# THE M.O.D. REACTION

BY

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To every action there is opposed an equal and opposite reaction—I. NEWTON

The third law stated above applies to the mechanics of motion. In a slightly less consistent fashion it may be said to apply to the reaction of engineers when faced with novel or unexpected engineering problems. No where is this more true than in the Ship Department. When major *matériel* problems are referred to Foxhill the answers to them are expected to be both immediate and immaculate. This article attempts, by plotting the MOD reaction against time, to explain to the outside observer why the technical correctness and consistency of the answer from the MOD may suffer for the sake of quick response. Thus as an officer at sea your report of disaster may be followed by a series of apparently divergent instructions from the MOD(N), ranging from overkill to disbelief. Observation of such reactions suggests that the progress of a particular problem may be split up into a number of phases; these are detailed below. FIG. 1 gives a graphical display. Roman figures in the text refer to the appropriate parts of the graph.

*Disconnected events*: Over a period of months or years a number of similar events occur and are reported by low-level means (concessions, S2022s, defect lists) to the MOD. They receive low-level handling or simply are filed (I).

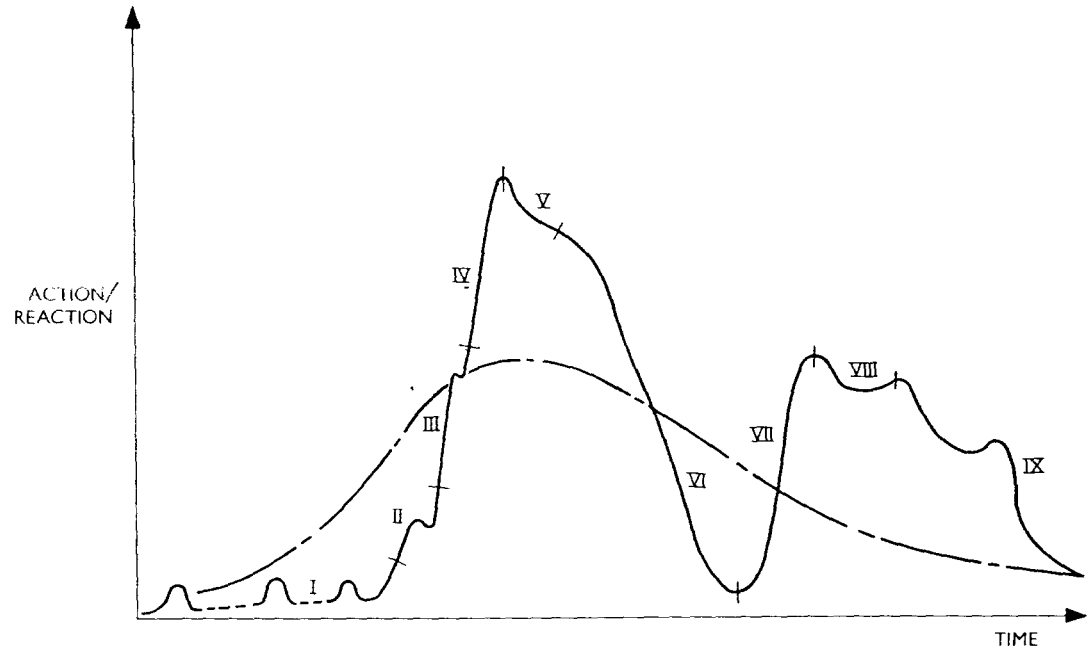


FIG. 1

*A correlation is suspected*: The take-off point. From some accident of time, people, and place, or because the originator foresees a more radical problem, the suspicion is raised. Is this a more general failure? Are there more serious implications? A search of records is initiated and questions are asked of ships and dockyards (II).

*A correlation is confirmed*: Records and questions reveal a correlation. The defects are not random but reflect a material or design failure. The roller-coaster is underway! (III).

