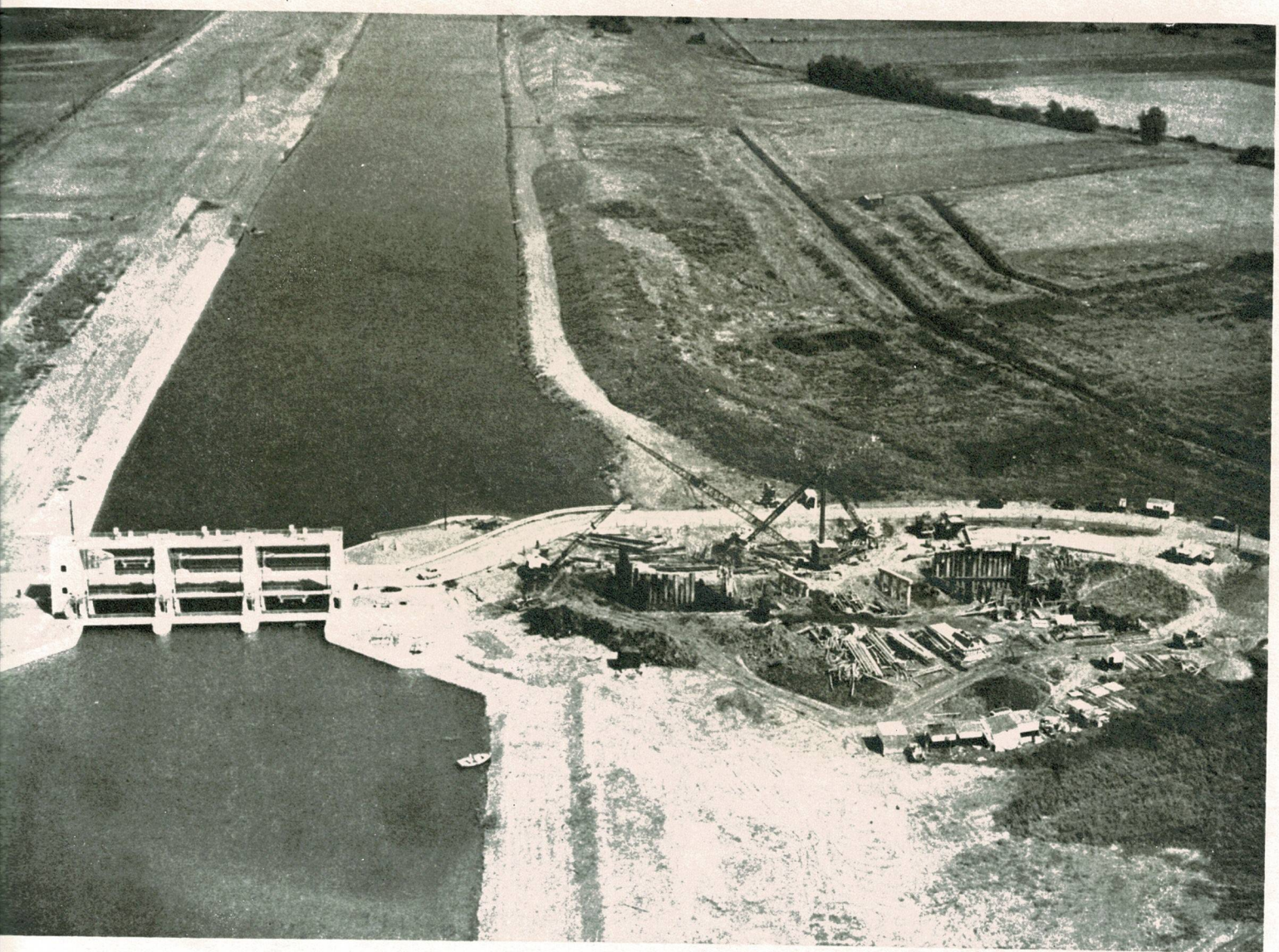
The Fens—what an evocative word it is. We fi kindred words in Old English and Old High German, ar it is in the lands bordering on the North Sea that we ca look for these low-lying tracts where water is never fa distant. We may be told that the only true survivals fro the old undrained Fenlands are Wicken and Woodwalto but the spirit of the Fens still lives from Cambridge in th south to Boston in the north, and from Peterborough i the west to King's Lynn in the east. There is indeed a spir of the East Anglian levels which you may sense when you s the long line of Ely Cathedral standing up on the horizo or when you look across the Wash from the mouth of th River Nene—the Wash where sea, mudflats and sky ca blend on a winter day into an all-pervading greyness.

iver (or Hundred Foot Drain), Adventurers' en, Vermuyden's Drain, these names reveal ow, in the 17th century, great enterprises ere embarked upon in order to bring the aters of the Fens under control, and to re-aim the marshes for livestock and crops. he great names were the 4th Earl of Bedford ho financed much of the work, and his hief engineer, the Dutchman Cornelius ermuyden; Adventurers was the name given the 13 other men who risked their capital these often hazardous undertakings.

