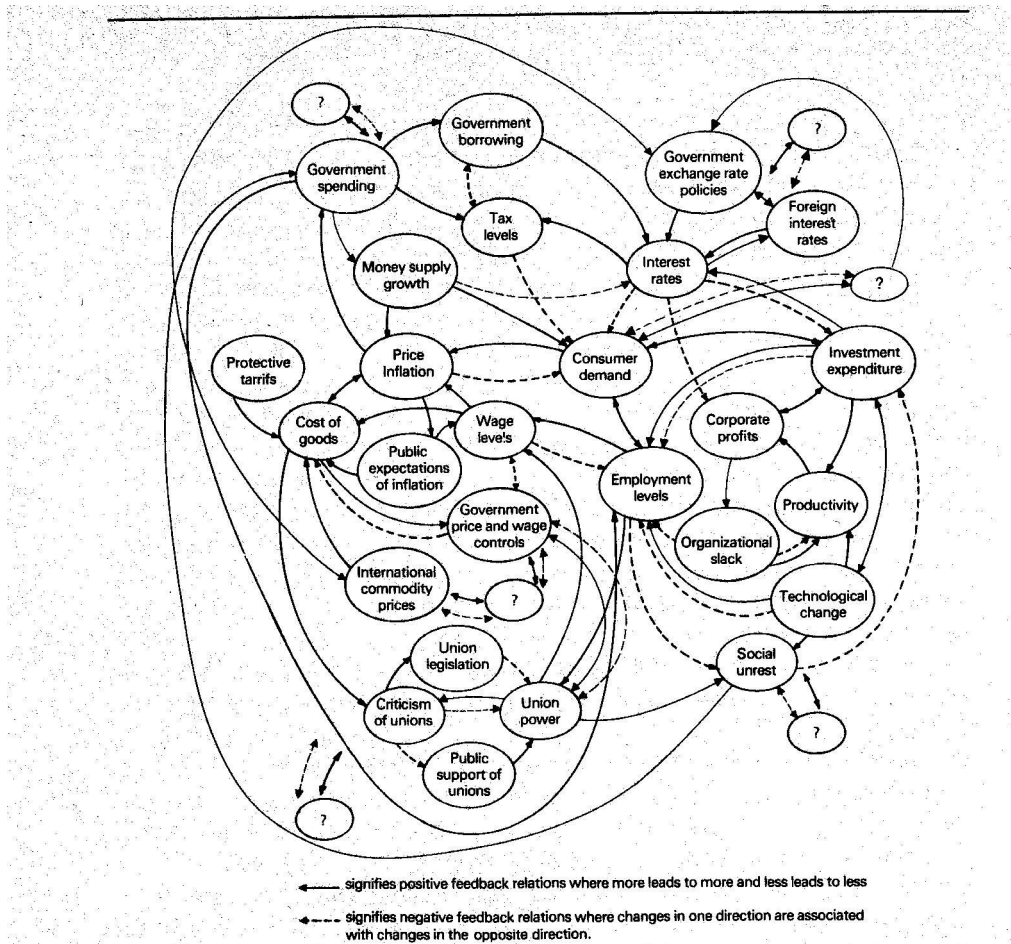


Morgan's Diagrams of the Networks of Social Forces and Feedback Loops
Constituting three Socio-cybernetic (guidance and control) Systems

The easiest way to give the reader a feel for the nature of the work on which we were trying to build when we, some 20 years ago, prepared Figure 1 is by reproducing the diagrams Morgan himself constructed to represent three social systems ... or perhaps the socio-cybernetic (guidance and control) processes controlling the operation of those systems. The first of these dealt with the network of mutually supportive and interacting forces and feedback loops that contribute to price inflation. It is reproduced in Figure 3.

Figure 3
Price inflation as a system of mutual causality



As Morgan comments “When we understand the problem of price inflation as a system of mutual causality defined by many interacting forces, we are encouraged to think in loops rather than in lines. No single factor is the cause of the problem. Price inflation is enfolded in the nature of the relations that define the total system. Many of the links represented in this diagram are deviation-amplifying (heavy lines); negative-feedback relations (dotted lines) are more sparse. Positive feedback thus gains the upper hand. The system can be stabilized by strengthening existing negative-feedback loops and by creating others. Many government policies implicitly attempt to have this effect. For example, wage and price controls introduce negative-feedback loops that

attempt to moderate the wage-price spiral. Government or media criticism of trade unions as unreasonable, greedy "villains" attempts to weaken the positive-feedback loop between public support and union power in the hope that it will moderate the power of trade unions to negotiate higher wages.

