

## Operation Pluto

### Chapter 10. Operation Dumbo (continued)

After the difficulties experienced with the first Dumbo Hamel lay various modifications were made to the towing gear. A Conundrum in tow of the tug Marauder (Lt. Cdr. Jennings) left Tilbury on 29 November and arrived at the moorings off Dungeness on 1 December. Once more, as was only too likely at the time of year, the weather was poor with strong winds and rough seas. Again, a great difficulty was experienced in hauling the end of the Hamel pipe ashore, in spite of the fact that an M.F.V. was used to support the pipe and keep it off the bottom. But the hauling wire was found to bury itself more than a foot in the sand, causing so much friction that even the gallant ploughing engine could not move it more than an inch or two at a time. With SNO Force Pluto superintending operations on board the tugs and ashore, all hands worked themselves to a standstill and the boat work on this not very friendly lee shore must at times have been extremely hazardous.

On 2 and 3 December the work went on, under-running the hauling wire whenever conditions permitted. Then a gale warning made it necessary to cut the end of the pipe in order to free the drum should the need arise to slip from the moorings, as appeared likely. As it was, the drum and tugs had ridden out a great deal of bad weather in their very exposed position, the great bulk of the Conundrum wallowing around as if anxious to join its fellow on the beach. Captain Hutchings in his report particularly mentioned the efficient work of Lt. Cdr. Jennings of the tug Marauder, Lt. Bennett of the barge Gold Drift and Sub.Lt. Capstick of the barge Nycea and there is little

doubt that they thoroughly deserved his praise.

Eventually a succession of gale warnings and the fact that the tugs were running short of fuel decided SNO Force Pluto that connecting up the shore end off the exposed Dungeness beach was not a practical proposition in the weather now likely to be experienced and the tugs and the Conundrum were ordered to return to Tilbury. A new idea for dealing with the shore end difficulties experienced with the Hamel pipe had now been suggested and further modifications were needed. In fact, it was 17 January before a Hamel line was successfully laid across the Channel. Throughout the whole of the Pluto trials and operation the shore end connections proved the most refractory. The situation was not easy to deal with in smooth water: In winter in the English Channel the problems tended to escalate, a minor fault at the beginning of an operation starting to spread until nearly every aspect was involved. It seems possible that a great many of the difficulties experienced could have been overcome by the use of divers, but in fact they were only very rarely used, certainly in the early stages. The risks to divers could have been very great, but on the Dungeness side at least, their use should have been practicable. No mention of this possibility has been found in any of the papers examined. Certainly, today, the shore end connection would not be considered to present major problems, but in the case of Pluto the time factor and availability of men and materials insisted on methods of make do and mend. And, over all, was the strong and growing feeling in high places that Pluto was no longer worth the effort.



With the Hamel operations temporarily shelved, Hais 9 was laid by Treby Heale on Latimer on 8 January 1945. The cable was one of American manufacture and these had caused problems when being unloaded due to temperature changes affecting the compound used to impregnate the jute outer covering. This tended to get very soft in warm weather and very stiff in low temperatures and in January 1945 it was very cold.

At first everything proceeded normally, Latimer commencing the lay at 1045 and gradually increasing speed from 20 revolutions to 35. But at 1537 the jute covering of the cable had fouled the bell mouth through which it was led~~d~~ from the tank in the ship's hold, the cable ceasing to run freely and becoming flattened by the pull.\* Ship's engines were put full astern and, presumably, the cable cut, the position being about eight miles from Boulogne.

By now the total amount of Hais cable remaining was reduced to enough for two more lays, or three if the American cable could be treated to overcome the fault in the jute serving. Possibly, in view of this fact, it was then decided to make another attempt to lay a Hamel line, this time with a length of Hais cable attached to the starting end, as this was expected to make the

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\* The accumulation of jute serving in the bell mouth eventually stopped the cable running and was bringing the ship to a standstill. The weight on the big gate sheave was in danger of bringing derrick and mainmast down.

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connection at Dungeness - nearly always a lee shore - quicker and easier.