The principal feature of Vermuyden's ork, carried out between 1630 and 1655, as the construction of the Old and New Bed-rd Rivers, which run parallel to each other r over 20 miles in a straight line from near arith in Huntingdonshire to Denver in orfolk. These new channels carried the gravity into the rivers. But much of the land lies on a layer of peat, and as this dried out with the ever-improving drainage it contracted, until today the water level in the rivers is, in many places, high above the fields. Over the years the retaining banks have had to be built ever higher as the land has sunk, and the safety of scores of farms hangs on the strength of these banks.

Finally it became clear that the continuous and costly process of heightening the retaining banks was not the ultimate answer to the problem, which was aggravated by the presence of a layer of so-called buttery clay beneath large areas of the fenland soil. As the banks were raised the additional weight of clay caused the peat and buttery clay to consolidate, the whole bank sunk, and much of the additional height was soon lost. In about 37,000 acres of fen farmlands were submerged—Hilgay Fen, Feltwell Fen, Cottenham Fen and many others; the water lay on the land for weeks, and when I visited the region at the end of March and looked southwards from the high ground near Haddenham, the brown water, which had broken out of the Ouse near Earith, still lay like an inland sea stretching away nearly to the Cambridge-Ely road.

The work of repairing the broken banks was started at once, and on March 24—a week after it was breached—the gap in the Ouse at Earith was closed with the help of army amphibious vehicles; shortly afterwards engineers started to close the other major break, in the Wissey near Hilgay. Once the banks had been repaired, heavy pumping gear, some from as far away as



HE HEAD SLUICE OF THE RELIEF CHANNEL NEAR DENVER, NORFOLK. "The channel can take the combined discharge from the Ten Mile River and the Cut-off Channel"

ters of the Great Ouse straight across the ns towards their outfall in the Wash, tting out the big loop of the old course to south of Ely. Between the Old and New dford Rivers lay 5,000 acres of Washlands ich acted as a reservoir to hold surplus ter in times of flood. The old course of the se, stretches of which are known as the West, the Ely Ouse, and the Ten Mile er, now only received the waters of the thern tributaries, the Cam, Lark, Little se and Wissey; and a sluice across the old nnel at Denver kept the tides out of the le of the southern river system. These h-century works remained the backbone of Fen river system for almost 300 years.

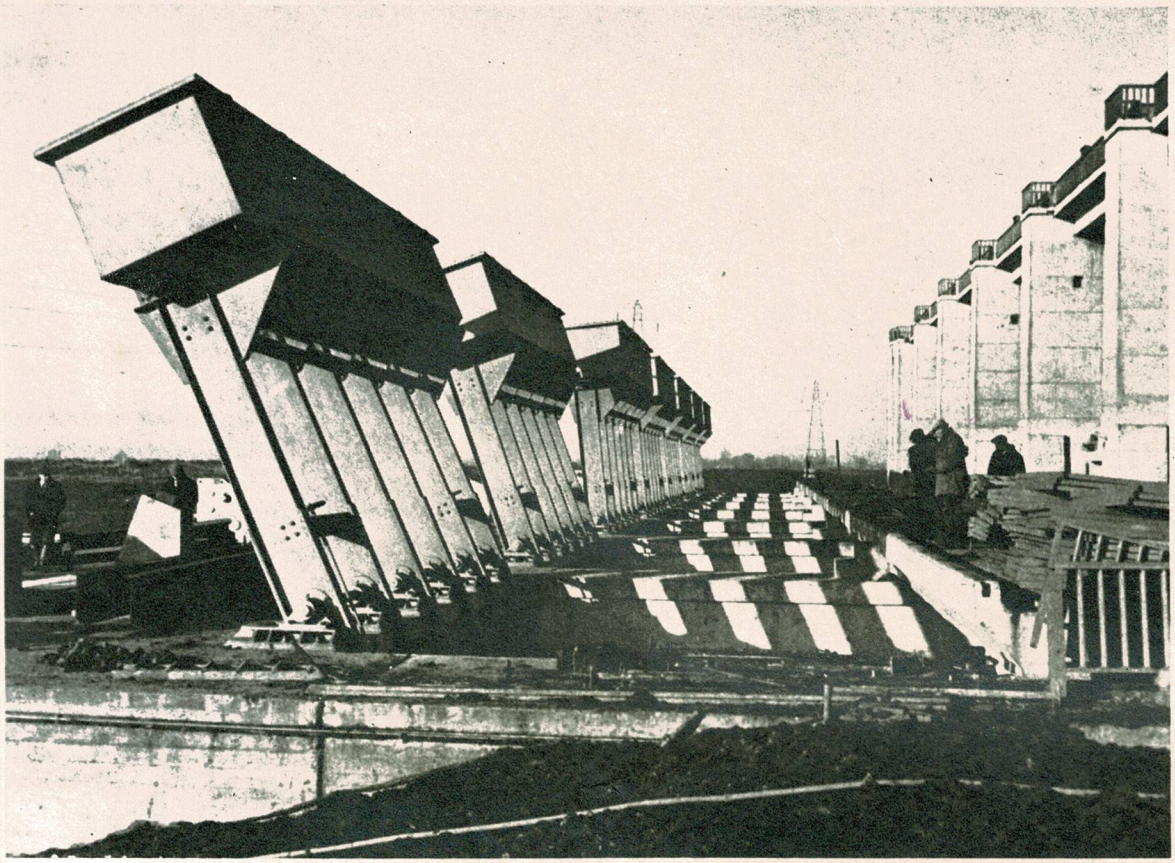
The drainage work carried out had one ous result which no one foresaw. In the s, when Vermuyden started digging the channels, the normal water level in the