“In understanding this kind of mutual causality, we recognize that it is not possible to exert unilateral control over any set of variables. Interventions are likely to reverberate throughout the whole. It is thus necessary to adjust interventions to achieve the kind of *system* transformation that one desires.”

The next diagram Morgan presents deals with positive and negative feedback loops in the Power industry (Figure 4).

Figure 4
Positive and Negative Feedback Loops in the Power Industry.

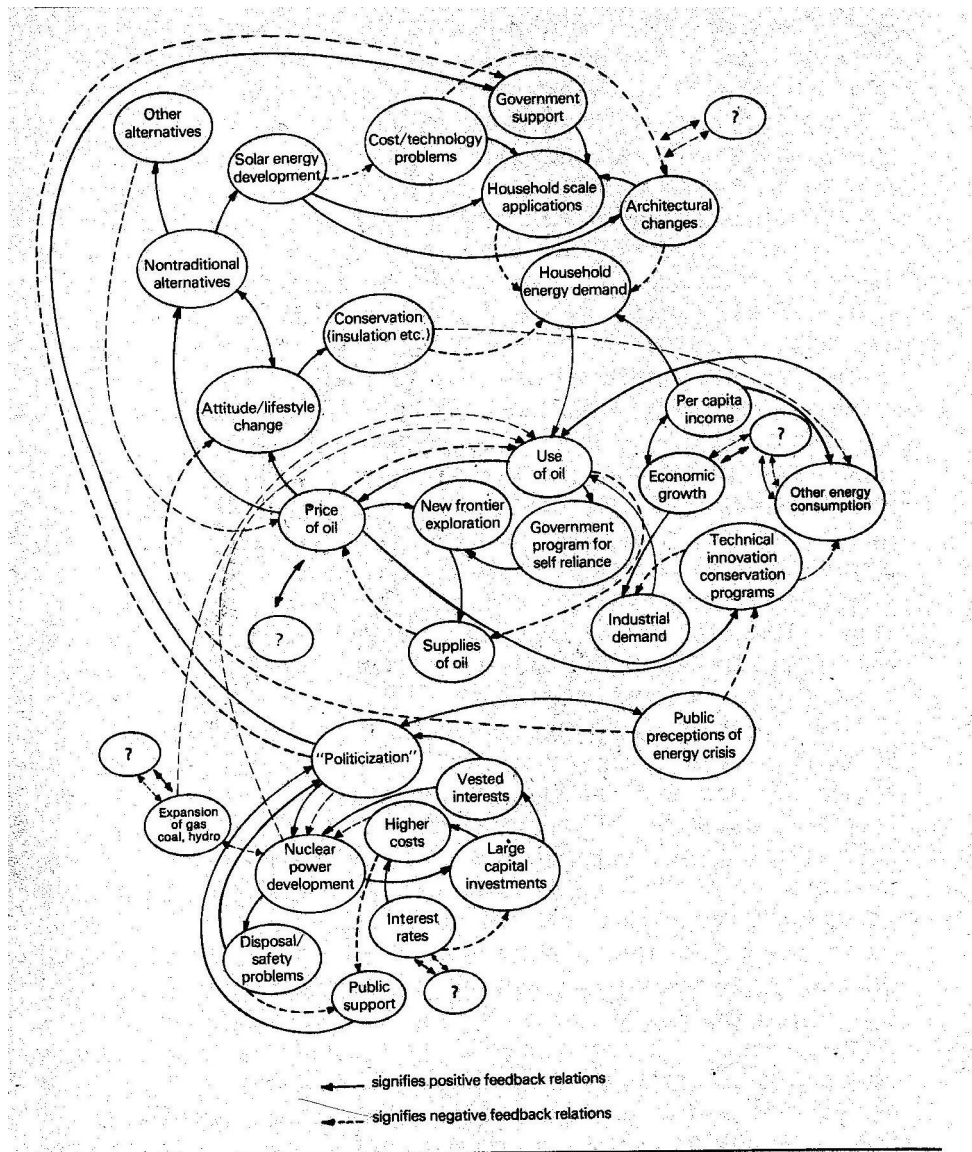
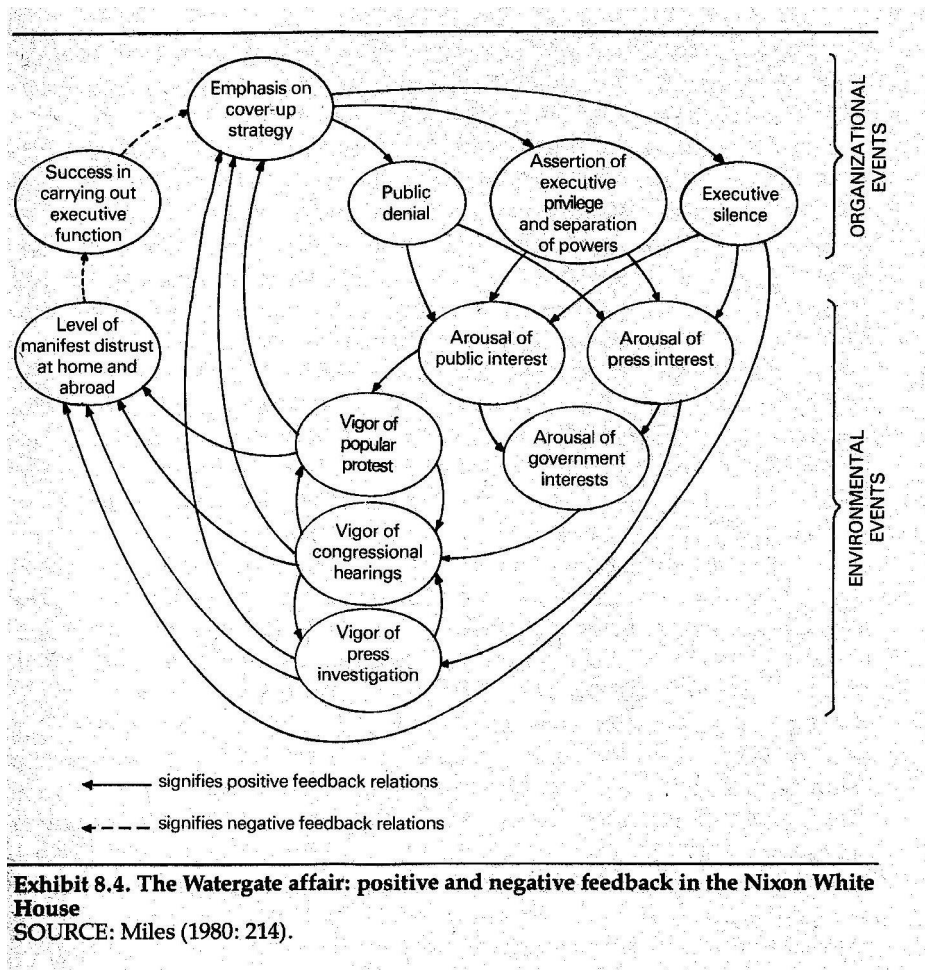


