MARCH OF FOLLY
Spring 2023

Mark Nadel
markvnadel@gmail.com

This study group borrows its title from the book of the same name by Barbara Tuchman, which analyzed why governments continually violate President Obama's adage "Don't do stupid s..t." We will review cases where decision makers pursued courses of action that blew up in their faces despite warnings, and despite better alternatives. Cases will include the Vietnam and Iraq wars, the COVID pandemic, as well as misadventures by private actors. We will read about root causes of folly, including the structure and normal operations of government institutions, and discuss how decisions can be made more prudently.

The required book is *The March of* Folly by Barbara Tuchman from which we will read almost a half the book. Other than that, all the readings are in the course packet, available online from the OLLI website except for those that are hyperlinked in this syllabus directly to the article.

1. **March 1—When Is a Policy a "Folly?"**

(TEXT)

Tuchman, *The March of Folly,* Chapter 1 "Pursuit of Policy Contrary to Self-Interest"

2. **March 8 — Perception and Distortion**

Amos Tversky & Daniel Kahneman "Judgment under Uncertainty: Heuristics and Biases," *Science,* 1974.

Jerome Groopman, "What's the Trouble? How Doctors Think," *New Yorker,* Jan. 29, 2007.

3. **March 15— Groups and Decisions**

Irving Janis, *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, Chapt. 2, "A Perfect Failure: The Bay of Pigs," pp.14-27

Jason Zweig, "How to Ignore the Yes-Man in Your Head" *Wall Street Journal, Nov. 9, 2009*

4. **March 22--Bureaucracy and Intelligence Problems**

Richard Posner, "The 9/11 Report: A Dissent"

D Barstow, et. al., "The Nuclear Card: How the White House Embraced Disputed Arms Intelligence," *New York Times*, 10/3/04

5. **March 29— Using Historical Analogies in Analysis**

Richard Neustadt and Ernest May, *Thinking In Time*: *The Uses of History for Decision Makers,* pp. 82-84

6. **April 5--Analytic and Decision Biases**

William Langewiesche, "Columbia's Last Flight."
NOTE: The portion of the article in the OLLI packet has the material most relevant to the decision making and analytic biases that led to this space shuttle disaster. If you want to read the entire article, which is gripping, click here.

Daniel Kahneman, Jonathan Renshon "Why Hawks Always Win" *Foreign Policy,* 2007.

7. **April 12 -- Structural Factors and Political Disfunction: The Ultimate Cause of Policy Failure?**

Peter Schuck, *Why Government Fails,* Chapt. 8, "Implementation," pp.229-235.

James Fallows, "Blind into Baghdad," *Atlantic Monthly,* January/February 2004

The Pandemic "Trump Leaves States to Fend for Themselves"

Covid Money Trail , https://www.washingtonpost.com/business/interactive/2022/covid-money-trail-investigation-explained/

Robert Pear, et.al., "From the Start, Signs of Trouble at Health Portal" New York Times, October 13, 2013

8. **April 19– Case Studies: Vietnam and Post 9/11 Wars**

Tuchman, *March of Folly,* Chapter 5 "America Betrays Herself in Vietnam." (TEXT)

Carter Makasian, "What America Didn't Understand About Its Longest War," *Atlantic*

Nicholas Lehman, "How it Came to [the Iraq] War" Atlantic, 2003
https://www.newyorker.com/magazine/2003/03/31/how-it-came-to-war

MARCH 1, 2023

SEE TEXTBOOK

MARCH 8, 2023

Judgment under Uncertainty: Heuristics and Biases

Amos Tversky; Daniel Kahneman

Science, New Series, Vol. 185, No. 4157. (Sep. 27, 1974), pp. 1124-1131.

Stable URL:
http://links.jstor.org/sici?sici=0036-8075%2819740927%293%3A185%3A4157%3C1124%3AJUUHAB%3E2.0.CO%3B2-M

Science is currently published by American Association for the Advancement of Science.

Judgment under Uncertainty: Heuristics and Biases

Biases in judgments reveal some heuristics of thinking under uncertainty.

Amos Tversky and Daniel Kahneman

Many decisions are based on beliefs concerning the likelihood of uncertain events such as the outcome of an election, the guilt of a defendant, or the future value of the dollar. These beliefs are usually expressed in statements such as "I think that . . . ," "chances are . . . ," "it is unlikely that . . . ," and so forth. Occasionally, beliefs concerning uncertain events are expressed in numerical form as odds or subjective probabilities. What determines such beliefs? How do people assess the probability of an uncertain event or the value of an uncertain quantity? This article shows that people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe and systematic errors.

The subjective assessment of probability resembles the subjective assessment of physical quantities such as distance or size. These judgments are all based on data of limited validity, which are processed according to heuristic rules. For example, the apparent distance of an object is determined in part by its clarity. The more sharply the object is seen, the closer it appears to be. This rule has some validity, because in any given scene the more distant objects are seen less sharply than nearer objects. However, the reliance on this rule leads to systematic errors in the estimation of distance. Specifically, distances are often overestimated when visibility is poor because the contours of objects are blurred. On the other hand, distances are often underestimated when visibility is good because the objects are seen sharply. Thus, the reliance on clarity as an indication of distance leads to common biases. Such biases are also found in the intuitive judgment of probability. This article describes three heuristics that are employed to assess probabilities and to predict values. Biases to which these heuristics lead are enumerated, and the applied and theoretical implications of these observations are discussed.

The authors are members of the department of psychology at the Hebrew University, Jerusalem, Israel.

Representativeness

Many of the probabilistic questions with which people are concerned belong to one of the following types: What is the probability that object A belongs to class B? What is the probability that event A originates from process B? What is the probability that process B will generate event A? In answering such questions, people typically rely on the representativeness heuristic, in which probabilities are evaluated by the degree to which A is representative of B, that is, by the degree to which A resembles B. For example, when A is highly representative of B, the probability that A originates from B is judged to be high. On the other hand, if A is not similar to B, the probability that A originates from B is judged to be low.

For an illustration of judgment by representativeness, consider an individual who has been described by a former neighbor as follows: "Steve is very shy and withdrawn, invariably helpful, but with little interest in people, or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail." How do people assess the probability that Steve is engaged in a particular occupation from a list of possibilities (for example, farmer, salesman, airline pilot, librarian, or physician)? How do people order these occupations from most to least likely? In the representativeness heuristic, the probability that Steve is a librarian, for example, is assessed by the degree to which he is representative of, or similar to, the stereotype of a librarian. Indeed, research with problems of this type has shown that people order the occupations by probability and by similarity in exactly the same way (*1*). This approach to the judgment of probability leads to serious errors, because similarity, or representativeness, is not influenced by several factors that should affect judgments of probability.

Insensitivity to prior probability of outcomes. One of the factors that have no effect on representativeness but should have a major effect on probability is the prior probability, or base-rate frequency, of the outcomes. In the case of Steve, for example, the fact that there are many more farmers than librarians in the population should enter into any reasonable estimate of the probability that Steve is a librarian rather than a farmer. Considerations of base-rate frequency, however, do not affect the similarity of Steve to the stereotypes of librarians and farmers. If people evaluate probability by representativeness, therefore, prior probabilities will be neglected. This hypothesis was tested in an experiment where prior probabilities were manipulated (*1*). Subjects were shown brief personality descriptions of several individuals, allegedly sampled at random from a group of 100 professionals—engineers and lawyers. The subjects were asked to assess, for each description, the probability that it belonged to an engineer rather than to a lawyer. In one experimental condition, subjects were told that the group from which the descriptions had been drawn consisted of 70 engineers and 30 lawyers. In another condition, subjects were told that the group consisted of 30 engineers and 70 lawyers. The odds that any particular description belongs to an engineer rather than to a lawyer should be higher in the first condition, where there is a majority of engineers, than in the second condition, where there is a majority of lawyers. Specifically, it can be shown by applying Bayes' rule that the ratio of these odds should be $(.7/.3)^2$, or 5.44, for each description. In a sharp violation of Bayes' rule, the subjects in the two conditions produced essen-

tially the same probability judgments. Apparently, subjects evaluated the likelihood that a particular description belonged to an engineer rather than to a lawyer by the degree to which this description was representative of the two stereotypes, with little or no regard for the prior probabilities of the categories.

The subjects used prior probabilities correctly when they had no other information. In the absence of a personality sketch, they judged the probability that an unknown individual is an engineer to be .7 and .3, respectively, in the two base-rate conditions. However, prior probabilities were effectively ignored when a description was introduced, even when this description was totally uninformative. The responses to the following description illustrate this phenomenon:

> Dick is a 30 year old man. He is married with no children. A man of high ability and high motivation, he promises to be quite successful in his field. He is well liked by his colleagues.

This description was intended to convey no information relevant to the question of whether Dick is an engineer or a lawyer. Consequently, the probability that Dick is an engineer should equal the proportion of engineers in the group, as if no description had been given. The subjects, however, judged the probability of Dick being an engineer to be .5 regardless of whether the stated proportion of engineers in the group was .7 or .3. Evidently, people respond differently when given no evidence and when given worthless evidence. When no specific evidence is given, prior probabilities are properly utilized; when worthless evidence is given, prior probabilities are ignored (*1*).

Insensitivity to sample size. To evaluate the probability of obtaining a particular result in a sample drawn from a specified population, people typically apply the representativeness heuristic. That is, they assess the likelihood of a sample result, for example, that the average height in a random sample of ten men will be 6 feet (180 centimeters), by the similarity of this result to the corresponding parameter (that is, to the average height in the population of men). The similarity of a sample statistic to a population parameter does not depend on the size of the sample. Consequently, if probabilities are assessed by representativeness, then the judged probability of a sample statistic will be essentially independent of sample size. Indeed, when subjects assessed the distributions of average height for samples of various sizes, they produced identical distributions. For example, the probability of obtaining an average height greater than 6 feet was assigned the same value for samples of 1000, 100, and 10 men (*2*). Moreover, subjects failed to appreciate the role of sample size even when it was emphasized in the formulation of the problem. Consider the following question:

> A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day, and in the smaller hospital about 15 babies are born each day. As you know, about 50 percent of all babies are boys. However, the exact percentage varies from day to day. Sometimes it may be higher than 50 percent, sometimes lower.
>
> For a period of 1 year, each hospital recorded the days on which more than 60 percent of the babies born were boys. Which hospital do you think recorded more such days?
>
> ► The larger hospital (21)
> ► The smaller hospital (21)
> ► About the same (that is, within 5 percent of each other) (53)

The values in parentheses are the number of undergraduate students who chose each answer.

Most subjects judged the probability of obtaining more than 60 percent boys to be the same in the small and in the large hospital, presumably because these events are described by the same statistic and are therefore equally representative of the general population. In contrast, sampling theory entails that the expected number of days on which more than 60 percent of the babies are boys is much greater in the small hospital than in the large one, because a large sample is less likely to stray from 50 percent. This fundamental notion of statistics is evidently not part of people's repertoire of intuitions.

A similar insensitivity to sample size has been reported in judgments of posterior probability, that is, of the probability that a sample has been drawn from one population rather than from another. Consider the following example:

> Imagine an urn filled with balls, of which ⅔ are of one color and ⅓ of another. One individual has drawn 5 balls from the urn, and found that 4 were red and 1 was white. Another individual has drawn 20 balls and found that 12 were red and 8 were white. Which of the two individuals should feel more confident that the urn contains ⅔ red balls and ⅓ white balls, rather than the opposite? What odds should each individual give?

In this problem, the correct posterior odds are 8 to 1 for the 4 : 1 sample and 16 to 1 for the 12 : 8 sample, assuming equal prior probabilities. However, most people feel that the first sample provides much stronger evidence for the hypothesis that the urn is predominantly red, because the proportion of red balls is larger in the first than in the second sample. Here again, intuitive judgments are dominated by the sample proportion and are essentially unaffected by the size of the sample, which plays a crucial role in the determination of the actual posterior odds (*2*). In addition, intuitive estimates of posterior odds are far less extreme than the correct values. The underestimation of the impact of evidence has been observed repeatedly in problems of this type (*3*, *4*). It has been labeled "conservatism."

Misconceptions of chance. People expect that a sequence of events generated by a random process will represent the essential characteristics of that process even when the sequence is short. In considering tosses of a coin for heads or tails, for example, people regard the sequence H-T-H-T-T-H to be more likely than the sequence H-H-H-T-T-T, which does not appear random, and also more likely than the sequence H-H-H-H-T-H, which does not represent the fairness of the coin (*2*). Thus, people expect that the essential characteristics of the process will be represented, not only globally in the entire sequence, but also locally in each of its parts. A locally representative sequence, however, deviates systematically from chance expectation: it contains too many alternations and too few runs. Another consequence of the belief in local representativeness is the well-known gambler's fallacy. After observing a long run of red on the roulette wheel, for example, most people erroneously believe that black is now due, presumably because the occurrence of black will result in a more representative sequence than the occurrence of an additional red. Chance is commonly viewed as a self-correcting process in which a deviation in one direction induces a deviation in the opposite direction to restore the equilibrium. In fact, deviations are not "corrected" as a chance process unfolds, they are merely diluted.

Misconceptions of chance are not limited to naive subjects. A study of the statistical intuitions of experienced research psychologists (*5*) revealed a lingering belief in what may be called the "law of small numbers," according to which even small samples are highly

representative of the populations from which they are drawn. The responses of these investigators reflected the expectation that a valid hypothesis about a population will be represented by a statistically significant result in a sample—with little regard for its size. As a consequence, the researchers put too much faith in the results of small samples and grossly overestimated the replicability of such results. In the actual conduct of research, this bias leads to the selection of samples of inadequate size and to overinterpretation of findings.

Insensitivity to predictability. People are sometimes called upon to make such numerical predictions as the future value of a stock, the demand for a commodity, or the outcome of a football game. Such predictions are often made by representativeness. For example, suppose one is given a description of a company and is asked to predict its future profit. If the description of the company is very favorable, a very high profit will appear most representative of that description; if the description is mediocre, a mediocre performance will appear most representative. The degree to which the description is favorable is unaffected by the reliability of that description or by the degree to which it permits accurate prediction. Hence, if people predict solely in terms of the favorableness of the description, their predictions will be insensitive to the reliability of the evidence and to the expected accuracy of the prediction.

This mode of judgment violates the normative statistical theory in which the extremeness and the range of predictions are controlled by considerations of predictability. When predictability is nil, the same prediction should be made in all cases. For example, if the descriptions of companies provide no information relevant to profit, then the same value (such as average profit) should be predicted for all companies. If predictability is perfect, of course, the values predicted will match the actual values and the range of predictions will equal the range of outcomes. In general, the higher the predictability, the wider the range of predicted values.

Several studies of numerical prediction have demonstrated that intuitive predictions violate this rule, and that subjects show little or no regard for considerations of predictability (*1*). In one of these studies, subjects were presented with several paragraphs, each describing the performance of a student teacher during a particular practice lesson. Some subjects were asked to *evaluate* the quality of the lesson described in the paragraph in percentile scores, relative to a specified population. Other subjects were asked to *predict*, also in percentile scores, the standing of each student teacher 5 years after the practice lesson. The judgments made under the two conditions were identical. That is, the prediction of a remote criterion (success of a teacher after 5 years) was identical to the evaluation of the information on which the prediction was based (the quality of the practice lesson). The students who made these predictions were undoubtedly aware of the limited predictability of teaching competence on the basis of a single trial lesson 5 years earlier; nevertheless, their predictions were as extreme as their evaluations.

The illusion of validity. As we have seen, people often predict by selecting the outcome (for example, an occupation) that is most representative of the input (for example, the description of a person). The confidence they have in their prediction depends primarily on the degree of representativeness (that is, on the quality of the match between the selected outcome and the input) with little or no regard for the factors that limit predictive accuracy. Thus, people express great confidence in the prediction that a person is a librarian when given a description of his personality which matches the stereotype of librarians, even if the description is scanty, unreliable, or outdated. The unwarranted confidence which is produced by a good fit between the predicted outcome and the input information may be called the illusion of validity. This illusion persists even when the judge is aware of the factors that limit the accuracy of his predictions. It is a common observation that psychologists who conduct selection interviews often experience considerable confidence in their predictions, even when they know of the vast literature that shows selection interviews to be highly fallible. The continued reliance on the clinical interview for selection, despite repeated demonstrations of its inadequacy, amply attests to the strength of this effect.