1940 two alternative plans had been prepared for new large-scale engineering works which would bring a complete and long-term solution to this ever-worsening situation. Work could not be put in hand during the war years and in 1947 events occurred which showed up the extreme gravity of the situation.

Mid-March had been the time of greatest danger when the Fen rivers had flooded in 1937, and so it was ten years later. The first three months of 1947 were marked by appalling weather with snow, rain and frost, and when the thaw came in March rivers all over the country rose to record levels. It was on the night of March 16, a night of driving wind and rain, that the floodwaters poured through a gap torn in the high bank of the Ouse upstream from Earith; the advancing waters drove the farmers to seek shelter, with what-

Holland, was brought into action to lift the flood water back into the rivers. By April in some districts, and by the end of May almost everywhere, the water had been cleared from the land and sowing and planting were under way; many thousands of acres of crops were harvested off land which in the spring, had been under water.

After the 1947 disaster it was clear that major new engineering works were essential and provision for them was contained in the Great Ouse Flood Protection Act which received the Royal Assent in December 1949. The works, which were started in 1954 and are now finished, form the largest drainage project since the days of Vermuyden three centuries ago. First a Relief Channel was cut from Denver northwards, parallel to the course of the tidal River Ouse and entering it near Saddlebow, south of King's Lynn. It is



THE TAIL SLUICE OF THE RELIEF CHANNEL NEAR SADDLEBOW, NORFOLK. It was formally opened by HRH the Duke of Edinburgh in 1959

Cut-off Channel. The Relief Channel was completed in 1959, when the occasion was marked by a visit from HRH the Duke of Edinburgh, who formally opened the tail sluice at Saddlebow.

The second part of the work was the widening and deepening of the old course of the Great Ouse, from the Fish and Duck, where the Cam joins it, down as far as Denver. This work was finished in 1961. The final part of the scheme was the construction of a Cut-off Channel starting on the River Lark near Barton Mills and intercepting in turn the other southern tributaries of the Great Ouse, which are the Little Ouse and the Wissey. The Cut-off Channel runs round the eastern edge of the Fens, and in times of flood the waters from the three tributaries can be diverted by sluice gates along the Cut-off Channel, and so direct into the Relief Channel and out to the Wash without entering the South Level.

In 1638 Cornelius Vermuyden wrote a *Discourse Touching the Draining of the Great Fennes* in which he said:

"The three Rivers of Mildenhall, Brandon and Stoke must be made one river, and to that end Mildenhall must be brought into Brandon, and both into Stoke and all into Ouse."

His discourse was accompanied by an outline plan which shows that the three rivers which he lists are indeed the Lark, Little Ouse and Wissey and that he contemplated a cut-off channel and short relief channel based on the same principles as the present Flood Protection Scheme. Three centuries went by and at last the shrinkage of the peat fens and the lessons of the 1947 floods brought the new scheme to reality, and the works of the 20th century engineers from Lark Head Sluice on the edge of the Suffolk Brecks to Saddlebow on the tidal river have taken their place with Vermuyden's Bedford rivers in the enduring Fen landscape.