Known as Hais - Hamel 3 - the first two attempts to lay Hamel lines having proved abortive - this operation commenced with the tugs Marauder and Schelde towing the Conundrum from Tilbury to Dungeness east roads arriving on 10 January where they secured to the buoys. H.M. Tug Danube V was in attendance.

The lay commenced at 0550 on 17 January in <sup>a</sup>light SW wind, smooth sea and good visibility. All went well with the exception that there was again some difficulty with the QH navigation system, which apparently did not cover the Straits of Dover effectively, according to Captain Hutchings. Also the speed made good was not sufficient to ensure arrival at Boulogne at slack water and so the tug Danube V was instructed to proceed ahead of Marauder and pass a line so that she could also assist with towing. This produced a useful improvement in speed and the entrance to Boulogne harbour was reached shortly after the north-going stream had started to make. In spite of this handicap, Lt. Cdr. Jennings in Marauder manoeuvred his unwieldy tow through the entrance and alongside the north-east jetty. Here the Hamel pipe was secured and cut, thereby completing the shore end connection in record time and to a large extent justifying the confidence in the Hamel system which its protagonists had maintained under extremely adverse circumstances.

In his report on this operation Captain Hutchings stressed the fact that the length of Hais cable attached



to the Dungeness end of the Hamel pipe, which allowed the unit to swing freely at the buoys until the moment of starting the lay, had so simplified the work that waiting for an appropriate spell of fine weather had become practicable, making the chances of a successful lay very much greater.

Hais 10. On 22 January, Commander Lee in Sancroft had the somewhat unenviable task of laying the second American produced Hais cable with its suspect jute covering. Experts had decided that the prevailing cold weather was a contributory cause of trouble and that a temperature of 41°F (5°C) was necessary to ensure satisfactory working. To this end, the cable holds in Sancroft were heated with steam pipes and sacking laid on deck over a flexible steam pipe alongside the cable to maintain that portion at the necessary temperature. At 0800 in the morning of the operation the temperature in the hold was 46°F and the air temperature 31°F. In consultation with the S.N.O., Commander Lee expressed the opinion that he could lay the American cable successfully and justified his optimism by making one of the most successful runs achieved, dropping the end in the ideal position just outside the entrance to Boulogne. Once more, one can scarcely fail to appreciate the ability of Commander Lee, who had also been responsible for the stowage and preparation of the cable. Not a year previously he had been appointed in command of the converted hopper barge Persephone and his handling of that unattractive and not easily manoeuvrable craft must have earlier given indications of his undoubted skill. During the lay it was noticed that, as the cable

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passed over the stern rollers, the jute covering could be seen to be cracking and showing signs of disintegration. Any further handling would almost certainly have caused trouble. An interesting point is that the water pressure in the cable on this occasion was maintained at 160 PSI. The average speed for the lay was 4.5 knots and the time taken was six hours.

In February, Latimer was in the King George V dock in London discharging the remainder of the American made Hais cable with the faulty jute covering. A V2 rocket landed near the storage site, but caused no damage to it and only superficial damage to Latimer. As far as is known that was the nearest any of the Pluto fleet came to being put out of action by the enemy.

On 14 February Persephone sailed to commence recovery work on the Hamel pipelines laid in the Solent area.

Following the laying of Hais 10 no further Pluto operations took place until March and it must be assumed that the weather in February was unfavourable. Also, owing to bad weather, troop movements were restricted and the demands for fuel reduced. Indeed, more than once Pluto was asked to cut down pumping pressures as the army were having difficulty in storing the petrol received. However, as some 5,000 tons a day were arriving in Antwerp much nearer the battle front, the main value of Pluto now was the fact that it could allow tankers to be released for Pacific operations, where the Americans were calling loudly for more vessels. Their pleas were



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received in Britain with a certain amount of scepticism and it was suggested here that much of the shipping in the Pacific was not being put to its full use. But tankers were released and even at this late hour the possible values of Pluto were confirmed.