The internal consistency of a pattern of inputs is a major determinant of one's confidence in predictions based on these inputs. For example, people express more confidence in predicting the final grade-point average of a student whose first-year record consists entirely of B's than in predicting the grade-point average of a student whose first-year record includes many A's and C's. Highly consistent patterns are most often observed when the input variables are highly redundant or correlated. Hence, people tend to have great confidence in predictions based on redundant input variables. However, an elementary result in the statistics of correlation asserts that, given input variables of stated validity, a prediction based on several such inputs can achieve higher accuracy when they are independent of each other than when they are redundant or correlated. Thus, redundancy among inputs decreases accuracy even as it increases confidence, and people are often confident in predictions that are quite likely to be off the mark (*1*).

Misconceptions of regression. Suppose a large group of children has been examined on two equivalent versions of an aptitude test. If one selects ten children from among those who did best on one of the two versions, he will usually find their performance on the second version to be somewhat disappointing. Conversely, if one selects ten children from among those who did worst on one version, they will be found, on the average, to do somewhat better on the other version. More generally, consider two variables X and Y which have the same distribution. If one selects individuals whose average X score deviates from the mean of X by k units, then the average of their Y scores will usually deviate from the mean of Y by less than k units. These observations illustrate a general phenomenon known as regression toward the mean, which was first documented by Galton more than 100 years ago.

In the normal course of life, one encounters many instances of regression toward the mean, in the comparison of the height of fathers and sons, of the intelligence of husbands and wives, or of the performance of individuals on consecutive examinations. Nevertheless, people do not develop correct intuitions about this phenomenon. First, they do not expect regression in many contexts where it is bound to occur. Second, when they recognize the occurrence of regression, they often invent spurious causal explanations for it (*1*). We suggest that the phenomenon of regression remains elusive because it is incompatible with the belief that the predicted outcome should be maximally

representative of the input, and, hence, that the value of the outcome variable should be as extreme as the value of the input variable.

The failure to recognize the import of regression can have pernicious consequences, as illustrated by the following observation (*1*). In a discussion of flight training, experienced instructors noted that praise for an exceptionally smooth landing is typically followed by a poorer landing on the next try, while harsh criticism after a rough landing is usually followed by an improvement on the next try. The instructors concluded that verbal rewards are detrimental to learning, while verbal punishments are beneficial, contrary to accepted psychological doctrine. This conclusion is unwarranted because of the presence of regression toward the mean. As in other cases of repeated examination, an improvement will usually follow a poor performance and a deterioration will usually follow an outstanding performance, even if the instructor does not respond to the trainee's achievement on the first attempt. Because the instructors had praised their trainees after good landings and admonished them after poor ones, they reached the erroneous and potentially harmful conclusion that punishment is more effective than reward.

Thus, the failure to understand the effect of regression leads one to overestimate the effectiveness of punishment and to underestimate the effectiveness of reward. In social interaction, as well as in training, rewards are typically administered when performance is good, and punishments are typically administered when performance is poor. By regression alone, therefore, behavior is most likely to improve after punishment and most likely to deteriorate after reward. Consequently, the human condition is such that, by chance alone, one is most often rewarded for punishing others and most often punished for rewarding them. People are generally not aware of this contingency. In fact, the elusive role of regression in determining the apparent consequences of reward and punishment seems to have escaped the notice of students of this area.

Availability

There are situations in which people assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind. For example, one may assess the risk of heart attack among middle-aged people by recalling such occurrences among one's acquaintances. Similarly, one may evaluate the probability that a given business venture will fail by imagining various difficulties it could encounter. This judgmental heuristic is called availability. Availability is a useful clue for assessing frequency or probability, because instances of large classes are usually recalled better and faster than instances of less frequent classes. However, availability is affected by factors other than frequency and probability. Consequently, the reliance on availability leads to predictable biases, some of which are illustrated below.

Biases due to the retrievability of instances. When the size of a class is judged by the availability of its instances, a class whose instances are easily retrieved will appear more numerous than a class of equal frequency whose instances are less retrievable. In an elementary demonstration of this effect, subjects heard a list of well-known personalities of both sexes and were subsequently asked to judge whether the list contained more names of men than of women. Different lists were presented to different groups of subjects. In some of the lists the men were relatively more famous than the women, and in others the women were relatively more famous than the men. In each of the lists, the subjects erroneously judged that the class (sex) that had the more famous personalities was the more numerous (*6*).

In addition to familiarity, there are other factors, such as salience, which affect the retrievability of instances. For example, the impact of seeing a house burning on the subjective probability of such accidents is probably greater than the impact of reading about a fire in the local paper. Furthermore, recent occurrences are likely to be relatively more available than earlier occurrences. It is a common experience that the subjective probability of traffic accidents rises temporarily when one sees a car overturned by the side of the road.

Biases due to the effectiveness of a search set. Suppose one samples a word (of three letters or more) at random from an English text. Is it more likely that the word starts with r or that r is the third letter? People approach this problem by recalling words that begin with r (road) and words that have r in the third position (car) and assess the relative frequency by the ease with which words of the two types come to mind. Because it is much easier to search for words by their first letter than by their third letter, most people judge words that begin with a given consonant to be more numerous than words in which the same consonant appears in the third position. They do so even for consonants, such as r or k, that are more frequent in the third position than in the first (*6*).

Different tasks elicit different search sets. For example, suppose you are asked to rate the frequency with which abstract words (thought, love) and concrete words (door, water) appear in written English. A natural way to answer this question is to search for contexts in which the word could appear. It seems easier to think of contexts in which an abstract concept is mentioned (love in love stories) than to think of contexts in which a concrete word (such as door) is mentioned. If the frequency of words is judged by the availability of the contexts in which they appear, abstract words will be judged as relatively more numerous than concrete words. This bias has been observed in a recent study (*7*) which showed that the judged frequency of occurrence of abstract words was much higher than that of concrete words, equated in objective frequency. Abstract words were also judged to appear in a much greater variety of contexts than concrete words.

Biases of imaginability. Sometimes one has to assess the frequency of a class whose instances are not stored in memory but can be generated according to a given rule. In such situations, one typically generates several instances and evaluates frequency or probability by the ease with which the relevant instances can be constructed. However, the ease of constructing instances does not always reflect their actual frequency, and this mode of evaluation is prone to biases. To illustrate, consider a group of 10 people who form committees of k members, $2 \leq k \leq 8$. How many different committees of k members can be formed? The correct answer to this problem is given by the binomial coefficient $\binom{10}{k}$ which reaches a maximum of 252 for $k = 5$. Clearly, the number of committees of k members equals the number of committees of $(10 - k)$ members, because any committee of k

members defines a unique group of $(10 - k)$ nonmembers.

One way to answer this question without computation is to mentally construct committees of k members and to evaluate their number by the ease with which they come to mind. Committees of few members, say 2, are more available than committees of many members, say 8. The simplest scheme for the construction of committees is a partition of the group into disjoint sets. One readily sees that it is easy to construct five disjoint committees of 2 members, while it is impossible to generate even two disjoint committees of 8 members. Consequently, if frequency is assessed by imaginability, or by availability for construction, the small committees will appear more numerous than larger committees, in contrast to the correct bell-shaped function. Indeed, when naive subjects were asked to estimate the number of distinct committees of various sizes, their estimates were a decreasing monotonic function of committee size (*6*). For example, the median estimate of the number of committees of 2 members was 70, while the estimate for committees of 8 members was 20 (the correct answer is 45 in both cases).

Imaginability plays an important role in the evaluation of probabilities in real-life situations. The risk involved in an adventurous expedition, for example, is evaluated by imagining contingencies with which the expedition is not equipped to cope. If many such difficulties are vividly portrayed, the expedition can be made to appear exceedingly dangerous, although the ease with which disasters are imagined need not reflect their actual likelihood. Conversely, the risk involved in an undertaking may be grossly underestimated if some possible dangers are either difficult to conceive of, or simply do not come to mind.

Illusory correlation. Chapman and Chapman (*8*) have described an interesting bias in the judgment of the frequency with which two events co-occur. They presented naive judges with information concerning several hypothetical mental patients. The data for each patient consisted of a clinical diagnosis and a drawing of a person made by the patient. Later the judges estimated the frequency with which each diagnosis (such as paranoia or suspiciousness) had been accompanied by various features of the drawing (such as peculiar eyes). The subjects markedly overestimated the frequency of co-occurrence of natural associates, such as suspiciousness and peculiar eyes. This effect was labeled illusory correlation. In their erroneous judgments of the data to which they had been exposed, naive subjects "rediscovered" much of the common, but unfounded, clinical lore concerning the interpretation of the draw-a-person test. The illusory correlation effect was extremely resistant to contradictory data. It persisted even when the correlation between symptom and diagnosis was actually negative, and it prevented the judges from detecting relationships that were in fact present.

Availability provides a natural account for the illusory-correlation effect. The judgment of how frequently two events co-occur could be based on the strength of the associative bond between them. When the association is strong, one is likely to conclude that the events have been frequently paired. Consequently, strong associates will be judged to have occurred together frequently. According to this view, the illusory correlation between suspiciousness and peculiar drawing of the eyes, for example, is due to the fact that suspiciousness is more readily associated with the eyes than with any other part of the body.

Lifelong experience has taught us that, in general, instances of large classes are recalled better and faster than instances of less frequent classes; that likely occurrences are easier to imagine than unlikely ones; and that the associative connections between events are strengthened when the events frequently co-occur. As a result, man has at his disposal a procedure (the availability heuristic) for estimating the numerosity of a class, the likelihood of an event, or the frequency of co-occurrences, by the ease with which the relevant mental operations of retrieval, construction, or association can be performed. However, as the preceding examples have demonstrated, this valuable estimation procedure results in systematic errors.

Adjustment and Anchoring

In many situations, people make estimates by starting from an initial value that is adjusted to yield the final answer. The initial value, or starting point, may be suggested by the formulation of the problem, or it may be the result of a partial computation. In either case, adjustments are typically insufficient (*4*). That is, different starting points yield different estimates, which are biased toward the initial values. We call this phenomenon anchoring.

Insufficient adjustment. In a demonstration of the anchoring effect, subjects were asked to estimate various quantities, stated in percentages (for example, the percentage of African countries in the United Nations). For each quantity, a number between 0 and 100 was determined by spinning a wheel of fortune in the subjects' presence. The subjects were instructed to indicate first whether that number was higher or lower than the value of the quantity, and then to estimate the value of the quantity by moving upward or downward from the given number. Different groups were given different numbers for each quantity, and these arbitrary numbers had a marked effect on estimates. For example, the median estimates of the percentage of African countries in the United Nations were 25 and 45 for groups that received 10 and 65, respectively, as starting points. Payoffs for accuracy did not reduce the anchoring effect.

Anchoring occurs not only when the starting point is given to the subject, but also when the subject bases his estimate on the result of some incomplete computation. A study of intuitive numerical estimation illustrates this effect. Two groups of high school students estimated, within 5 seconds, a numerical expression that was written on the blackboard. One group estimated the product

$$8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$$

while another group estimated the product

$$1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8$$

To rapidly answer such questions, people may perform a few steps of computation and estimate the product by extrapolation or adjustment. Because adjustments are typically insufficient, this procedure should lead to underestimation. Furthermore, because the result of the first few steps of multiplication (performed from left to right) is higher in the descending sequence than in the ascending sequence, the former expression should be judged larger than the latter. Both predictions were confirmed. The median estimate for the ascending sequence was 512, while the median estimate for the descending sequence was 2,250. The correct answer is 40,320.

Biases in the evaluation of conjunctive and disjunctive events. In a recent

study by Bar-Hillel (*9*) subjects were given the opportunity to bet on one of two events. Three types of events were used: (i) simple events, such as drawing a red marble from a bag containing 50 percent red marbles and 50 percent white marbles; (ii) conjunctive events, such as drawing a red marble seven times in succession, with replacement, from a bag containing 90 percent red marbles and 10 percent white marbles; and (iii) disjunctive events, such as drawing a red marble at least once in seven successive tries, with replacement, from a bag containing 10 percent red marbles and 90 percent white marbles. In this problem, a significant majority of subjects preferred to bet on the conjunctive event (the probability of which is .48) rather than on the simple event (the probability of which is .50). Subjects also preferred to bet on the simple event rather than on the disjunctive event, which has a probability of .52. Thus, most subjects bet on the less likely event in both comparisons. This pattern of choices illustrates a general finding. Studies of choice among gambles and of judgments of probability indicate that people tend to overestimate the probability of conjunctive events (*10*) and to underestimate the probability of disjunctive events. These biases are readily explained as effects of anchoring. The stated probability of the elementary event (success at any one stage) provides a natural starting point for the estimation of the probabilities of both conjunctive and disjunctive events. Since adjustment from the starting point is typically insufficient, the final estimates remain too close to the probabilities of the elementary events in both cases. Note that the overall probability of a conjunctive event is lower than the probability of each elementary event, whereas the overall probability of a disjunctive event is higher than the probability of each elementary event. As a consequence of anchoring, the overall probability will be overestimated in conjunctive problems and underestimated in disjunctive problems.

Biases in the evaluation of compound events are particularly significant in the context of planning. The successful completion of an undertaking, such as the development of a new product, typically has a conjunctive character: for the undertaking to succeed, each of a series of events must occur. Even when each of these events is very likely, the overall probability of success can be quite low if the number of events is large. The general tendency to overestimate the probability of conjunctive events leads to unwarranted optimism in the evaluation of the likelihood that a plan will succeed or that a project will be completed on time. Conversely, disjunctive structures are typically encountered in the evaluation of risks. A complex system, such as a nuclear reactor or a human body, will malfunction if any of its essential components fails. Even when the likelihood of failure in each component is slight, the probability of an overall failure can be high if many components are involved. Because of anchoring, people will tend to underestimate the probabilities of failure in complex systems. Thus, the direction of the anchoring bias can sometimes be inferred from the structure of the event. The chain-like structure of conjunctions leads to overestimation, the funnel-like structure of disjunctions leads to underestimation.

Anchoring in the assessment of subjective probability distributions. In decision analysis, experts are often required to express their beliefs about a quantity, such as the value of the Dow-Jones average on a particular day, in the form of a probability distribution. Such a distribution is usually constructed by asking the person to select values of the quantity that correspond to specified percentiles of his subjective probability distribution. For example, the judge may be asked to select a number, X_{90}, such that his subjective probability that this number will be higher than the value of the Dow-Jones average is .90. That is, he should select the value X_{90} so that he is just willing to accept 9 to 1 odds that the Dow-Jones average will not exceed it. A subjective probability distribution for the value of the Dow-Jones average can be constructed from several such judgments corresponding to different percentiles.

By collecting subjective probability distributions for many different quantities, it is possible to test the judge for proper calibration. A judge is properly (or externally) calibrated in a set of problems if exactly Π percent of the true values of the assessed quantities falls below his stated values of X_Π. For example, the true values should fall below X_{01} for 1 percent of the quantities and above X_{99} for 1 percent of the quantities. Thus, the true values should fall in the confidence interval between X_{01} and X_{99} on 98 percent of the problems.

Several investigators (*11*) have obtained probability distributions for many quantities from a large number of judges. These distributions indicated large and systematic departures from proper calibration. In most studies, the actual values of the assessed quantities are either smaller than X_{01} or greater than X_{99} for about 30 percent of the problems. That is, the subjects state overly narrow confidence intervals which reflect more certainty than is justified by their knowledge about the assessed quantities. This bias is common to naive and to sophisticated subjects, and it is not eliminated by introducing proper scoring rules, which provide incentives for external calibration. This effect is attributable, in part at least, to anchoring.

To select X_{90} for the value of the Dow-Jones average, for example, it is natural to begin by thinking about one's best estimate of the Dow-Jones and to adjust this value upward. If this adjustment—like most others—is insufficient, then X_{90} will not be sufficiently extreme. A similar anchoring effect will occur in the selection of X_{10}, which is presumably obtained by adjusting one's best estimate downward. Consequently, the confidence interval between X_{10} and X_{90} will be too narrow, and the assessed probability distribution will be too tight. In support of this interpretation it can be shown that subjective probabilities are systematically altered by a procedure in which one's best estimate does not serve as an anchor.

Subjective probability distributions for a given quantity (the Dow-Jones average) can be obtained in two different ways: (i) by asking the subject to select values of the Dow-Jones that correspond to specified percentiles of his probability distribution and (ii) by asking the subject to assess the probabilities that the true value of the Dow-Jones will exceed some specified values. The two procedures are formally equivalent and should yield identical distributions. However, they suggest different modes of adjustment from different anchors. In procedure (i), the natural starting point is one's best estimate of the quantity. In procedure (ii), on the other hand, the subject may be anchored on the value stated in the question. Alternatively, he may be anchored on even odds, or 50-50 chances, which is a natural starting point in the estimation of likelihood. In either case, procedure (ii) should yield less extreme odds than procedure (i).

