

Hut 6

16/3/42

Dear {Mr Welchman
{Mr Fletcher

Several variations of the existing bombes etc. have recently been suggested - quite apart from the major alterations and improvements proposed for the Mammoth and the Baby Jumbo. I am taking the liberty of reminding you of several of these which I think important and which I should like to see embodied very soon in one of the next bombes. They should not be allowed to lapse.

The Mammoth and Baby Jumbo (involving intelligent selection of stories), and the schemes for speeding up the bombes are matters requiring much experiment and a completely new design. The Mammoth, at best, must await Keen's researches - which I presume are progressing as fast as facilities permit. The points suggested here need practically no research, and I regard them as immediately possible.

The things I refer to are:-

(i) A set of relays for specifying a minimum number of self-stecker on Brown (using non-energised straights - off the current entry line). This would mean about 15 relays per bank-pluggable into the 26 self-stecker points. [In view of the likelihood of Brown "waking up" I think this improvement is of importance.]

(ii) The next Jumbo should have German ringstellung and German wheel-wiring - i.e. it should be completely German - so that for ringstellung cut-out jobs it should not be necessary to increase each range by two, - which is inconvenient in all cases, and a very serious handicap for short ranges of two or three positions.

(iii) The Reversed Bombe - with a middle bank having either reversed enigmas or a reversed drive - for running A.M. and P.M. cillies would be extremely useful. This would be a bigger alteration than (i) or (ii), but it should definitely be considered at an early date.

[N.B. It would be essential to put (iii) on to a Jumbo (it would be practicably no use on an ordinary bombe). While (i) would be more use on a Jumbo - preferably the same one as (iii) - it would be of some help even on an ordinary Bombe.

(iv) I should like to point out that we are nowadays doing a good many more dotteries than we used to (and we should do many more if the facilities were available). So a modified x-machine or some simple Quagga would be most useful, enabling us to do them much more quickly. I hope this matter will be dealt with soon.

All these things I regard as important and, in view of the length of time taken to get any plans into a concrete form I think they should be made concrete as soon as possible.

It is very easy for important points to get overlooked when so many different things are being ordered from Letchworth, e.g. consecutive Stecker Knock Out on Kanga - so I

hope you will not mind my bringing these matters again to your notice. I feel that something should be done about them at once.

Yours sincerely

Oliver H Lawn.

PS (i) When I was over at Letchworth last week I gathered from Keen that all research on the Mammoth had been abandoned in favour of speeding up the machines by means of valves. If this speeding up can be made a practicable proposition it will naturally be a tremendous help to us - & particularly to Hut 8 for the U-boat keys. All the same the general idea of selection of stories still remains - whether the stories are found in two hours or in two minutes, - and the testing will again be the bottle-neck. So I hope that experiments in some form of mechanical selection will not be abandoned.

(ii) I feel sure that the M.R. are in general agreement with what I have said.