What was termed officially Hais Hamel 4 (a Hamel line with a length of Hais cable attached to the starting end) was laid by H.M. Tug Bustler (Lt. Cdr. Sanders) with tugs Danube V and Schelde assisting. The unit left the Hamel loading berth at Tilbury on 4 March 1945 towing Conundrum V but Bustler developed an engine defect which reduced the towing speed considerably. SNO Pluto asked for a replacement tug and Resolve was sent from Portsmouth to assist, as nothing powerful enough to take the place of Bustler was available.

On 7 March the unit slipped from the buoys off Dungeness and proceeded smoothly in calm conditions with a light northerly wind. Outside Boulogne a carpet of wires parallel to the shore had been laid to facilitate picking up the end of the pipelines, should this be necessary. On this occasion Bustler shortened in the tow prior to passing over the outer carpet and berthed the Conundrum alongside the inner jetty without incident. Seven turns were left on the drum and it was essential to secure these for the return passage to Tilbury. After the shore end had been cut and secured, the end of the coils remaining on the drum was secured with wires and then welded to the barrel of the drum itself. This was done because, after the previous successful lay, the remaining coils came loose on the return passage. The sprung steel pipe

uncoiling must have caused considerable difficulty, but SNO Pluto did not enlarge upon it. Indeed, Captain Hutchings consistently played down the difficulties and disappointments, possibly in case someone seized on any suggestion of failure.

Once more, in spite of the Hais length for connection at the Dungeness end, there were some days' delay in picking up the cable owing to tidal conditions. It would seem that Dungeness was by no means an ideal place for shore operations in winter and no doubt the local fishermen would have advised strongly against it. The difficulty, no doubt, was to find an alternative. It is possible that the navy did not want Pluto anywhere near Folkestone or Dover.

*[already described]*  
In order to identify the Hamel lines as clearly as possible the details of the lays ~~to date~~ are as follows:

Hamel 1 regrettably ended in disaster due to extremely bad weather, the Conundrum being driven ashore to become a total loss.

Hamel 2 did not succeed in getting the northern end of the pipe ashore and the unit was withdrawn for modifications. Winter weather having set in no further attempt was made in 1944.

Hamel 3 had a length of Hais cable attached at the northern, starting end, and became known as Hais - Hamel 3. It was laid successfully on 17 January.

Hamel 4 - known as Hais-Hamel 4, which lay has just been described.



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Hamel 3 and 4 are of particular interest as leaks were discovered in both these lines, said to be due to movement or 'panting' of the lines because of the effect of high pressure pumping, plus some movement due to tides. It had been calculated that the steel lines would only last six weeks and in fact this proved a fairly accurate guess, as the life of the six Hamel lines eventually laid proved to be 77, 52, 55, 112, 55 and 60 days respectively. A rocky reef off Boulogne was held to be the main cause of the trouble. As the original point for the Pluto terminal on the French shore was Ambleteuse, to the north-east of Boulogne, it is possible that had this been used, the reef would have been avoided. But it was decided to use Boulogne owing to the time it would have taken to clear the beach at Ambleteuse of mines and prepare tankage.

Hamel 5. On 17 March a Conundrum towed by H.M. Tug Bustler left Tilbury and arrived at Dungeness East Road on Sunday, 18 March. The operation had been delayed several times owing to engine defects in Bustler. For this lay a length of Hais cable had been attached to both ends of the Hamel pipe, as this was now considered the best way of overcoming many of the difficulties of making the shore end connection. The weather forecast was only moderately good with south-west winds of force 5 predicted.

At the start of the lay, the north going tide was still running perceptibly, although by the tide tables it should have been slack water. This caused the tow to take a sheer, unwinding the pipe at an angle across the

flange of the drum, but apparently without causing damage or distortion. The astern tug, Danube V, endeavoured to bring the drum more in line with the tow and in doing so, the bridle was picked up by the revolving drum and carried right over the top, where one wire chafed through and parted. This meant that the astern tug had no steering control at all and could only follow helplessly.