To contrast the two procedures, a set of 24 quantities (such as the air dis-

tance from New Delhi to Peking) was presented to a group of subjects who assessed either X_{10} or X_{90} for each problem. Another group of subjects received the median judgment of the first group for each of the 24 quantities. They were asked to assess the odds that each of the given values exceeded the true value of the relevant quantity. In the absence of any bias, the second group should retrieve the odds specified to the first group, that is, 9 : 1. However, if even odds or the stated value serve as anchors, the odds of the second group should be less extreme, that is, closer to 1 : 1. Indeed, the median odds stated by this group, across all problems, were 3 : 1. When the judgments of the two groups were tested for external calibration, it was found that subjects in the first group were too extreme, in accord with earlier studies. The events that they defined as having a probability of .10 actually obtained in 24 percent of the cases. In contrast, subjects in the second group were too conservative. Events to which they assigned an average probability of .34 actually obtained in 26 percent of the cases. These results illustrate the manner in which the degree of calibration depends on the procedure of elicitation.

Discussion

This article has been concerned with cognitive biases that stem from the reliance on judgmental heuristics. These biases are not attributable to motivational effects such as wishful thinking or the distortion of judgments by payoffs and penalties. Indeed, several of the severe errors of judgment reported earlier occurred despite the fact that subjects were encouraged to be accurate and were rewarded for the correct answers (*2*, *6*).

The reliance on heuristics and the prevalence of biases are not restricted to laymen. Experienced researchers are also prone to the same biases—when they think intuitively. For example, the tendency to predict the outcome that best represents the data, with insufficient regard for prior probability, has been observed in the intuitive judgments of individuals who have had extensive training in statistics (*1*, *5*). Although the statistically sophisticated avoid elementary errors, such as the gambler's fallacy, their intuitive judgments are liable to similar fallacies in more intricate and less transparent problems.

It is not surprising that useful heuristics such as representativeness and availability are retained, even though they occasionally lead to errors in prediction or estimation. What is perhaps surprising is the failure of people to infer from lifelong experience such fundamental statistical rules as regression toward the mean, or the effect of sample size on sampling variability. Although everyone is exposed, in the normal course of life, to numerous examples from which these rules could have been induced, very few people discover the principles of sampling and regression on their own. Statistical principles are not learned from everyday experience because the relevant instances are not coded appropriately. For example, people do not discover that successive lines in a text differ more in average word length than do successive pages, because they simply do not attend to the average word length of individual lines or pages. Thus, people do not learn the relation between sample size and sampling variability, although the data for such learning are abundant.

The lack of an appropriate code also explains why people usually do not detect the biases in their judgments of probability. A person could conceivably learn whether his judgments are externally calibrated by keeping a tally of the proportion of events that actually occur among those to which he assigns the same probability. However, it is not natural to group events by their judged probability. In the absence of such grouping it is impossible for an individual to discover, for example, that only 50 percent of the predictions to which he has assigned a probability of .9 or higher actually came true.

The empirical analysis of cognitive biases has implications for the theoretical and applied role of judged probabilities. Modern decision theory (*12*, *13*) regards subjective probability as the quantified opinion of an idealized person. Specifically, the subjective probability of a given event is defined by the set of bets about this event that such a person is willing to accept. An internally consistent, or coherent, subjective probability measure can be derived for an individual if his choices among bets satisfy certain principles, that is, the axioms of the theory. The derived probability is subjective in the sense that different individuals are allowed to have different probabilities for the same event. The major contribution of this approach is that it provides a rigorous subjective interpretation of probability that is applicable to unique events and is embedded in a general theory of rational decision.

It should perhaps be noted that, while subjective probabilities can sometimes be inferred from preferences among bets, they are normally not formed in this fashion. A person bets on team A rather than on team B because he believes that team A is more likely to win; he does not infer this belief from his betting preferences. Thus, in reality, subjective probabilities determine preferences among bets and are not derived from them, as in the axiomatic theory of rational decision (*12*).

The inherently subjective nature of probability has led many students to the belief that coherence, or internal consistency, is the only valid criterion by which judged probabilities should be evaluated. From the standpoint of the formal theory of subjective probability, any set of internally consistent probability judgments is as good as any other. This criterion is not entirely satisfactory, because an internally consistent set of subjective probabilities can be incompatible with other beliefs held by the individual. Consider a person whose subjective probabilities for all possible outcomes of a coin-tossing game reflect the gambler's fallacy. That is, his estimate of the probability of tails on a particular toss increases with the number of consecutive heads that preceded that toss. The judgments of such a person could be internally consistent and therefore acceptable as adequate subjective probabilities according to the criterion of the formal theory. These probabilities, however, are incompatible with the generally held belief that a coin has no memory and is therefore incapable of generating sequential dependencies. For judged probabilities to be considered adequate, or rational, internal consistency is not enough. The judgments must be compatible with the entire web of beliefs held by the individual. Unfortunately, there can be no simple formal procedure for assessing the compatibility of a set of probability judgments with the judge's total system of beliefs. The rational judge will nevertheless strive for compatibility, even though internal consistency is more easily achieved and assessed. In particular, he will attempt to make his probability judgments compatible with his knowledge about the subject matter, the laws of probability, and his own judgmental heuristics and biases.

Summary

This article described three heuristics that are employed in making judgments under uncertainty: (i) representativeness, which is usually employed when people are asked to judge the probability that an object or event A belongs to class or process B; (ii) availability of instances or scenarios, which is often employed when people are asked to assess the frequency of a class or the plausibility of a particular development; and (iii) adjustment from an anchor, which is usually employed in numerical prediction when a relevant value is available. These heuristics are highly economical and usually effective, but they lead to systematic and predictable errors. A better understanding of these heuristics and of the biases to which they lead could improve judgments and decisions in situations of uncertainty.

References and Notes

1. D. Kahneman and A. Tversky, *Psychol. Rev.* **80**, 237 (1973).
2. ———, *Cognitive Psychol.* **3**, 430 (1972).
3. W. Edwards, in *Formal Representation of Human Judgment*, B. Kleinmuntz, Ed. (Wiley, New York, 1968), pp. 17–52.
4. P. Slovic and S. Lichtenstein, *Organ. Behav. Hum. Performance* **6**, 649 (1971).
5. A. Tversky and D. Kahneman, *Psychol. Bull.* **76**, 105 (1971).
6. ———, *Cognitive Psychol.* **5**, 207 (1973).
7. R. C. Galbraith and B. J. Underwood, *Mem. Cognition* **1**, 56 (1973).
8. L. J. Chapman and J. P. Chapman, *J. Abnorm. Psychol.* **73**, 193 (1967); *ibid.*, **74**, 271 (1969).
9. M. Bar-Hillel, *Organ. Behav. Hum. Performance* **9**, 396 (1973).
10. J. Cohen, E. I. Chesnick, D. Haran, *Br. J. Psychol.* **63**, 41 (1972).
11. M. Alpert and H. Raiffa, unpublished manuscript; C. A. S. von Holstein, *Acta Psychol.* **35**, 478 (1971); R. L. Winkler, *J. Am. Stat. Assoc.* **62**, 776 (1967).
12. L. J. Savage, *The Foundations of Statistics* (Wiley, New York, 1954).
13. B. De Finetti, in *International Encyclopedia of the Social Sciences*, D. E. Sills, Ed. (Macmillan, New York, 1968), vol. 12, pp. 496–504.
14. This research was supported by the Advanced Research Projects Agency of the Department of Defense and was monitored by the Office of Naval Research under contract N00014-73-C-0438 to the Oregon Research Institute, Eugene. Additional support for this research was provided by the Research and Development Authority of the Hebrew University, Jerusalem, Israel.

Rural Health Care in Mexico?

Present educational and administrative structures must be changed in order to improve health care in rural areas.

Luis Cañedo

The present health care structure in Mexico focuses attention on the urban population, leaving the rural communities practically unattended. There are two main factors contributing to this situation. One is the lack of coordination among the different institutions responsible for the health of the community and among the educational institutions. The other is the lack of information concerning the nature of the problems in rural areas. In an attempt to provide a solution to these problems, a program has been designed that takes into consideration the environmental conditions, malnutrition, poverty, and negative cultural factors that are responsible for the high incidences of certain diseases among rural populations. It is based on the development of a national information system for the collection and dissemination of information related to general, as well as rural, health care, that will provide the basis for a national health care system, and depends on the establishment of a training program for professionals in community medicine.

The continental and insular area of Mexico, including interior waters, is 2,022,058 square kilometers (*1*, *2*). In 1970 the population of Mexico was 48,377,363, of which 24,055,305 persons (49.7 percent) were under 15 years of age. The Indian population made up 7.9 percent of the total (*2*, *3*). As indicated in Table 1, 42.3 percent of the total population live in communities of less than 2,500 inhabitants, and in such communities public services as well as means of communication are very scarce or nonexistent. A large percentage (39.5 percent) of the economically active population is engaged in agriculture (*4*).

The country's population growth rate is high, 3.5 percent annually, and it seems to depend on income, being higher among the 50 percent of the population earning less than 675 pesos ($50) per family per month (*5*). The majority of this population lives in the rural areas. The most frequent causes of mortality in rural areas are malnutrition, infectious and parasitic diseases (*6*, *7*), pregnancy complications, and accidents (*2*). In 1970 there were 34,107 doctors in Mexico (*2*). The ratio of inhabitants to doctors, which is 1423.7, is not a representative index of the actual distribution of resources because there is a great scarcity of health professionals in rural areas and a high concentration in urban areas (Fig. 1) (*7*, *8*).

In order to improve health at a national level, this situation must be changed. The errors made in previous attempts to improve health care must be avoided, and use must be made of the available manpower and resources of modern science to produce feasible answers at the community level. Although the main objective of a specialist in community medicine is to control disease, such control cannot be achieved unless action is taken against the underlying causes of disease; it has already been observed that partial solutions are inefficient (*9*). As a background to this new program that has been designed to provide health care in rural communities, I shall first give a summary of the previous attempts that have been made to provide such care, describing the various medical institutions and other organizations that are responsible for the training of medical personnel and for constructing the facilities required for health care.

The author is an investigator in the department of molecular biology at the Instituto de Investigaciones Biomédicas, Universidad Nacional Autónoma de México, Ciudad Universitaria, México 20, D.F. This article is adapted from a paper presented at the meeting on Science and Man in the Americas, jointly organized by the Consejo Nacional de Ciencia y Tecnología de México and the American Association for the Advancement of Science and held in Mexico City, 20 June to 4 July 1973.

References and Notes

[11] **The Assessment of Prior Distributions in Bayesian Analysis**

Robert L. Winkler

Journal of the American Statistical Association, Vol. 62, No. 319. (Sep., 1967), pp. 776-800.

Stable URL:

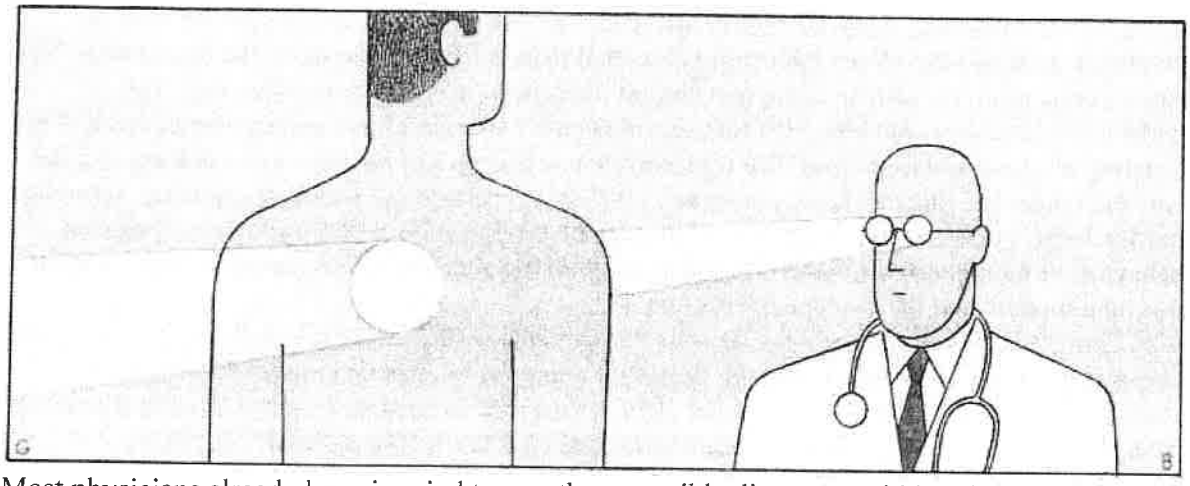
http://links.jstor.org/sici?sici=0162-1459%28196709%2962%3A319%3C776%3ATAOPDI%3E2.0.CO%3B2-E

What's the Trouble?

How doctors think.

By Jerome Groopman

January 21, 2007



Most physicians already have in mind two or three possible diagnoses within minutes of meeting a patient.

•

On a spring afternoon several years ago, Evan McKinley was hiking in the woods near Halifax, Nova Scotia, when he felt a sharp pain in his chest. McKinley (a pseudonym) was a forest ranger in his early forties, trim and extremely fit. He had felt discomfort in his chest for several days, but this was more severe: it hurt each time he took a breath. McKinley slowly made his way through the woods to a shed that housed his office, where he sat and waited for the pain to pass. He frequently carried heavy packs on his back and was used to muscle aches, but this pain felt different. He decided to see a doctor.

Pat Croskerry was the physician in charge in the emergency room at Dartmouth General Hospital, near Halifax, that day. He listened intently as McKinley described his symptoms. He noted that McKinley was a muscular man; that his face was ruddy, as would be expected of someone who spent most of his day outdoors; and that he was not sweating. (Perspiration can be a sign of cardiac distress.) McKinley told him that the pain was in the center of his chest, and that it had not spread into his arms, neck, or back. He told Croskerry that he had never smoked or been overweight; had no family history of heart attack, stroke, or diabetes; and was under no particular stress. His family life was fine, McKinley said, and he loved his job.

Croskerry checked McKinley's blood pressure, which was normal, and his pulse, which was sixty and regular—typical for an athletic man. Croskerry listened to McKinley's lungs and heart,

but detected no abnormalities. When he pressed on the spot between McKinley's ribs and breastbone, McKinley felt no pain. There was no swelling or tenderness in his calves or thighs. Finally, the doctor ordered an electrocardiogram, a chest X-ray, and blood tests to measure McKinley's cardiac enzymes. (Abnormal levels of cardiac enzymes indicate damage to the heart.) As Croskerry expected, the results of all the tests were normal. "I'm not at all worried about your chest pain," Croskerry told McKinley, before sending him home. "You probably overexerted yourself in the field and strained a muscle. My suspicion that this is coming from your heart is about zero."

Early the next evening, when Croskerry arrived at the emergency room to begin his shift, a colleague greeted him. "Very interesting case, that man you saw yesterday," the doctor said. "He came in this morning with an acute myocardial infarction." Croskerry was shocked. The colleague tried to console him. "If I had seen this guy, I wouldn't have gone as far as you did in ordering all those tests," he said. But Croskerry knew that he had made an error that could have cost the ranger his life. (McKinley survived.) "Clearly, I missed it," Croskerry told me, referring to McKinley's heart attack. "And why did I miss it? I didn't miss it because of any egregious behavior, or negligence. I missed it because my thinking was overly influenced by how healthy this man looked, and the absence of risk factors."

Croskerry, who is sixty-four years old, began his career as an experimental psychologist, studying rats' brains in the laboratory. In 1979, he decided to become a doctor, and, as a medical student, he was surprised at how little attention was paid to what he calls the "cognitive dimension" of clinical decision-making—the process by which doctors interpret their patients' symptoms and weigh test results in order to arrive at a diagnosis and a plan of treatment. Students spent the first two years of medical school memorizing facts about physiology, pharmacology, and pathology; they spent the last two learning practical applications for this knowledge, such as how to decipher an EKG and how to determine the appropriate dose of insulin for a diabetic. Croskerry's instructors rarely bothered to describe the mental logic they relied on to make a correct diagnosis and avoid mistakes.