Exhibit 8.3. Positive and negative feedback in the power industry

His final Diagram deals with the Watergate cover up

Figure 5
Cover Up and Exposure in the Watergate Affair.



Morgan makes the following general comments ... which are strongly reinforced by observations made in the current paper.

“When we analyze situations as loops rather than lines we invariably arrive at a much richer picture of the system under consideration. There are many levels at which a system can be analyzed, and the choice of perspective will very much depend on the nature of the problem with which one is dealing. As noted earlier, systems always contain wholes within wholes, and one often finds that the problem with which one starts quickly becomes part of a larger problem requiring a broader focus. It is thus often necessary to supplement analysis conducted at one level (e.g. of socioeconomic trends at a macro level) with a richer picture of the dynamics of a set of relations that seem particularly important (e.g., organizational and interorganizational relations among a specific set of institutions). This broadening or deepening of analysis adds to the complexity of the overall picture, but often brings benefits in that it may identify new ways of solving the problems of specific concern. For when the problem is reframed, new opportunities often come into view.

“In conducting this kind of analysis it may not always be possible to map the loops defining a system with the degree of certainty and completeness that one might desire. In complex systems the degree of differentiation is high, and there are usually numerous intervening processes shaping any given set of actions.”

In the light of comments that have been made on our own work in the 20 years since we embarked upon it, it seems worth yet again underlining three things: First, many of the feedback processes depicted in these diagrams mutually reinforce *many* of the other feedback processes shown. These multiple lines *cannot* meaningfully be omitted and reduced to single, simple, lines. There *is* no single most important cause or explanation of “the problem” - nor remedy for it. Second: One cannot change any one part of the system on its own. Either the change one introduces will be negated by the reactions of the rest of the system or it will result in entirely unanticipated and counterintuitive effects elsewhere. Third: The overall system becomes self-perpetuating, self-elaborating, in a word “autopoietic”. (The significance of autopoietic processes is discussed more fully in other articles on this website, perhaps most fully in Raven, 2009.)

References

Morgan, G. (1986). *Images of Organization*. Beverly Hills, CA: Sage.