Even so, the tow appeared to proceed satisfactorily until a convoy of 15 ships appeared, crossing the line of the lay. This made it necessary for the speed of the tow to be reduced and an alteration of course made, but the unit arrived off Boulogne and at the correct spot for dropping the end of the pipe. In spite of various mishaps with the marking gear, including the fact that the blowing buoy did not release, the floating tail attached to the pipe acted as marker and the end was ~~recovered~~ by the trawler Cedar with Captain Eagle, who, it will be recalled, was in charge of the shore end connecting work, on board.

With the astern bridle out of action, it was necessary to re-rig the towing gear before returning the unit to Tilbury for re-loading. This was arranged to be done at Dungeness, but here a full gale materialised and, as had happened before in these unfortunate circumstances, the Conundrum became virtually out of control and in their endeavours to clear up the tangle, the tugs were in trouble, Bustler getting the towing bridle foul of her screws. Divers were sent for and worked bravely under fearsome conditions, but were unable to clear all the wire from Bustler's propeller and she had to be towed back to Tilbury for docking. Throughout these trials and



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tribulations Captain Hutchings remained confident, if not certain, and his reports were remarkably restrained. Perhaps this sign of confidence may be considered justified as the line was reported as 100% effective on 29 March.

Hamel 6 (Hais - Hamel - Hais construction) might well have been expected to provide some unusual headaches, as the 4th Sea Lord had announced his intention of inspecting the unit during laying, or possibly watching the actual lay would be more accurate. This was on Saturday, 7 April and at daylight, when the unit should have swung to the north going tide, a fresh east wind prevented this happening and the unit had to be towed round by tug. Then, as the lay was started, the anchor wire jammed and parted, leaving the Hamel pipe free on the bottom with nothing to hold it and so cause the drum to revolve normally. It was hoped that by proceeding slowly, enough pipe would be paid out to get a grip on the sea bed and allow laying to proceed satisfactorily, but by the time the unit had proceeded some five miles on its course, it was clear that the pipe was not coming off the drum as it should and that the pipe was being dragged, leaving a gap at the Dungeness end. As might be expected, it was at this point that the 4th Sea Lord arrived in an M.T.B. His comments are not available, but as pipe was being laid, if not at its usual speed, it is possible that he was quite impressed and able to judge the difficulties of the operation.

Owing to the fact that nothing like the correct amount of pipe had been expended, it was necessary to get rid of some miles and this was done by making a series of large S-bends. There was still over 3 miles on the

drum on arrival off Boulogne and this was expended by a big sweep to the westward. Finally the end was dropped in almost the correct position.

It was arranged for Algerian to run in the extra 5 miles to connect up the Dungeness end, the Boulogne end having been completed almost immediately. The line was reported as not completed on 4 May 1944, but 100% effective on 11 May, so that the necessary repairs and adjustments took over a month, which is not surprising.

Hamel 7 seems to have confirmed the opinion that seven is a lucky number, as nearly everything went right. For once the weather was kind with a calm sea and slight haze. Laying was carried out on 18 April at an average speed of about  $4\frac{1}{2}$  knots with Bustler (Lt. Cdr. Sanders) leading the tow. Lt. Cdr. Harper of SNO Pluto's staff assisted with the navigation and the end of the pipe was dropped in the correct position off Boulogne harbour entrance. The line was reported as 100% effective on 4 May.

Hamel 8, the last of the Hamel lines, was laid on 27 April after a slight delay due to a convoy having been reported to be approaching from the westward. As it was impractical to stop the lay in mid-channel or make a large alteration of course to avoid a large convoy, Admiral Commanding Dover was asked for a precise E.T.A. (estimated time of arrival). A reply being received to the effect that the convoy would not be in the vicinity during the lay, the operation went ahead as planned.

Led once again by Bustler the unit got under way at



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0420 in a light easterly breeze and calm sea with visibility of 5 - 6 miles. As with Hamel 7, the passage was without incident and the Conundrum was in position when the end of the pipe came clear. Unfortunately, as had happened previously, the arrangement by which a wire attached to the end of the pipe should have pulled the blowing buoy off the drum, and so provided a means of lifting the end of the pipe, (or, rather the end of the Hais cable attached to the end of the pipe) failed, as the wire parted. Dan buoys were dropped to mark the spot and the connection to the shore was made successfully and the line reported as functioning satisfactorily by 8 May.