In 1990, Croskerry became the head of the emergency department at Dartmouth General Hospital, and was struck by the number of errors made by doctors under his supervision. He kept lists of the errors, trying to group them into categories, and, in the mid-nineties, he began to publish articles in medical journals, borrowing insights from cognitive psychology to explain how doctors make clinical decisions—especially flawed ones—under the stressful conditions of the emergency room. "Emergency physicians are required to make an unusually high number of decisions in the course of their work," he wrote in "Achieving Quality in Clinical Decision Making: Cognitive Strategies and Detection of Bias," an article published in *Academic Emergency Medicine*, in 2002. These doctors' decisions necessarily entail a great deal of uncertainty, Croskerry wrote, since, "for the most part, patients are not known and their illnesses are seen through only small windows of focus and time." By calling physicians' attention to common mistakes in medical judgment, he has helped to promote an emerging field in medicine: the study of how doctors think.

There are limited data about the frequency of misdiagnoses. Research from the nineteen-eighties and nineties suggests that they occur in about fifteen per cent of cases, but Croskerry suspects

that the rate is significantly higher. He believes that many misdiagnoses are the result of readily identifiable—and often preventable—errors in thinking.

Doctors typically begin to diagnose patients the moment they meet them. Even before they conduct an examination, they are interpreting a patient's appearance: his complexion, the tilt of his head, the movements of his eyes and mouth, the way he sits or stands up, the sound of his breathing. Doctors' theories about what is wrong continue to evolve as they listen to the patient's heart, or press on his liver. But research shows that most physicians already have in mind two or three possible diagnoses within minutes of meeting a patient, and that they tend to develop their hunches from very incomplete information. To make diagnoses, most doctors rely on shortcuts and rules of thumb—known in psychology as "heuristics."

Heuristics are indispensable in medicine; physicians, particularly in emergency rooms, must often make quick judgments about how to treat a patient, on the basis of a few, potentially serious symptoms. A doctor is trained to assume, for example, that a patient suffering from a high fever and sharp pain in the lower right side of the abdomen could be suffering from appendicitis; he immediately sends the patient for X-rays and contacts the surgeon on call. But, just as heuristics can help doctors save lives, they can also lead them to make grave errors. In retrospect, Croskerry realized that when he saw McKinley in the emergency room the ranger had been experiencing unstable angina—a surge of chest pain that is caused by coronary-artery disease and that may precede a heart attack. "The unstable angina didn't show on the EKG, because fifty per cent of such cases don't," Croskerry said. "His unstable angina didn't show up on the cardiac-enzymes test, because there had been no damage to his heart muscle yet. And it didn't show up on the chest X-ray, because the heart had not yet begun to fail, so there was no fluid backed up in the lungs."

The mistake that Croskerry made is called a "representativeness" error. Doctors make such errors when their thinking is overly influenced by what is typically true; they fail to consider possibilities that contradict their mental templates of a disease, and thus attribute symptoms to the wrong cause. Croskerry told me that he had immediately noticed the ranger's trim frame: most fit men in their forties are unlikely to be suffering from heart disease. Moreover, McKinley's pain was not typical of coronary-artery disease, and the results of the physical examination and the blood tests did not suggest a heart problem. But, Croskerry emphasized, this was precisely the point: "You have to be prepared in your mind for the atypical and not be too quick to reassure yourself, and your patient, that everything is O.K." (Croskerry could have kept McKinley under observation and done a second cardiac-enzyme test or had him take a cardiac stress test, which might have revealed the source of his chest pain.) When Croskerry teaches students and interns about representativeness errors, he cites Evan McKinley as an example.

Doctors can also make mistakes when their judgments about a patient are unconsciously influenced by the symptoms and illnesses of patients they have just seen. Many common infections tend to occur in epidemics, afflicting large numbers of people in a single community at the same time; after a doctor sees six patients with, say, the flu, it is common to assume that the seventh patient who complains of similar symptoms is suffering from the same disease. Harrison Alter, an emergency-room physician, recently confronted this problem. At the time, Alter was working in the emergency room of a hospital in Tuba City, Arizona, which is situated on a

Navajo reservation. In a three-week period, dozens of people had come to his hospital suffering from viral pneumonia. One day, Blanche Begaye (a pseudonym), a Navajo woman in her sixties, arrived at the emergency room complaining that she was having trouble breathing. Begaye was a compact woman with long gray hair that she wore in a bun. She told Alter that she had begun to feel unwell a few days earlier. At first, she said, she had thought that she had a bad head cold, so she had drunk orange juice and tea, and taken a few aspirin. But her symptoms had got worse. Alter noted that she had a fever of 100.2 degrees, and that she was breathing rapidly—at almost twice the normal rate. He listened to her lungs but heard none of the harsh sounds, called rhonchi, that suggest an accumulation of mucus. A chest X-ray showed that Begaye's lungs did not have the white streaks typical of viral pneumonia, and her white-blood-cell count was not elevated, as would be expected if she had the illness.

Video From The New Yorker

He Lost His Sight—but Not His Passion for Skateboarding

However, a blood test to measure her electrolytes revealed that her blood had become slightly acidic, which can occur in the case of a major infection. Alter told Begaye that he thought she had "subclinical pneumonia." She was in the early stages of the infection, he said; the virus had not yet affected her lungs in a way that would show up on a chest X-ray. He ordered her to be admitted to the hospital and given intravenous fluids and medicine to bring her fever down. Viral pneumonia can tax an older person's heart and sometimes cause it to fail, he told her, so it was prudent that she remain under observation by doctors. Alter referred Begaye to the care of an internist on duty and began to examine another patient.

A few minutes later, the internist approached Alter and took him aside. "That's not a case of viral pneumonia," the doctor said. "She has aspirin toxicity."

Immediately, Alter knew that the internist was right. Aspirin toxicity occurs when patients overdose on the drug, causing hyperventilation and the accumulation of lactic acid and other acids in the blood. "Aspirin poisoning—bread-and-butter toxicology," Alter told me. "This was something that was drilled into me throughout my training. She was an absolutely classic case—the rapid breathing, the shift in her blood electrolytes—and I missed it. I got cavalier."

Alter's misdiagnosis resulted from the use of a heuristic called "availability," which refers to the tendency to judge the likelihood of an event by the ease with which relevant examples come to mind. This tendency was first described in 1973, in a paper by Amos Tversky and Daniel Kahneman, psychologists at the Hebrew University of Jerusalem. For example, a businessman may estimate the likelihood that a given venture could fail by recalling difficulties that his associates had encountered in the marketplace, rather than by relying on all the data available to him about the venture; the experiences most familiar to him can bias his assessment of the chances for success. (Kahneman won the Nobel Prize in Economics in 2002, for his research on

decision-making under conditions of uncertainty.) The diagnosis of subclinical pneumonia was readily available to Alter, because he had recently seen so many cases of the infection. Rather than try to integrate all the information he had about Begaye's illness, he had focussed on the symptoms that she shared with other patients he had seen: her fever, her rapid breathing, and the acidity of her blood. He dismissed the data that contradicted his diagnosis—the absence of rhonchi and of white streaks on the chest X-ray, and the normal white-blood-cell count—as evidence that the infection was at an early stage. In fact, this information should have made him doubt his hypothesis. (Psychologists call this kind of cognitive cherry-picking "confirmation bias": confirming what you expect to find by selectively accepting or ignoring information.)

After the internist made the correct diagnosis, Alter recalled his conversation with Begaye. When he had asked whether she had taken any medication, including over-the-counter drugs, she had replied, "A few aspirin." As Alter told me, "I didn't define with her what 'a few' meant." It turned out to be several dozen.

Representativeness and availability errors are intellectual mistakes, but the errors that doctors make because of their feelings for a patient can be just as significant. We all want to believe that our physician likes us and is moved by our plight. Doctors, in turn, are encouraged to develop positive feelings for their patients; caring is generally held to be the cornerstone of humanistic medicine. Sometimes, however, a doctor's impulse to protect a patient he likes or admires can adversely affect his judgment.

In 1979, I treated Brad Miller (a pseudonym), a young literature instructor who was suffering from bone cancer. I was living in Los Angeles at the time, completing a fellowship in hematology and oncology at the U.C.L.A. Medical Center. "You look familiar," Brad said to me when I introduced myself to him in his hospital room as the doctor who would be overseeing his care. "I see you running with two or three friends around the university," he said. "I'm a runner, too—or, at least, was."

I told Brad that I hoped he would be able to run again soon, though I warned him that his chemotherapy treatment would be difficult.

About six weeks earlier, Brad had noticed an ache in his left knee. He had been training to run in a marathon, and at first he thought that the ache was caused by a sore muscle. He saw a specialist in sports medicine, who examined the leg and recommended that he wear a knee brace when he ran. Brad followed this advice, but the ache got worse. The physician ordered an X-ray, which showed an osteosarcoma, a cancerous growth, around the end of the femur, just above the knee.

Several years earlier, the surgical-oncology department at U.C.L.A. had devised an experimental treatment for this kind of sarcoma, involving a new chemotherapy drug called Adriamycin. Oncologists had nicknamed Adriamycin "the red death," because of its cranberry color and its toxicity. Not only did it cause severe nausea, vomiting, mouth blisters, and reduced blood counts; repeated doses could injure cardiac muscle and lead to heart failure. Patients had to be monitored closely, since once the heart is damaged there is no good way to restore its pumping capacity. Still, doctors at U.C.L.A. had found that giving patients multiple doses of Adriamycin often

shrank tumors, allowing them to surgically remove the cancer without amputating the affected limb—the standard approach in the past.

I began administering the treatment that afternoon. Despite taking Compazine to stave off vomiting, Brad was acutely nauseated. After several doses of chemotherapy, his white-blood-cell count dropped precipitately. Because his immune system was weakened, he was at great risk of contracting an infection. I required visitors to Brad's room to wear a mask, a gown, and gloves, and instructed the nurses not to give him raw food, in order to limit his exposure to bacteria.

"Not to your taste," I said at the end of the first week of treatment, seeing an untouched meal on his tray.

"My mouth hurts," Brad whispered. "And, even if I could chew, it looks pretty tasteless."

I agreed that the food looked dismal.

"What is to your taste?" I asked. "Fried kidney?"

I had told Brad when we met that I had studied "Ulysses" in college, in a freshman seminar. The professor had explained the relevant Irish history, the subtle references to Catholic liturgy, and a number of other allusions that most of us in the class would otherwise not have grasped. I had enjoyed Joyce's descriptions of Leopold Bloom eating fried kidneys.

Brad was my favorite patient on the ward. Each morning when I made rounds with the residents and the medical students, I would take an inventory of his symptoms and review his laboratory results. I would often linger a few moments in his room, trying to distract him from the misery of his therapy by talking about literature.

The treatment called for a *CAT* scan after the third cycle of Adriamycin. If the cancer had shrunk sufficiently, the surgery would proceed. If it hadn't, or if the cancer had grown despite the chemotherapy, then there was little to be done short of amputation. Even after amputation, patients with osteosarcomas are at risk of a recurrence.

One morning, Brad developed a low-grade fever. During rounds, the residents told me that they had taken blood and urine cultures and that Brad's physical examination was "nonfocal"—they had found no obvious reason for the fever. Patients often get low fevers during chemotherapy after their white-blood-cell count falls; if the fever has no identifiable cause, the doctor must decide whether and when to administer a course of antibiotics.

"So you feel even more wiped out?" I asked Brad.

He nodded. I asked him about various symptoms that could help me determine what was causing the fever. Did he have a headache? Difficulty seeing? Pressure in his sinuses? A sore throat? Problems breathing? Pain in his abdomen? Diarrhea? Burning on urination? He shook his head.

Two residents helped prop Brad up in bed so that I could examine him; I had a routine that I followed with each immune-deficient patient, beginning at the crown of the head and working down to the tips of the toes. Brad's hair was matted with sweat, and his face was ashen. I peered into his eyes, ears, nose, and throat, and found only some small ulcers on his inner cheeks and under his tongue—side effects of his treatment. His lungs were clear, and his heart sounds were strong. His abdomen was soft, and there was no tenderness over his bladder.

"Enough for today," I said. Brad looked exhausted; it seemed wise to let him rest.

Later that day, I was in the hematology lab, looking at blood cells from a patient with leukemia, when my beeper went off. "Brad Miller has no blood pressure," the resident told me when I returned the call. "His temperature is up to a hundred and four, and we're moving him to the I.C.U."

Brad was in septic shock. When bacteria spread through the bloodstream, they can damage the circulation. Septic shock can be fatal even in people who are otherwise healthy; patients with impaired immunity, like Brad, whose white-blood-cell count had fallen because of chemotherapy, are at particular risk of dying.

"Do we have a source of infection?" I asked.

"He has what looks like an abscess on his left buttock," the resident said.

Patients who lack enough white blood cells to fight bacteria are prone to infections at sites that are routinely soiled, like the area between the buttocks. The abscess must have been there when I examined Brad. But I had failed to ask him to roll over so that I could inspect his buttocks and rectal area.

The resident told me that he had repeated Brad's cultures and started him on broad-spectrum antibiotics, and that the I.C.U. team was about to take over.

I was furious with myself. Because I liked Brad, I hadn't wanted to add to his discomfort and had cut the examination short. Perhaps I hoped unconsciously that the cause of his fever was trivial and that I would not find evidence of an infection on his body. This tendency to make decisions based on what we wish were true is what Croskerry calls an "affective error." In medicine, this type of error can have potentially fatal consequences. In the case of Evan McKinley, for example, Pat Croskerry chose to rely on the ranger's initial test results—the normal EKG, chest X-ray, and blood tests—all of which suggested a benign diagnosis. He didn't arrange for follow-up testing that might have revealed the source of the ranger's chest pain. Croskerry, who had been an Olympic rower in his thirties, told me that McKinley had reminded him of himself as an athlete; he believed that this association contributed to his misdiagnosis.

As soon as I finished my work in the lab, I rushed to the I.C.U. to check on Brad. He was on a respirator and opened his eyes wide to signal hello. Through an intravenous line attached to one arm, he was receiving pressors, drugs that cause the heart to pump more effectively and increase the tone of the vessels to help maintain blood pressure. Brad's heart was holding up, despite all

the Adriamycin he had taken. His platelet count had fallen, as often happens with septic shock, and he was receiving platelet transfusions. The senior doctor in the I.C.U. had told Brad's parents, who lived nearby, that he was extremely ill. I saw his parents sitting in a room next to the I.C.U., their heads bowed. They had not seen me, and I was tempted to avoid them. But I forced myself to speak to them and offered a few words of encouragement. They thanked me for my care of their son, which only made me feel worse.

The next morning, I arrived before the residents to review my patients' charts. Rounds lasted an hour longer than usual, as I insisted on double-checking each bit of information that the residents offered about the patients in our care.

Brad Miller survived. Slowly, his white-blood-cell count increased, and the infection was resolved. After he left the I.C.U., I told him that I should have examined him more thoroughly that morning, but I did not explain why I had not. A *CAT* scan showed that his sarcoma had shrunk enough for him to undergo surgery without amputation, but a large portion of his thigh muscle had to be removed along with the tumor. After he recovered, he was no longer able to run, but occasionally I saw him riding his bicycle on campus.

Medical education has not changed substantially since Pat Croskerry and I were trained. Students are still expected to assimilate large amounts of basic science and apply that knowledge as they are taught practical aspects of patient care. And young physicians still learn largely by observing more senior members of their field. ("See one, do one, teach one" remains a guiding maxim at medical schools.) This approach produces confident and able physicians. Yet the ideal it implies, of the doctor as a dispassionate and rational actor, is misguided. As Tversky and Kahneman and other cognitive psychologists have shown, when people are confronted with uncertainty—the situation of every doctor attempting to diagnose a patient—they are susceptible to unconscious emotions and personal biases, and are more likely to make cognitive errors. Croskerry believes that the first step toward incorporating an awareness of heuristics and their liabilities into medical practice is to recognize that how doctors think can affect their success as much as how much they know, or how much experience they have. "Currently, in medical training, we fail to recognize the importance of critical thinking and critical reasoning," Croskerry told me. "The implicit assumption in medicine is that we know how to think. But we don't." ♦

Published in the print edition of the January 29, 2007, issue.