*Worst inferences are drawn*: The prophets of doom come quickly from their corners (This is of course not fair. Any engineer, *on his own*, will consider separately the best and worst implications of a material failure. When a group considers a problem the individuals tend to polarize to extreme views and it is the synthesized, not the individual, view that counts). It is natural that first attention is paid to the worst implications. Would you—when faced with two artificers at the wardroom door, one saying 'I have good news' and the other saying 'I have bad news'—listen to the good news first?

It is at this stage that the problem quickly escalates. Let us assume that in five cases 'scrobies' have been reported as failing. A series of questions will be batted round Foxhill concerning scrobies. At each question the answer will not be completely known so that a 'worst' interim answer will be given.

Were the scrobies from the same manufacturing batch? Assume No.

Are they fitted in all ships? Assume Yes.

Are they fitted in vulnerable positions? Assume Yes.

Are the spares any better than the scrobies presently fitted? Assume No.

Do Scrobiemakers Ltd. make other Admiralty items of the same material? Assume Yes.

&C.

All this adds up to a formidable list of 'worst' assumptions which must lead to the initial conclusion:

GROUND ALL SCROBIES (IV)

*Second thoughts set in*: Immediately, *l'homme moyen raisonnable* asserts himself. Is it likely that all scrobies are equally vulnerable? Is it likely that all ships have scrobies fitted in vulnerable positions? The modified conclusion becomes:

GROUND SOME SCROBIES (V)

*The 'do-nothing' lobby becomes vocal . . .* : These pipe-puffing optimists (the 'good-news' boys) have been waiting their turn. In the meantime they have assembled a good case for total inertia:

Scrobies have always failed.

Ships' officers can cope with any type of scrobie failure.

Statistically it seems very improbable that . . .

NDE should bowl out potential scrobie failures.

In my day, a 4th class could turn up a scrobie in five minutes.

. . . and so on.

These views, combined with cries from the Naval Staff and the operators to remember our commitments at sea, may occasionally result in:

DO NOT GROUND ANY SCROBIES (VI)

. . . *but are overwhelmed*: Common sense prevails. Management has now heard both sides of the story—regrettably not at the same time. A problem *does* exist and so some action *is* needed, but it can be both controlled and reasonable action. (VII)

*The right proportion is achieved . . .* :

SCROBIES ARE TO BE NDE'D AT MONTHLY INTERVALS AND CHANGED SIX MONTHLY REGARDLESS OF CONDITION (VIII)

. . . *and a solution set in train*: These inspections provide the answer and the MOD interest declines until a few thick packs join the archives. (IX)

It will be apparent that the curve described varies considerably from what one might call the optimum, shown as a chain-dotted curve. In a perfect world correlations will be observed early, points of view will be assembled concurrently, the right decision will be taken at the right time and actions will flow smoothly to correct the problem. The perfect world requires:

(*a*) Good documentation and information retrieval systems.

(*b*) Identification of a potential problem area.

(*c*) Fast effective communication between officers of appropriate technical calibre.

(*d*) Absence of stress from technically irrelevant pressure.

A perfect world indeed!

No mention has been made here of the function of the technical staffs of the organizations that are interposed between ships and headquarters (squadrons, type commanders, fleet). While such staffs should theoretically be able to smoothe the curve towards the optimum it must be admitted that their contribution will tend to be small since their sample may be small, their documentation systems skeletal, their technical expertise broad based rather than specialized; above all they are inevitably part of that group which applies what I have called technically irrelevant pressure (i.e. they want their ships to go to or remain at sea).

What conclusions can the sea-going officer draw from this description of the classic material problem reaction cycle from inception to solution? Roughly these:

(*a*) Watch for the straws in the wind. The MOD information retrieval system is not perfect and you may spot a correlation before they do.

(*b*) Obey the last pipe—the MOD solution may seem extreme but it may be the only safe one.

(*c*) Contribute information. As a custodian of scrobies, with scrobie-specialized ratings on board, you may be particularly well qualified to give the balanced view and in general this may be welcomed—decisions are almost always most urgently required when the information is thinnest.

(*d*) Expect another pipe.