It would now seem that the laying of the Hamel pipelines from Conundrums had been proved a comparatively straightforward operation in reasonable weather and with Hais cable at each end. With the increasing expertise of the tug skippers and the easier connection of the shore ends permitted by the Hais cable 'tails' at each end, this type of Pluto line had begun to fulfill the hopes of its inventors and sponsors. There was, however, a grave defect in the system which had been foreseen and this was the short life of the steel pipes on the ocean bed, the metal chafing through in a matter of weeks. Possibly even this handicap could have been overcome with time for further research and experiment. But it must be a matter of doubt as to whether the Hamel pipelines justified the enormous expenditure of manpower and material involved, as far as 'Overlord' was concerned. The contribution to future pipelines may well have been considerable, but this was not the intention at the time.

The last of the Hais cables was laid on 24 May 1945

by Sancroft. This again was of American manufacture, but apparently was handled without difficulty. The fact that there were no problems on this occasion may have been due either to the warmer weather, or possibly to the outer jute covering having been ~~stripped~~<sup>stripped</sup> off and replaced. The latter process had earlier been suggested by Captain Hutchings, but in view of the fact that the use of the Pluto lines was coming to an end, it seems unlikely that such a major job should have been undertaken.

The long hard winter, during which Force Pluto struggled so valiantly to prove their operation a practical proposition of great value to the war effort, had seen great changes in the military situation. Differences of opinion amongst the allies, together with the effects of winter weather on troop movements, had combined to slow down the rate of advance, at least in the more sensitive areas. But supplies were being landed in great quantities and fuel tonnage outstripped the ability of the armies to receive and store it, so that Pluto was requested to pump less than the planned one million gallons a day.

Fairly early in the Dungeness - Boulogne operations it was evident that the Pluto lines would not be necessary unless there was a major set-back, either in the field or due to a port or ports being put out of action. Antwerp, undoubtedly the most useful port for the British armies, was under continuous bombardment from V1's and V2's and it is astonishing that the port managed to function so successfully. There was, though, another factor involved and this was the insistent cry from the Pacific for more



tankers and inspite of a certain dubiety on the part of the British administration, it was agreed that Pluto should go ahead and all available Hais cable and Hamel pipelines laid. Since they had all been manufactured at great cost, there must have seemed little point in not using them, but the materials they contained were valuable, especially the lead in the Hais cable, and recovery after laying was clearly going to involve great labour and expense.

8 In fact, recovery of the Pluto lines from the mainland to the Isle of Wight, used to feed the original Bambi storage, had already proceeded for some time. The recovery of the cross Channel lines was, of course, a much more difficult task.

On 1 June 1945, 24 days after the official end of the war in Europe, the Pluto weekly report stated that of the seventeen lines laid, eleven were functioning at full efficiency and 21,003 tons of fuel had been pumped across the Channel the previous week. The lines not functioning were No.5 (the second 2" Hais laid by Latimer), No.9 (the third 3" Hais laid by Latimer), Nos. 11, 12 and 13 (the first three Hamel lines laid) and No.17 (the second American 3" Hais laid by Sancroft which had not yet been connected. This line subsequently was brought into use and functioned correctly).

The total length of the lines laid from Dungeness to Boulogne was 500 miles and from Cherbourg to Sandown Bay 300 miles. This 800 miles of new and difficult cable and pipe laying was carried out, almost entirely in winter weather, with the loss of one Conundrum and without the

loss of a single man. Considering the fact that Force Pluto was very much in a 'pull devil, pull baker' situation, and that a great deal of Captain Hutchings' energies were devoted to getting permission to get on with the job, it must be conceded that Operation Pluto was a wonderful effort on the part of the very mixed, principally amateur, personnel of Force Pluto and their leader.