MARCH 15, 2023

2

A Perfect Failure: The Bay of Pigs

The Kennedy administration's Bay of Pigs decision ranks among the worst fiascoes ever perpetrated by a responsible government. Planned by an overambitious, eager group of American intelligence officers who had little background or experience in military matters, the attempt to place a small brigade of Cuban exiles secretly on a beachhead in Cuba with the ultimate aim of overthrowing the government of Fidel Castro proved to be a "perfect failure." The group that made the basic decision to approve the invasion plan included some of the most intelligent men ever to participate in the councils of government. Yet all the major assumptions supporting the plan were so completely wrong that the venture began to founder at the outset and failed in its earliest stages.

The "ill-starred adventure"

Ironically, the idea for the invasion was first suggested by John F. Kennedy's main political opponent, Richard M. Nixon. As Vice President during the Eisenhower administration, Nixon had proposed that the United States government secretly send a trained group of Cuban exiles to Cuba to fight against Castro. In March 1960, acting on Nixon's suggestion, President Dwight D. Eisenhower directed the Central Intelligence Agency to organize Cuban exiles in the United States into a unified political movement against the Castro regime and to give military training to those who were willing to return to their homeland to engage in guerrilla warfare. The CIA put a large number of its agents to work on this clandestine operation, and they soon evolved an elaborate plan for a military invasion. Apparently without informing President Eisenhower, the CIA began to assume in late 1960 that they could land a brigade of Cuban exiles not as a band of guerrilla infiltrators but as an armed force to carry out a full-scale invasion.

Two days after the inauguration in January 1961, President John F. Kennedy and several leading members of his new administration were given a detailed briefing about the proposed invasion by Allen Dulles, head of the CIA, and General Lyman Lemnitzer, chairman of the Joint Chiefs of Staff. During the next eighty days, a core group of presidential advisers repeatedly discussed this inherited plan informally and in the meetings of an advisory committee that included three Joint Chiefs of Staff. In early April 1961, at one of the meetings with the President, all the key advisers gave their approval to the CIA's invasion plan. Their deliberations led to a few modifications of details, such as the choice of the invasion site.

On April 17, 1961, the brigade of about fourteen hundred Cuban exiles, aided by the United States Navy, Air Force, and the CIA, invaded the swampy coast of Cuba at the Bay of Pigs. Nothing went as planned. On the first day, not one of the four ships containing reserve ammunition and supplies arrived; the first two were sunk by a few planes in Castro's air force, and the other two promptly fled. By the second day, the brigade was completely surrounded by twenty thousand troops of Castro's well-equipped army. By the third day, about twelve hundred members of the brigade, comprising almost all who had not been killed, were captured and ignominiously led off to prison camps.

In giving their full approval, President Kennedy, Dean Rusk, Robert McNamara, and other high-level policy-makers in the United States government had assumed that "use of the exile brigade would make possible the toppling of Castro without actual aggression by the United States." The President's main advisers certainly did not expect such an overwhelming military disaster. Nor did they anticipate that the United States government's attempts to disclaim responsibility for the initial air assault would be thoroughly discredited, that friendly Latin American countries would be outraged, that protest meetings would be held in the United States and throughout the world to denounce the United States for its illegal acts of aggression against a tiny neighbor, that intellectuals who had regarded the new administration with bright hopes would express disaffection in sarcastic telegrams ("Nixon or Kennedy: Does it make any difference?"), or that European allies and United Nations statesmen would join in condemnation. None of them guessed that the abortive invasion would encourage a military rapprochement between Castro and the Soviet leaders, culminating in a deal to set up installations only ninety miles from United States shores equipped with nuclear bombs and missiles and manned by more than five thousand Soviet troops, transforming Cuba within eighteen months into a powerful military base as a satellite of the Soviet Union. Had the President and his policy advisers imagined that this nightmarish scenario would materialize (or had they even considered such an outcome to be a calculated risk), they undoubtedly would have rejected the CIA's invasion plan.

We are given a vivid picture of the President's reactions in Sorensen's *Kennedy*, described by a *New York Times* reviewer as "the nearest thing we will ever have to the memoirs Kennedy intended to write." When the first

news reports revealed how wrong his expectations had been, President Kennedy was stunned. As the news grew worse during the next three days, he became angry and sick at heart. He realized that the plan he thought he had approved had little in common with the one he had in fact approved. "How could I have been so stupid to let them go ahead?" he asked. Sorensen wrote, "His anguish was doubly deepened by the knowledge that the rest of the world was asking the same question."

Arthur Schlesinger, Jr., in his authoritative history of the Kennedy administration, recalled that "Kennedy would sometimes refer incredulously to the Bay of Pigs, wondering how a rational and responsible government could ever have become involved in so ill-starred an adventure." The policy advisers who participated in the deliberations felt much the same way, if not worse. Allen Dulles, for example, was "still troubled and haggard" several days later and offered to resign as chief of the CIA. Secretary of Defense McNamara, when he left the government seven years later, publicly stated that he still felt personally responsible for having misadvised President Kennedy on the Bay of Pigs. All who participated in the Bay of Pigs decision were perturbed about the dangerous gap between their expectations and the realities they should have anticipated, which resulted, as Sorensen put it, in "a shocking number of errors in the whole decision-making process."

Qualifications of the core members of the advisory group

It seems improbable that the shocking number of errors can be attributed to lack of intellectual capability for making policy judgments. The core members of Kennedy's team who were briefed on the Cuban invasion plan included three cabinet members and three men on the White House staff, all of whom were well qualified to make objective analyses of the pros and cons of alternative courses of action on vital issues of government policy.

Dean Rusk, Secretary of State, had been recruited by John F. Kennedy from his high-level position as head of the Rockefeller Foundation because of his solid reputation as an experienced administrator who could be counted on to have good ideas and sound judgment. He had served in policy-making positions in the State Department under Dean Acheson, first as head of the office of political affairs and later as deputy undersecretary in charge of policy coordination. During the Truman administration, Rusk became a veteran policy-maker and exerted a strong influence on a variety of important decisions concerning United States foreign policy in Asia.

Robert McNamara, the Secretary of Defense, was an expert statistician who had worked his way up to the presidency of the Ford Motor Company. He enjoyed a towering reputation for his intellectual brilliance and cold logic combined with personal integrity. Early in his career he had been on the fac-

ulty of the Harvard Business School. Later he developed his expertise in the statistical control unit of the United States Air Force, where he helped to work out a successful system for surveillance and control to facilitate decision-making about the flow of materials and production. During his years at Ford Motor Company, McNamara had also devised new techniques for improving rational methods of decision-making.

Then, too, there was Robert Kennedy, the Attorney General, one of the most influential members of the President's team. According to his close associates in the government, the President's brother was a bright young man whose strengths far outweighed his weaknesses. The Attorney General had been briefed on the invasion plan from the beginning. He did not attend the entire series of formal meetings of the advisory committee but was brought in as an active participant about four or five days before the President made his final decision. During that week, according to his memorandum dictated six weeks later, "I attended some meetings at the White House. Afterwards I said to Jack that I thought that . . . based on the information that had been given to him . . . there really wasn't any alternative to accepting it." On one occasion during that same crucial week, he used his personal influence to suppress opposition to the CIA plan.

Also on hand was McGeorge Bundy, the President's Special Assistant for National Security Affairs, who had the rank of a cabinet member. A key man on Kennedy's White House team, Bundy was one of the leading intellectuals imported to Washington from Harvard University, where he had been Dean of Arts and Sciences. His background in decision-making was not limited to the problems of a great university; earlier in his career, as a scholar, he had made a close study of Secretary of State Acheson's decisions.

The White House staff also included Arthur Schlesinger, Jr., an outstanding Harvard historian whom the President asked to attend all the White House meetings on the invasion plan, and Richard Goodwin, another Harvard man "of uncommon intelligence." Goodwin did not attend the policy-making meetings but was informed about the invasion plan, discussed it frequently with Schlesinger, and conferred with Rusk and others during the weeks preceding the final decision.

The President asked five of the six members of this core group to join him at the White House meetings of the ad hoc advisory committee on the Cuban invasion plan. At these meetings, Kennedy's advisers found themselves face-to-face with three Joint Chiefs of Staff, in full, medaled regalia. These military men were carry-overs from the Eisenhower administration; throughout the deliberations, they remained quite detached from the Kennedy team. Also present at the meetings of the advisory committee were five others who had fairly close ties to the President and his main advisers. Two of the most active participants were the director and deputy director of the CIA, Allen Dulles and Richard Bissell. They, too, were carry-overs from the Eisenhower administration, but President Kennedy and his inner circle welcomed them as members of the new administration's team. According to

Roger Hilsman (director of the intelligence branch of the State Department), Bissell "was a brilliant economist and government executive whom President Kennedy had known for years and so admired and respected that he would very probably have made him Director of the CIA when Dulles eventually retired." Bissell was the most active advocate of the CIA plan; his eloquent presentations did the main job of convincing the conferees to accept it.

Three others who participated in the White House meetings as members of the advisory committee were exceptionally well qualified to appraise the political consequences of the invasion: Thomas C. Mann, assistant secretary of state for inter-American affairs; Adolph A. Berle, Jr., chairman of the Latin American task force; and Paul Nitze, assistant secretary of defense, who had formerly been the director of the policy planning staff in the State Department.

The group that deliberated on the Bay of Pigs decision included men of considerable intellectual talent. Like the President, all the main advisers were shrewd thinkers, capable of objective, rational analysis, and accustomed to speaking their minds. But collectively they failed to detect the serious flaws in the invasion plan.

Six major miscalculations

The President and his key advisers approved the Bay of Pigs invasion plan on the basis of six assumptions, each of which was wrong. In retrospect, the President's advisers could see that even when they first began to discuss the plan, sufficient information was available to indicate that their assumptions were much too shaky. They could have obtained and used the crucial information beforehand to correct their false assumptions if at the group meetings they had been more critical and probing in fulfilling their advisory roles.

Assumption number 1: No one will know that the United States was responsible for the invasion of Cuba. Most people will believe the CIA cover story, and skeptics can easily be refuted.

When President Kennedy was first told about the plan by the CIA representatives, he laid down one firm stipulation: The United States armed forces would not overtly participate in an invasion of Cuba. He repeated this essential condition each time the matter was discussed. He would not consider accepting the CIA's plan to use the armed Cuban brigade unless it could be safely assumed that the United States government would not be held responsible for initiating a military attack against its small neighbor. On the assumption that this requirement could be met, the plan was seen as a golden opportunity to overthrow Castro. The Castro regime had been a source of irritation to the United States government, even though the President and his advisers did not consider it a direct threat to American security.

In response to the President's questions about the plan, Allen Dulles and Richard Bissell assured Kennedy and his advisory group that all the world would believe that Cuban dissidents were the sole initiators and executors of the invasion. They said that highly effective precautions would mask completely the fact that the United States was engineering the invasion. The brigade of Cuban exiles would be quietly and unspectacularly landed in their homeland. The only noisy part would be the preliminary air attacks against Cuban airfields, but these would be handled by a clever cover story. The United States would be able to deny all complicity in the bombing of Cuban bases. The planes used in the bombing raids would be B-26s of World War II vintage, without any United States markings. They would look like planes in Castro's air force and could plausibly be claimed to belong to Cuban defectors.

During the weeks preceding the invasion, it became increasingly apparent that the cover story would not work. The President's press secretary, Pierre Salinger, has called the plan "the least covert military operation in history." A week before the invasion, President Kennedy complained heatedly, "I can't believe what I'm reading! Castro doesn't need agents over here. All he has to do is read our papers. It's all laid out for him." American newsmen had gotten wind of the invasion plan. They were reporting "secret" details about what was going on in United States military training camps in Guatemala, where the Cubans were being readied for the invasion, and describing efforts being made in Miami to recruit more Cuban volunteers. Yet, according to Schlesinger, "somehow the idea took hold around the cabinet table that this would not much matter so long as United States soldiers did not take part in the actual fighting."

Thus, despite evidence at hand, the policy-makers ignored the old adage that one must expect any secret known to a large number of people to leak out. Apparently they never discussed the obvious danger that a secret act of military aggression against a neighboring country might be revealed by one or more insiders, particularly when the invasion plan was known to hundreds of Cuban exiles who were being recruited and trained to carry it out. It was also known to a large number of foreign politicians, who might have had their own reasons for revealing it. Leaders of the Cuban exiles' political movements (each of whom had his own ideas about what should be done), government officials in Guatemala (who had allowed the CIA to set up camps to train the Cuban brigade), and officials in Nicaragua (who had agreed to allow the United States to use Nicaraguan air bases to launch air attacks against Cuba)—all knew what was being planned. Furthermore, members of the policy-making group were warned on several occasions by Senator J. William Fulbright, chairman of the Foreign Relations Committee, and by other prestigious men that an invasion attempt would probably be attributed directly to the United States and would seriously damage United States relations with Latin American countries and European allies. Despite all warnings, the

members of Kennedy's advisory group failed to question the assumption that the secret would not be revealed. President Kennedy was so confident that he publicly promised at a press conference on April 12, 1961 (five days before the invasion), that "there will not be, under any conditions, any intervention in Cuba by United States armed forces, and this Government will do everything it possibly can . . . to make sure that there are no Americans involved in actions inside Cuba."

The world did not immediately learn that the first invaders to land on Cuban soil were, in fact, United States Navy frogmen (in violation of the President's orders), but the United States nevertheless was blamed for the invasion from the outset. The CIA's cover story was quickly torn to pieces by the world press. The credibility of Adlai Stevenson, the United States representative to the United Nations, was also sacrificed, despite President Kennedy's solemn statement to his intimates only a few days earlier that "the integrity and credibility of Adlai Stevenson constitute one of our great national assets. I don't want anything to be done [in handling the cover story] which might jeopardize that." The truth having been carefully withheld from him, Stevenson solemnly denied United States complicity in the bombings at a meeting of the United Nations General Assembly. His statements were immediately seen by foreign observers as inconsistent with news reports about the air attacks and were soon labeled outright lies when some of his alleged facts were disproved twenty-four hours later by authentic photographs. Stevenson later said that this was the most humiliating experience of his long years of public service.

Assumption number 2: The Cuban air force is so ineffectual that it can be knocked out completely just before the invasion begins.

The invasion plan called for a surprise attack by American bombers, which would destroy Castro's air force on the ground before the invaders moved in. The conferees at the White House thought that the obsolete B-26s used to do the job would be able to destroy Cuba's military planes. They did not make sufficient inquiries to find out that these lumbering old planes would have limited capabilities and would frequently develop engine trouble. The first attack was a surprise, but only a small percentage of Cuba's planes was destroyed. Consequently, the invasion plan went awry at the outset because the Cuban air force was able to assert air control over the landing site. Cuban jet training planes, which were fast and efficient, prevented the freighters containing ammunition and supplies from reaching their destination. The supposedly ineffective Cuban air force shot down half of the American B-26s attempting to protect the invaders and repeatedly bombed the ground troops as they arrived on shore.

A second air strike by United States planes was called off by President Kennedy because it would have revealed too clearly that the planes belonged to the United States and that the entire invasion was an unprovoked attack by

the United States. But even if the second air strike had been carried out, it would probably have been even less effective than the first, because there was no longer any element of surprise and the Cuban air force was well dispersed in hidden airfields.

Assumption number 3: The fourteen hundred men in the brigade of Cuban exiles have high morale and are willing to carry out the invasion without any support from United States ground troops.

In line with his firm policy of no direct intervention by the United States, President Kennedy explicitly asked the CIA planners if the members of the Cuban exile brigade were willing to risk their lives without United States military participation. The President and his advisers were given a strong affirmative answer, and Dulles and Bissell repeatedly assured them that morale in the brigade was superb. Had the conferees asked the CIA representatives to present evidence supporting this assurance, they might have discovered that they were relying on biased information. CIA agents in Guatemala were sending reports conveying a rosy overall picture to Dulles and Bissell without informing them about exactly what was going on. In order to build morale, the agents deliberately misled the men in the exile brigade by assuring them that they were only a small part of the invading force, that other Cuban brigades were being trained elsewhere for the same mission, that diversionary landings would draw most of Castro's troops away from their invasion site, and that the United States Marines would be participating in the invasion. Furthermore, one month before the invasion, when the policy-making group in Washington was being assured about the magnificent morale of the exile brigade, the men were actually bitterly discontent and beginning to revolt. They objected to being saddled with officers who had been in the army of the reactionary Batista regime and had been recruited and promoted because of their willingness to take orders from CIA agents. When discontent finally broke out in a full-scale mutiny, the CIA agents arrested a dozen of the ringleaders and confined them in a prison camp deep in the Guatemala jungle. Such was the high morale of the exile brigade.

Ironically, one of the most convincing "demonstrations" of high morale to President Kennedy and his advisers was the fact that sons of the political leaders of the Cuban exiles volunteered for the brigade. But both the fathers and the sons had been hoaxed by CIA agents into believing that the invasion would not be allowed to fail, that the United States government was committed to using armed forces to back them up.

When the invasion took place, the men in the brigade fought well, and their morale was sustained for a time by false hope. They thought that despite all the official "propaganda" put out by the United States government to the contrary, a large number of American troops would land to reinforce them. They had also been led to expect that American ships would bring them the supplies they so urgently needed and would remain offshore to rescue them if necessary.

Assumption number 4: Castro's army is so weak that the small Cuban brigade will be able to establish a well-protected beachhead.

Another question frequently discussed by President Kennedy and his advisers was whether the small exile brigade could achieve its initial goal of establishing a firm beachhead without United States military participation. Again, without looking into the evidence, the conferees accepted the optimistic picture presented by Dulles and Bissell, who described Castro's army as poorly equipped, poorly trained, riddled with dissension, and unable to cope with even a small-scale invasion. These assurances happened to be directly contrary to reports of Castro's military strength by experts in the State Department and in the British Intelligence Service. The CIA planners chose to ignore the experts' reports, and Kennedy's policy advisers did not pursue their questions far enough to become aware of the contradictory estimates, which would have revealed the shakiness of the CIA's assumptions.

As it turned out, Castro's army responded promptly and vigorously to the invasion, even though the invaders fought well. A militia patrol, guarding the coastline because of the invasion alert, was on hand to shoot at the vanguard of the invading force the Navy frogmen sent out to mark the landing site. Soon large numbers of well-equipped Cuban troops were shelling the beachhead with 122 mm howitzers, 37 mm cannons, and rocket-throwers. Cuban armored tanks began moving in within one day after the invaders landed. By the following day, the exile brigade was surrounded by twenty thousand well-equipped Cuban troops, backed up by more than two hundred thousand troops and militiamen who could have been brought to bear if needed.

Having grossly underestimated Castro's military capabilities, President Kennedy and his advisers belatedly realized that a successful beachhead could not be established in Cuba without a military force at least ten times larger than the one they had agreed to send in. According to Sorensen: "The President thought he was approving a plan rushed into execution on the grounds that Castro would later acquire the military capability to defeat it. Castro, in fact, already possessed that capability."

Assumption number 5: The invasion by the exile brigade will touch off sabotage by the Cuban underground and armed uprisings behind the lines that will effectively support the invaders and probably lead to the toppling of the Castro regime.

When first asked by President Kennedy to appraise the CIA's invasion plans, the Joint Chiefs of Staff asserted that the chances for successfully establishing a beachhead were favorable but that "ultimate success would depend on either a sizeable uprising inside the island or sizeable support from outside." Since American intervention was ruled out by the President, victory would depend on anti-Castro resistance and uprisings behind the lines. A second appraisal by the Joint Chiefs of Staff, just one month before the invasion, made this assumption explicit. Without the support of the Cuban resistance, they

reported, there would be no way to overcome the hundreds of thousands of men in Castro's army and militia.

Although skeptical at first about relying on mass insurrection against the Castro regime, President Kennedy was encouraged by his advisory group to set his doubts aside, and he ended up accepting the assumption. Shortly after the Bay of Pigs debacle, he told Sorensen that he had really thought there was a good chance that the landing of the exile brigade, without overt United States participation, would rally the Cuban people to revolt and oust Castro. According to Schlesinger, this view was shared by Kennedy's closest advisers: "We all in the White House considered uprisings behind the lines essential to the success of the operation; so, too, did the Joint Chiefs of Staff; and so, we thought, did the CIA."

Once again the CIA spokesmen had misled the other conferees in the White House by neglecting to say that they were aware of strong reasons for not going along with this assumption. As advocates of the CIA plan, Allen Dulles and Richard Bissell confined their remarks almost entirely to the positive side of the picture. They relayed the unsubstantiated reports of their secret agents claiming that more than twenty-five hundred people were in the resistance organization in Cuba, that at least twenty thousand more were sympathizers, and that CIA contacts inside Cuba were requesting a large number of arms drops.

Long after events had shown that the assumption of a Cuban uprising was completely mistaken, Allen Dulles revealed that from the beginning the CIA had not expected much support from the Cuban resistance. In fact, the CIA had no intelligence estimates that the landing would touch off widespread revolt in Cuba. The intelligence branch of the agency had not been asked to estimate the chances of an invasion's being supported by the resistance movement or by popular uprisings behind the lines. Nor were any of the experts on the Cuban desk of the State Department, who kept a daily surveillance of political activities in Cuba, asked for their judgments. Most of the participants in the White House meetings did not know this and simply assumed that the estimates mentioned by Dulles and Bissell had the full authority of the government's intelligence agency behind them.

Had the policy advisers asked more penetrating questions, some of the excluded experts might have been consulted. In the absence of impartial briefings by nonpartisan experts on Cuba, no one reminded the group of the results of a carefully conducted poll, reported in the preceding year, that had shown that the overwhelming majority of Cubans supported the Castro regime. These poll results had been circulated throughout the United States government and were generally believed to indicate relatively little hope of inducing widespread action against Castro inside Cuba. This evidence was either forgotten or ignored by the political experts in the advisory group.

Even a few skeptical questions put to Dulles or Bissell might have corrected gross misconceptions. The President and his advisers might have learned that the CIA planners realized (without mentioning it in their brief-

ings) that the pre-invasion air strike would allow Castro plenty of time to move against the underground and to round up political dissidents. This was a necessary sacrifice, the CIA men had decided, in order to knock out Castro's air force.

The lack of detailed questioning about these matters is remarkable when we consider that President Kennedy started off with strong misgivings about the amount of anti-Castro support that could be mustered on the island. His misgivings were shared by at least one other member of his White House staff. Arthur Schlesinger, Jr., in the memorandum he gave the President during the crucial week of decision, stated his doubts about uprisings behind the lines and argued that there was no convincing evidence that mass revolt would be touched off or that Castro's regime was so weak that it could be toppled by the exiles' landing. He warned that if the brigade established a secure foothold in Cuba, the operation would at best lead to a protracted civil war and then Congressmen and other influential politicans in the United States would demand that we intervene by sending in the Marines. Others, including a well-informed journalist just returned from Cuba who was invited to the White House, made similar pessimistic forecasts. Apparently none of these dissenting views was taken seriously enough by the President or his advisers to lead them to ask the intelligence community for an objective assessment of the effectiveness of the Cuban resistance.

Within twenty-four hours after the first air strikes, it became apparent that there would be no sabotage or rebellion and that Castro's regime had the domestic situation firmly in hand. Just as had been expected by the CIA (but not by the main body of the policy-making group), the Cuban police force was alerted by the initial air strike and moved swiftly against internal sources of resistance. In Havana alone, some two hundred thousand political suspects were promptly rounded up. Elsewhere in Cuba anyone suspected of having underground connections was jailed. Even organized resistance units that were already armed and waiting for a favorable opportunity to strike out against Castro's regime were ineffective, initiating only sporadic incidents of token resistance.

The Revolutionary Council composed of exiled political leaders of the Cuban resistance movement, who were supposed to set up the new democratic government after the beachhead was established, complained bitterly after the invasion that no effort had been made to coordinate the invasion with underground activities. They said that the CIA in Cuba had failed to provide supplies for organized resistance units, thus preventing them from executing long-standing plans to cut power lines and blow up factories. The CIA was also charged with gross negligence for ignoring the armed guerrillas in the Escambray Mountains, for not using the channels available for contacting underground groups throughout the island, and for sending in their own unknown agents, who succeeded only in confusing the entire underground movement. Sorensen concludes that there was no cooperation between the planners and the Cuban underground because the CIA mistrusted the exiled

jungle." This oversight might have been corrected if someone in the advisory group had taken the trouble to look at a map of Cuba, available in any atlas.

The cost of sending an invading force without an escape route soon became measurable in human lives as well as in dollars and cents. Within two days after landing on the shores of Cuba, the men in the brigade found themselves completely surrounded and learned for the first time that they had no option but to be killed or captured. Twenty months later, Castro struck a hard bargain with the United States State Department and allowed the twelve hundred men who had been imprisoned to be released for the ransom price of $53 million in food and drugs.

The suffering of the twelve hundred imprisoned men and the ransom money were only part of the losses sustained because of the policy-makers' false assumption that the invaders could easily join guerrillas in the mountains. Had they learned beforehand that there would be no way of escaping from the beaches, President Kennedy's advisers might not have been so complacent about the net gain they were expecting, and they might have decided to drop the entire invasion plan.

Why did the advisory group fail?

Why so many miscalculations? Couldn't the six false assumptions have been avoided if the advisory group had sought fuller information and had taken it into account? Some of the grossest errors resulted from faulty planning and communication within the CIA.[1] The agency obviously had its own serious defects, but they do not concern us in the present inquiry. Nor are we going to try to unravel the complicated reasons for the Joint Chiefs' willingness to endorse the CIA's plan.[2] The central question is: Why did the President's main advisers, whom he had selected as core members of his team, fail to pursue the issues sufficiently to discover the shaky ground on which the six assumptions rested? Why didn't they pose a barrage of penetrating and embarrassing questions to the representatives of the CIA and the Joint Chiefs of Staff? Why were these men taken in by the incomplete and inconsistent answers they were given in response to the relatively few critical questions they raised? Schlesinger says that "for all the utter irrationality with which retrospect endowed the project, it had a certain queer logic at the time as it emerged from the bowels of government." Why did the President's policy advisers fail to evaluate the plan carefully enough to become aware of "its utter irrationality"? What was the source of the "queer logic" with which the plan was endowed?

Even with the apparently unqualified endorsement of the military sector of the United States government, the six assumptions behind the Bay of Pigs invasion were not so abstruse that military expertise was needed to evaluate

Ignore the Yes-Man in Your Head

By Jason Zweig | Nov. 19, 2009 12:01 a.m. ET

A mind is a terrible thing to change.

You decide gold is a good bet to hedge against inflation, and suddenly the news seems to be teeming with signs of a falling dollar and rising prices down the road. Or you believe stocks are going to outperform other assets, and all you can hear are warnings of the bloodbath to come in the bond and commodity markets.

The Intelligent Investor

By Jason Zweig

COMMENTARY

In short, your own mind acts like a compulsive yes-man who echoes whatever you want to believe. Psychologists call this mental gremlin **the "confirmation bias."**

A recent analysis of psychological studies with nearly 8,000 participants concluded that people are twice as likely to seek information that confirms what they already believe as they are to consider evidence that would challenge those beliefs.

Why is a mind-made-up so hard to penetrate?

"We're all mentally lazy," says **psychologist Scott Lilienfeld** of Emory University in Atlanta. "It's simply easier to focus our attention on data that supports our hypothesis, rather than to seek out evidence that might disprove it."

It also is easier for people to rationalize than to be rational. "We're very good at cooking up post-hoc explanations of why our predictions didn't work," Prof. Lilienfeld says. "We reinterpret our failures as near-misses: 'This stock would have gone up if only X had happened,' or '99 times out of 100 I would have been right if not for this freak event.'"

The more you learn, the more certain you become that you are right. While gathering more data makes people more confident, it doesn't make their predictions much more accurate. Each new fact makes you more inclined to find another fact that resembles it, reducing the diversity and value of your information.

Confirmation bias contaminates the thinking of professional investors, too. "We've made tons of errors like this," says Staley Cates, president of Southeastern Asset Management, the Memphis, Tenn., value-investing firm that runs the Longleaf funds. "A lot of psychological traps can be combated with humility, but on this one, that doesn't help." Longleaf, Mr. Cates says, clung too long to a big position in General Motors, letting product improvements and cost savings "blind us to the fact that GM might not make it" without government help.

So how can you counteract confirmation bias?

Gary Klein, a psychologist at Applied Research Associates, of Albuquerque, N.M., recommends imagining that you have looked into a crystal ball and have seen that your investment has gone bust. Next, come up with the most compelling explanations you can find for the failure. This exercise, which Christopher Davis of the Davis funds has integrated into the research process at his value-investing firm, can help you realize that your beliefs mightn't be as solid as you thought.

Try estimating the odds that your analysis is wrong. Let us say that you reckon there is a 20% chance of an adverse outcome; that is like saying you will be proven wrong one in every five times. This way, if the investment does go awry, you will be less likely to dig in your analytical heels and desperately try to prove that you are still right. This procedure, says Michael Mauboussin, chief investment strategist at Legg Mason Capital Management, provides "psychological cover for admitting that you're wrong."

Show your investment to another person you respect whose ego isn't already invested in the decision. Ask: If you didn't own this, would you buy it now? If you did own it, would you sell it now?

Run an imaginary portfolio alongside your real one. There, you can buy or sell at will, with no risk to your wealth. On that blank slate, would you own more—or less—of this investment? Mr. Cates says at Southeastern Asset Management requires each of its analysts and portfolio managers to run a paper portfolio and to justify any differences between their paper holdings and the firm's real-world bets. "It helps us know what people really think," Mr. Cates says.

Before you buy in the first place, write down a statement of what would compel you to change your view of the investment. If any of those events come to pass, the written record will make it harder for you to pretend nothing has changed or that you don't have to do anything in response.

Messrs. Cates, Davis and Mauboussin help run funds that posted steep losses last year clinging to stocks in the face of evidence that they might be wrong. They all say that fighting confirmation bias is a never-ending battle. But if you can't conquer this gremlin of your own mind, you don't stand a chance of outwitting the market.

Source: *The Wall Street Journal*

MARCH 22, 2023

The 9/11 Report: A Dissent

By Richard A. Posner

Aug. 29, 2004

And the execution was in one vital respect superb: the 9/11 commission report is an uncommonly lucid, even riveting, narrative of the attacks, their background and the response to them. (Norton has published the authorized edition; another edition, including reprinted news articles by reporters from The New York Times, has been published by St. Martin's, while PublicAffairs has published the staff reports and some of the testimony.)

The prose is free from bureaucratese and, for a consensus statement, the report is remarkably forthright. Though there could not have been a single author, the style is uniform. The document is an improbable literary triumph.

However, the commission's analysis and recommendations are unimpressive. The delay in the commission's getting up to speed was not its fault but that of the administration, which dragged its heels in turning over documents; yet with completion of its investigation deferred to the presidential election campaign season, the commission should have waited until after the election to release its report. That would have given it time to hone its analysis and advice.

The enormous public relations effort that the commission orchestrated to win support for the report before it could be digested also invites criticism -- though it was effective: in a poll conducted just after publication, 61 percent of the respondents said the commission had done a good job, though probably none of them had read the report. The participation of the relatives of the terrorists' victims (described in the report as the commission's "partners") lends an unserious note to the project (as does the relentless self-promotion of several of the members). One can feel for the families' loss, but being a victim's relative doesn't qualify a person to advise on how the disaster might have been prevented.

Much more troublesome are the inclusion in the report of recommendations (rather than just investigative findings) and the commissioners' misplaced, though successful, quest for unanimity. Combining an investigation of the attacks with proposals for preventing future attacks is the same mistake as combining intelligence with policy. The way a problem is described is bound to influence the choice of how to solve it. The commission's contention that our intelligence structure is unsound predisposed it to blame the structure for the failure to prevent the 9/11 attacks, whether it did or not. And pressure for unanimity encourages just the kind of herd thinking now being blamed for that other recent intelligence failure -- the belief that Saddam Husscin possessed weapons of mass destruction.

At least the commission was consistent. It believes in centralizing intelligence, and people who prefer centralized, pyramidal governance structures to diversity and competition deprecate dissent. But insistence on unanimity, like central planning, deprives decision makers of a full range of alternatives. For all one knows, the price of unanimity was adopting recommendations that were the second choice of many of the commission's members or were consequences of

horse trading. The premium placed on unanimity undermines the commission's conclusion that everybody in sight was to blame for the failure to prevent the 9/11 attacks. Given its political composition (and it is evident from the questioning of witnesses by the members that they had not forgotten which political party they belong to), the commission could not have achieved unanimity without apportioning equal blame to the Clinton and Bush administrations, whatever the members actually believe.

The tale of how we were surprised by the 9/11 attacks is a product of hindsight; it could not be otherwise. And with the aid of hindsight it is easy to identify missed opportunities (though fewer than had been suspected) to have prevented the attacks, and tempting to leap from that observation to the conclusion that the failure to prevent them was the result not of bad luck, the enemy's skill and ingenuity or the difficulty of defending against suicide attacks or protecting an almost infinite array of potential targets, but of systemic failures in the nation's intelligence and security apparatus that can be corrected by changing the apparatus.

That is the leap the commission makes, and it is not sustained by the report's narrative. The narrative points to something different, banal and deeply disturbing: that it is almost impossible to take effective action to prevent something that hasn't occurred previously. Once the 9/11 attacks did occur, measures were taken that have reduced the likelihood of a recurrence. But before the attacks, it was psychologically and politically impossible to take those measures. The government knew that Al Qaeda had attacked United States facilities and would do so again. But the idea that it would do so by infiltrating operatives into this country to learn to fly commercial aircraft and then crash such aircraft into buildings was so grotesque that anyone who had proposed that we take costly measures to prevent such an event would have been considered a candidate for commitment. No terrorist had hijacked an American commercial aircraft anywhere in the world since 1986. Just months before the 9/11 attacks the director of the Defense Department's Defense Threat Reduction Agency wrote: "We have, in fact, solved a terrorist problem in the last 25 years. We have solved it so successfully that we have forgotten about it; and that is a treat. The problem was aircraft hijacking and bombing. We solved the problem. . . . The system is not perfect, but it is good enough. . . . We have pretty much nailed this thing." In such a climate of thought, efforts to beef up airline security not only would have seemed gratuitous but would have been greatly resented because of the cost and the increased airport congestion.

The problem isn't just that people find it extraordinarily difficult to take novel risks seriously; it is also that there is no way the government can survey the entire range of possible disasters and act to prevent each and every one of them. As the commission observes, "Historically, decisive security action took place only after a disaster had occurred or a specific plot had been discovered." It has always been thus, and probably always will be. For example, as the report explains, the 1993 truck bombing of the World Trade Center led to extensive safety improvements that markedly reduced the toll from the 9/11 attacks; in other words, only to the slight extent that the 9/11 attacks had a precedent were significant defensive steps taken in advance.

The commission's contention that "the terrorists exploited deep institutional failings within our government" is overblown. By the mid-1990's the government knew that Osama bin Laden was a

dangerous enemy of the United States. President Clinton and his national security adviser, Samuel Berger, were so concerned that Clinton, though "warned in the strongest terms" by the Secret Service and the C.I.A. that "visiting Pakistan would risk the president's life," did visit that country (flying in on an unmarked plane, using decoys and remaining only six hours) and tried unsuccessfully to enlist its cooperation against bin Laden. Clinton authorized the assassination of bin Laden, and a variety of means were considered for achieving this goal, but none seemed feasible. Invading Afghanistan to pre-empt future attacks by Al Qaeda was considered but rejected for diplomatic reasons, which President Bush accepted when he took office and which look even more compelling after the trouble we've gotten into with our pre-emptive invasion of Iraq. The complaint that Clinton was merely "swatting at flies," and the claim that Bush from the start was determined to destroy Al Qaeda root and branch, are belied by the commission's report. The Clinton administration envisaged a campaign of attrition that would last three to five years, the Bush administration a similar campaign that would last three years. With an invasion of Afghanistan impracticable, nothing better was on offer. Almost four years after Bush took office and almost three years after we wrested control of Afghanistan from the Taliban, Al Qaeda still has not been destroyed.

It seems that by the time Bush took office, "bin Laden fatigue" had set in; no one had practical suggestions for eliminating or even substantially weakening Al Qaeda. The commission's statement that Clinton and Bush had been offered only a "narrow and unimaginative menu of options for action" is hindsight wisdom at its most fatuous. The options considered were varied and imaginative; they included enlisting the Afghan Northern Alliance or other potential tribal allies of the United States to help kill or capture bin Laden, an attack by our Special Operations forces on his compound, assassinating him by means of a Predator drone aircraft or coercing or bribing the Taliban to extradite him. But for political or operational reasons, none was feasible.

It thus is not surprising, perhaps not even a fair criticism, that the new administration treaded water until the 9/11 attacks. But that's what it did. Bush's national security adviser, Condoleezza Rice, "demoted" Richard Clarke, the government's leading bin Laden hawk and foremost expert on Al Qaeda. It wasn't technically a demotion, but merely a decision to exclude him from meetings of the cabinet-level "principals committee" of the National Security Council; he took it hard, however, and requested a transfer from the bin Laden beat to cyberterrorism. The committee did not discuss Al Qaeda until a week before the 9/11 attacks. The new administration showed little interest in exploring military options for dealing with Al Qaeda, and Donald Rumsfeld had not even gotten around to appointing a successor to the Defense Department's chief counterterrorism official (who had left the government in January) when the 9/11 attacks occurred.

I suspect that one reason, not mentioned by the commission, for the Bush administration's initially tepid response to the threat posed by Al Qaeda is that a new administration is predisposed to reject the priorities set by the one it's succeeding. No doubt the same would have been true had Clinton been succeeding Bush as president rather than vice versa.

Before the commission's report was published, the impression was widespread that the failure to prevent the attacks had been due to a failure to collate bits of information possessed by different people in our security services, mainly the Central Intelligence Agency and the Federal Bureau

of Investigation. And, indeed, had all these bits been collated, there would have been a chance of preventing the attacks, though only a slight one; the best bits were not obtained until late in August 2001, and it is unrealistic to suppose they could have been integrated and understood in time to detect the plot.

The narrative portion of the report ends at Page 338 and is followed by 90 pages of analysis and recommendations. I paused at Page 338 and asked myself what improvements in our defenses against terrorist groups like Al Qaeda are implied by the commission's investigative findings (as distinct from recommendations that the commission goes on to make in the last part of the report). The list is short:

(1) Major buildings should have detailed evacuation plans and the plans should be communicated to the occupants.

(2) Customs officers should be alert for altered travel documents of Muslims entering the United States; some of the 9/11 hijackers might have been excluded by more careful inspections of their papers. Biometric screening (such as fingerprinting) should be instituted to facilitate the creation of a comprehensive database of suspicious characters. In short, our borders should be made less porous.

(3) Airline passengers and baggage should be screened carefully, cockpit doors secured and override mechanisms installed in airliners to enable a hijacked plane to be controlled from the ground.

(4) Any legal barriers to sharing information between the C.I.A. and the F.B.I. should be eliminated.

(5) More Americans should be trained in Arabic, Farsi and other languages in widespread use in the Muslim world. The commission remarks that in 2002, only six students received undergraduate degrees in Arabic from colleges in the United States.

(6) The thousands of federal agents assigned to the "war on drugs," a war that is not only unwinnable but probably not worth winning, should be reassigned to the war on international terrorism.

(7) The F.B.I. appears from the report to be incompetent to combat terrorism; this is the one area in which a structural reform seems indicated (though not recommended by the commission). The bureau, in excessive reaction to J. Edgar Hoover's freewheeling ways, has become afflicted with a legalistic mind-set that hinders its officials from thinking in preventive rather than prosecutorial terms and predisposes them to devote greater resources to drug and other conventional criminal investigations than to antiterrorist activities. The bureau is habituated to the leisurely time scale of criminal investigations and prosecutions. Information sharing within the F.B.I., let alone with other agencies, is sluggish, in part because the bureau's field offices have excessive autonomy and in part because the agency is mysteriously unable to adopt a modern communications system. The F.B.I. is an excellent police department, but that is all it is.

Of all the agencies involved in intelligence and counterterrorism, the F.B.I. comes out worst in the commission's report.

Progress has been made on a number of items on my list. There have been significant improvements in border control and aircraft safety. The information "wall" was removed by the USA Patriot Act, passed shortly after 9/11, although legislation may not have been necessary, since, as the commission points out, before 9/11 the C.I.A. and the F.B.I. exaggerated the degree to which they were forbidden to share information. This was a managerial failure, not an institutional one. Efforts are under way on (5) and (6), though powerful political forces limit progress on (6). Oddly, the simplest reform -- better building-evacuation planning -- has lagged.

The only interesting item on my list is (7). The F.B.I.'s counterterrorism performance before 9/11 was dismal indeed. Urged by one of its field offices to seek a warrant to search the laptop of Zacarias Moussaoui (a candidate hijacker-pilot), F.B.I. headquarters refused because it thought the special court that authorizes foreign intelligence surveillance would decline to issue a warrant -- a poor reason for not requesting one. A prescient report from the Arizona field office on flight training by Muslims was ignored by headquarters. There were only two analysts on the bin Laden beat in the entire bureau. A notice by the director, Louis J. Freeh, that the bureau focus its efforts on counterterrorism was ignored.

So what to do? One possibility would be to appoint as director a hard-nosed, thick-skinned manager with a clear mandate for change -- someone of Donald Rumsfeld's caliber. (His judgment on Iraq has been questioned, but no one questions his capacity to reform a hidebound government bureaucracy.) Another would be to acknowledge the F.B.I.'s deep-rooted incapacity to deal effectively with terrorism, and create a separate domestic intelligence agency on the model of Britain's Security Service (M.I.5). The Security Service has no power of arrest. That power is lodged in the Special Branch of Scotland Yard, and if we had our own domestic intelligence service, modeled on M.I.5, the power of arrest would be lodged in a branch of the F.B.I. As far as I know, M.I.5 and M.I.6 (Britain's counterpart to the C.I.A.) work well together. They have a common culture, as the C.I.A. and the F.B.I. do not. They are intelligence agencies, operating by surveillance rather than by prosecution. Critics who say that an American equivalent of M.I.5 would be a Gestapo understand neither M.I.5 nor the Gestapo.

Which brings me to another failing of the 9/11 commission: American provinciality. Just as we are handicapped in dealing with Islamist terrorism by our ignorance of the languages, cultures and history of the Muslim world, so we are handicapped in devising effective antiterrorist methods by our reluctance to consider foreign models. We shouldn't be embarrassed to borrow good ideas from nations with a longer experience of terrorism than our own. The blows we have struck against Al Qaeda's centralized organization may deflect Islamist terrorists from spectacular attacks like 9/11 to retail forms like car and truck bombings, assassinations and sabotage. If so, Islamist terrorism may come to resemble the kinds of terrorism practiced by the Irish Republican Army and Hamas, with which foreign nations like Britain and Israel have extensive experience. The United States remains readily penetrable by Islamist terrorists who don't even look or sound Middle Eastern, and there are Qaeda sleeper cells in this country. All this underscores the need for a domestic intelligence agency that, unlike the F.B.I., is effective.

Were all the steps that I have listed fully implemented, the probability of another terrorist attack on the scale of 9/11 would be reduced -- slightly. The measures adopted already, combined with our operation in Afghanistan, have undoubtedly reduced that probability, and the room for further reduction probably is small. We and other nations have been victims of surprise attacks before; we will be again.

They follow a pattern. Think of Pearl Harbor in 1941 and the Tet offensive in Vietnam in 1968. It was known that the Japanese might attack us. But that they would send their carrier fleet thousands of miles to Hawaii, rather than just attack the nearby Philippines or the British and Dutch possessions in Southeast Asia, was too novel and audacious a prospect to be taken seriously. In 1968 the Vietnamese Communists were known to be capable of attacking South Vietnam's cities. Indeed, such an assault was anticipated, though not during Tet (the Communists had previously observed a truce during the Tet festivities) and not on the scale it attained. In both cases the strength and determination of the enemy were underestimated, along with the direction of his main effort. In 2001 an attack by Al Qaeda was anticipated, but it was anticipated to occur overseas, and the capability and audacity of the enemy were underestimated. (Note in all three cases a tendency to underestimate non-Western foes -- another aspect of provinciality.)

Anyone who thinks this pattern can be changed should read those 90 pages of analysis and recommendations that conclude the commission's report; they come to very little. Even the prose sags, as the reader is treated to a barrage of bromides: "the American people are entitled to expect their government to do its very best," or "we should reach out, listen to and work with other countries that can help" and "be generous and caring to our neighbors," or we should supply the Middle East with "programs to bridge the digital divide and increase Internet access" -- the last an ironic suggestion, given that encrypted e-mail is an effective medium of clandestine communication. The "hearts and minds" campaign urged by the commission is no more likely to succeed in the vast Muslim world today than its prototype was in South Vietnam in the 1960's.

The commission wants criteria to be developed for picking out which American cities are at greatest risk of terrorist attack, and defensive resources allocated accordingly -- this to prevent every city from claiming a proportional share of those resources when it is apparent that New York and Washington are most at risk. Not only do we lack the information needed to establish such criteria, but to make Washington and New York impregnable so that terrorists can blow up Los Angeles or, for that matter, Kalamazoo with impunity wouldn't do us any good.

The report states that the focus of our antiterrorist strategy should not be "just 'terrorism,' some generic evil. This vagueness blurs the strategy. The catastrophic threat at this moment in history is more specific. It is the threat posed by Islamist terrorism." Is it? Who knows? The menace of bin Laden was not widely recognized until just a few years before the 9/11 attacks. For all anyone knows, a terrorist threat unrelated to Islam is brewing somewhere (maybe right here at home -- remember the Oklahoma City bombers and the Unabomber and the anthrax attack of October 2001) that, given the breathtakingly rapid advances in the technology of destruction, will a few years hence pose a greater danger than Islamic extremism. But if we listen to the 9/11 commission, we won't be looking out for it because we've been told that Islamist terrorism is the thing to concentrate on.

Illustrating the psychological and political difficulty of taking novel threats seriously, the commission's recommendations are implicitly concerned with preventing a more or less exact replay of 9/11. Apart from a few sentences on the possibility of nuclear terrorism, and of threats to other modes of transportation besides airplanes, the broader range of potential threats, notably those of bioterrorism and cyberterrorism, is ignored.

Many of the commission's specific recommendations are sensible, such as that American citizens should be required to carry biometric passports. But most are in the nature of more of the same -- more of the same measures that were implemented in the wake of 9/11 and that are being refined, albeit at the usual bureaucratic snail's pace. If the report can put spurs to these efforts, all power to it. One excellent recommendation is reducing the number of Congressional committees, at present in the dozens, that have oversight responsibilities with regard to intelligence. The stated reason for the recommendation is that the reduction will improve oversight. A better reason is that with so many committees exercising oversight, our senior intelligence and national security officials spend too much of their time testifying.

The report's main proposal -- the one that has received the most emphasis from the commissioners and has already been endorsed in some version by both presidential candidates -- is for the appointment of a national intelligence director who would knock heads together in an effort to overcome the reluctance of the various intelligence agencies to share information. Yet the report itself undermines this proposal, in a section titled "The Millennium Exception." "In the period between December 1999 and early January 2000," we read, "information about terrorism flowed widely and abundantly." Why? Mainly "because everyone was already on edge with the millennium and possible computer programming glitches ('Y2K')." Well, everyone is now on edge because of 9/11. Indeed, the report suggests no current impediments to the flow of information within and among intelligence agencies concerning Islamist terrorism. So sharing is not such a problem after all. And since the tendency of a national intelligence director would be to focus on the intelligence problem du jour, in this case Islamist terrorism, centralization of the intelligence function could well lead to overconcentration on a single risk.

The commission thinks the reason the bits of information that might have been assembled into a mosaic spelling 9/11 never came together in one place is that no one person was in charge of intelligence. That is not the reason. The reason or, rather, the reasons are, first, that the volume of information is so vast that even with the continued rapid advances in data processing it cannot be collected, stored, retrieved and analyzed in a single database or even network of linked databases. Second, legitimate security concerns limit the degree to which confidential information can safely be shared, especially given the ever-present threat of moles like the infamous Aldrich Ames. And third, the different intelligence services and the subunits of each service tend, because information is power, to hoard it. Efforts to centralize the intelligence function are likely to lengthen the time it takes for intelligence analyses to reach the president, reduce diversity and competition in the gathering and analysis of intelligence data, limit the number of threats given serious consideration and deprive the president of a range of alternative interpretations of ambiguous and incomplete data -- and intelligence data will usually be ambiguous and incomplete.

The proposal begins to seem almost absurd when one considers the variety of our intelligence services. One of them is concerned with designing and launching spy satellites; another is the domestic intelligence branch of the F.B.I.; others collect military intelligence for use in our conflicts with state actors like North Korea. There are 15 in all. The national intelligence director would be in continuous conflict with the attorney general, the secretary of defense, the chairman of the Joint Chiefs of Staff, the secretary of homeland security and the president's national security adviser. He would have no time to supervise the organizational reforms that the commission deems urgent.

The report bolsters its proposal with the claim that our intelligence apparatus was designed for fighting the cold war and so can't be expected to be adequate to fighting Islamist terrorism. The cold war is depicted as a conventional military face-off between the United States and the Soviet Union and hence a 20th-century relic (the 21st century is to be different, as if the calendar drove history). That is not an accurate description. The Soviet Union operated against the United States and our allies mainly through subversion and sponsored insurgency, and it is not obvious why the apparatus developed to deal with that conduct should be thought maladapted for dealing with our new enemy.

The report notes the success of efforts to centralize command of the armed forces, and to reduce the lethal rivalries among the military services. But there is no suggestion that the national intelligence director is to have command authority.

The central-planning bent of the commission is nowhere better illustrated than by its proposal to shift the C.I.A.'s paramilitary operations, despite their striking success in the Afghanistan campaign, to the Defense Department. The report points out that "the C.I.A. has a reputation for agility in operations," whereas the reputation of the military

is "for being methodical and cumbersome." Rather than conclude that we are lucky to have both types of fighting capacity, the report disparages "redundant, overlapping capabilities" and urges that "the C.I.A.'s experts should be integrated into the military's training, exercises and planning." The effect of such integration is likely to be the loss of the "agility in operations" that is the C.I.A.'s hallmark. The claim that we "cannot afford to build two separate capabilities for carrying out secret military operations" makes no sense. It is not a question of building; we already have multiple such capabilities -- Delta Force, Marine reconnaissance teams, Navy Seals, Army Rangers, the C.I.A.'s Special Activities Division. Diversity of methods, personnel and organizational culture is a strength in a system of national security; it reduces risk and enhances flexibility.

What is true is that 15 agencies engaged in intelligence activities require coordination, notably in budgetary allocations, to make sure that all bases are covered. Since the Defense Department accounts for more than 80 percent of the nation's overall intelligence budget, the C.I.A., with its relatively small budget (12 percent of the total), cannot be expected to control the entire national intelligence budget. But to layer another official on top of the director of central intelligence, one who would be in a constant turf war with the secretary of defense, is not an appealing solution. Since all executive power emanates from the White House, the national security adviser and his

or her staff should be able to do the necessary coordinating of the intelligence agencies. That is the traditional pattern, and it is unlikely to be bettered by a radically new table of organization.

So the report ends on a flat note. But one can sympathize with the commission's problem. To conclude after a protracted, expensive and much ballyhooed investigation that there is really rather little that can be done to reduce the likelihood of future terrorist attacks beyond what is being done already, at least if the focus is on the sort of terrorist attacks that have occurred in the past rather than on the newer threats of bioterrorism and cyberterrorism, would be a real downer -- even a tad un-American. Americans are not fatalists. When a person dies at the age of 95, his family is apt to ascribe his death to a medical failure. When the nation experiences a surprise attack, our instinctive reaction is not that we were surprised by a clever adversary but that we had the wrong strategies or structure and let's change them and then we'll be safe. Actually, the strategies and structure weren't so bad; they've been improved; further improvements are likely to have only a marginal effect; and greater dangers may be gathering of which we are unaware and haven't a clue as to how to prevent.

THE NUCLEAR CARD: The Aluminum Tube Story -- A special report.; How White House Embraced Suspect Iraq Arms Intelligence

-
-
-
-
- • • •

This article was reported by David Barstow, William J. Broad and Jeff Gerth

- Oct. 3, 2004

In 2002, at a crucial juncture on the path to war, senior members of the Bush administration gave a series of speeches and interviews in which they asserted that Saddam Hussein was rebuilding his nuclear weapons program. Speaking to a group of Wyoming Republicans in September, Vice President Dick Cheney said the United States now had "irrefutable evidence" -- thousands of tubes made of high-strength aluminum, tubes that the Bush administration said were destined for clandestine Iraqi uranium centrifuges, before some were seized at the behest of the United States.

Those tubes became a critical exhibit in the administration's brief against Iraq. As the only physical evidence the United States could brandish of Mr. Hussein's revived nuclear ambitions, they gave credibility to the apocalyptic imagery invoked by President Bush and his advisers. The tubes were "only really suited for nuclear weapons programs," Condoleezza Rice, the president's national security adviser, explained on CNN on Sept. 8, 2002. "We don't want the smoking gun to be a mushroom cloud."

But almost a year before, Ms. Rice's staff had been told that the government's foremost nuclear experts seriously doubted that the tubes were for nuclear weapons, according to four officials at the Central Intelligence Agency and two senior administration officials, all of whom spoke on condition of anonymity. The experts, at the Energy Department, believed the tubes were likely intended for small artillery rockets.

The White House, though, embraced the disputed theory that the tubes were for nuclear centrifuges, an idea first championed in April 2001 by a junior analyst at the C.I.A. Senior nuclear scientists considered that notion implausible, yet in the months after 9/11, as the administration built a case for confronting Iraq, the centrifuge theory gained currency as it rose to the top of the government.

Senior administration officials repeatedly failed to fully disclose the contrary views of America's leading nuclear scientists, an examination by The New York Times has found. They sometimes overstated even the most dire intelligence assessments of the tubes, yet minimized or rejected the strong doubts of nuclear experts. They worried privately that the nuclear case was weak, but expressed sober certitude in public.

One result was a largely one-sided presentation to the public that did not convey the depth of evidence and argument against the administration's most tangible proof of a revived nuclear weapons program in Iraq.

Today, 18 months after the invasion of Iraq, investigators there have found no evidence of hidden centrifuges or a revived nuclear weapons program. The absence of unconventional weapons in Iraq is now widely seen as evidence of a profound intelligence failure, of an intelligence community blinded by "group think," false assumptions and unreliable human sources.

Yet the tale of the tubes, pieced together through records and interviews with senior intelligence officers, nuclear experts, administration officials and Congressional investigators, reveals a different failure.

Far from "group think," American nuclear and intelligence experts argued bitterly over the tubes. A "holy war" is how one Congressional investigator described it. But if the opinions of the nuclear experts were seemingly disregarded at every turn, an overwhelming momentum gathered behind the C.I.A. assessment. It was a momentum built on a pattern of haste, secrecy, ambiguity, bureaucratic maneuver and a persistent failure in the Bush administration and among both Republicans and Democrats in Congress to ask hard questions.

Precisely how knowledge of the intelligence dispute traveled through the upper reaches of the administration is unclear. Ms. Rice knew about the debate before her Sept. 2002 CNN appearance, but only learned of the alternative rocket theory of the tubes soon afterward, according to two senior administration officials. President Bush learned of the debate at roughly the same time, a senior administration official said.

Last week, when asked about the tubes, administration officials said they relied on repeated assurances by George J. Tenet, then the director of central intelligence, that the tubes were in fact for centrifuges. They also noted that the intelligence community, including the Energy Department, largely agreed that Mr. Hussein had revived his nuclear program.

"These judgments sometimes require members of the intelligence community to make tough assessments about competing interpretations of facts," said Sean McCormack, a spokesman for the president.

Mr. Tenet declined to be interviewed. But in a statement, he said he "made it clear" to the White House "that the case for a possible nuclear program in Iraq was weaker than that for chemical and biological weapons." Regarding the tubes, Mr. Tenet said "alternative views were shared" with the administration after the intelligence community drafted a new National Intelligence Estimate in late September 2002.

The tubes episode is a case study of the intersection between the politics of pre-emption and the inherent ambiguity of intelligence. The tubes represented a scientific puzzle and rival camps of experts clashed over the tiniest technical details in secure rooms in Washington, London and Vienna. The stakes were high, and they knew it.

So did a powerful vice president who saw in 9/11 horrifying confirmation of his long-held belief that the United States too often naïvely underestimates the cunning and ruthlessness of its foes.

"We have a tendency -- I don't know if it's part of the American character -- to say, 'Well, we'll sit down and we'll evaluate the evidence, we'll draw a conclusion,"' Mr. Cheney said as he discussed the tubes in September 2002 on the NBC News program "Meet the Press."

"But we always think in terms that we've got all the evidence," he said. "Here, we don't have all the evidence. We have 10 percent, 20 percent, 30 percent. We don't know how much. We know we have a part of the picture. And that part of the picture tells us that he is, in fact, actively and aggressively seeking to acquire nuclear weapons."

Joe Raises the Tube Issue

Throughout the 1990's, United States intelligence agencies were deeply preoccupied with the status of Iraq's nuclear weapons program, and with good reason.

After the Persian Gulf war in 1991, arms inspectors discovered that Iraq had been far closer to building an atomic bomb than even the worst-case estimates had envisioned. And no one believed that Saddam Hussein had abandoned his nuclear ambitions. To the contrary, in one secret assessment after another, the agencies concluded that Iraq was conducting low-level theoretical research and quietly plotting to resume work on nuclear weapons.

But at the start of the Bush administration, the intelligence agencies also agreed that Iraq had not in fact resumed its nuclear weapons program. Iraq's nuclear infrastructure, they concluded, had been dismantled by sanctions and inspections. In short, Mr. Hussein's nuclear ambitions appeared to have been contained.

Then Iraq started shopping for tubes.

According to a 511-page report on flawed prewar intelligence by the Senate Intelligence Committee, the agencies learned in early 2001 of a plan by Iraq to buy 60,000 high-strength aluminum tubes from Hong Kong.

The tubes were made from 7075-T6 aluminum, an extremely hard alloy that made them potentially suitable as rotors in a uranium centrifuge. Properly designed, such tubes are strong enough to spin at the terrific speeds needed to convert uranium gas into enriched uranium, an essential ingredient of an atomic bomb. For this reason, international rules prohibited Iraq from importing certain sizes of 7075-T6 aluminum tubes; it was also why a new C.I.A. analyst named Joe quickly sounded the alarm.

At the C.I.A.'s request, The Times agreed to use only Joe's first name; the agency said publishing his full name could hinder his ability to operate overseas.

Continue reading the main story

Joe graduated from the University of Kentucky in the late 1970's with a bachelor's degree in mechanical engineering, then joined the Goodyear Atomic Corporation, which dispatched him to Oak Ridge, Tenn., a federal complex that specializes in uranium and national security research.

Joe went to work on a new generation of centrifuges. Many European models stood no more than 10 feet tall. The American centrifuges loomed 40 feet high, and Joe's job was to learn how to test and operate them. But when the project was canceled in 1985, Joe spent the next decade performing hazard analyses for nuclear reactors, gaseous diffusion plants and oil refineries.

In 1997, Joe transferred to a national security complex at Oak Ridge known as Y-12, his entry into intelligence work. His assignment was to track global sales of material used in nuclear arms. He retired after two years, taking a buyout with hundreds of others at Oak Ridge, and moved to the C.I.A.

The agency's ability to assess nuclear intelligence had markedly declined after the cold war, and Joe's appointment was part of an effort to regain lost expertise. He was assigned to a division eventually known as Winpac, for Weapons Intelligence, Nonproliferation and Arms Control. Winpac had hundreds of employees, but only a dozen or so with a technical background in nuclear arms and fuel production. None had Joe's hands-on experience operating centrifuges.

Suddenly, Joe's work was ending up in classified intelligence reports being read in the White House. Indeed, his analysis was the primary basis for one of the agency's first reports on the tubes, which went to senior members of the Bush administration on April 10, 2001. The tubes, the report asserted, "have little use other than for a uranium enrichment program."

This alarming assessment was immediately challenged by the Energy Department, which builds centrifuges and runs the government's nuclear weapons complex.

The next day, Energy Department officials ticked off a long list of reasons why the tubes did not appear well suited for centrifuges. Simply put, the analysis concluded that the tubes were the wrong size -- too narrow, too heavy, too long -- to be of much practical use in a centrifuge.

What was more, the analysis reasoned, if the tubes were part of a secret, high-risk venture to build a nuclear bomb, why were the Iraqis haggling over prices with suppliers all around the world? And why weren't they shopping for all the other sensitive equipment needed for centrifuges?

All fine questions. But if the tubes were not for a centrifuge, what were they for?

Within weeks, the Energy Department experts had an answer.

It turned out, they reported, that Iraq had for years used high-strength aluminum tubes to make combustion chambers for slim rockets fired from launcher pods. Back in 1996, inspectors from the International Atomic Energy Agency had even examined some of those tubes, also made of 7075-T6 aluminum, at a military complex, the Nasser metal fabrication plant in Baghdad, where the Iraqis acknowledged making rockets. According to the international agency, the rocket tubes, some 66,000 of them, were 900 millimeters in length, with a diameter of 81 millimeters and walls 3.3 millimeters thick.

The tubes now sought by Iraq had precisely the same dimensions -- a perfect match.

That finding was published May 9, 2001, in the Daily Intelligence Highlight, a secret Energy Department newsletter published on Intelink, a Web site for the intelligence community and the White House.

Joe and his Winpac colleagues at the C.I.A. were not persuaded. Yes, they conceded, the tubes could be used as rocket casings. But that made no sense, they argued in a new report, because Iraq wanted tubes made at tolerances that "far exceed any known conventional weapons." In other words, Iraq was demanding a level of precision craftsmanship unnecessary for ordinary mass-produced rockets.

More to the point, those analysts had hit on a competing theory: that the tubes' dimensions matched those used in an early uranium centrifuge developed in the 1950's by a German scientist, Gernot Zippe. Most centrifuge designs are highly classified; this one, though, was readily available in science reports.

Thus, well before Sept. 11, 2001, the debate within the intelligence community was already neatly framed: Were the tubes for rockets or centrifuges?

Experts Attack Joe's Case

It was a simple question with enormous implications. If Mr. Hussein acquired nuclear weapons, American officials feared, he would wield them to menace the Middle East. So the tube question was critical, yet none too easy to answer. The United States had few spies in Iraq, and certainly none who knew Mr. Hussein's plans for the tubes.

But the tubes themselves could yield many secrets. A centrifuge is an intricate device. Not any old tube would do. Careful inquiry might answer the question.

The intelligence community embarked on an ambitious international operation to intercept the tubes before they could get to Iraq. The big break came in June 2001: a shipment was seized in Jordan.

At the Energy Department, those examining the tubes included scientists who had spent decades designing and working on centrifuges, and intelligence officers steeped in the tricky business of tracking the nuclear ambitions of America's enemies. They included Dr. Jon A. Kreykes, head of Oak Ridge's national security advanced technology group; Dr. Duane F. Starr, an expert on nuclear proliferation threats; and Dr. Edward Von Halle, a retired Oak Ridge nuclear expert. Dr. Houston G. Wood III, a professor of engineering at the University of Virginia who had helped design the 40-foot American centrifuge, advised the team and consulted with Dr. Zippe.

On questions about nuclear centrifuges, this was unambiguously the A-Team of the intelligence community, many experts say.

On Aug. 17, 2001, weeks before the twin towers fell, the team published a secret Technical Intelligence Note, a detailed analysis that laid out its doubts about the tubes' suitability for centrifuges.

First, in size and material, the tubes were very different from those Iraq had used in its centrifuge prototypes before the first gulf war. Those models used tubes that were nearly twice as wide and made of exotic materials that performed far better than aluminum. "Aluminum was a huge step backwards," Dr. Wood recalled.

In fact, the team could find no centrifuge machines "deployed in a production environment" that used such narrow tubes. Their walls were three times too thick for "favorable use" in a centrifuge, the team wrote. They were also anodized, meaning they had a special coating to protect them from weather. Anodized tubes, the team pointed out, are "not consistent" with a uranium centrifuge because the coating can produce bad reactions with uranium gas.

In other words, if Joe and his Winpac colleagues were right, it meant that Iraq had chosen to forsake years of promising centrifuge work and instead start from scratch, with inferior material built to less-than-optimal dimensions.

The Energy Department experts did not think that made much sense. They concluded that using the tubes in centrifuges "is credible but unlikely, and a rocket production is the much more likely end use for these tubes." Similar conclusions were being reached by Britain's intelligence service and experts at the International Atomic Energy Agency, a United Nations body.

Unlike Joe, experts at the international agency had worked with Zippe centrifuges, and they spent hours with him explaining why they believed his analysis was flawed. They pointed out errors in his calculations. They noted design discrepancies. They also sent reports challenging the centrifuge claim to American government experts through the embassy in Vienna, a senior official said.

Likewise, Britain's experts believed the tubes would need "substantial re-engineering" to work in centrifuges, according to Britain's review of its prewar intelligence. Their experts found it "paradoxical" that Iraq would order such finely crafted tubes only to radically rebuild each one for a centrifuge. Yes, it was theoretically possible, but as an Energy Department analyst later told Senate investigators, it was also theoretically possible to "turn your new Yugo into a Cadillac."

In late 2001, intelligence analysts at the State Department also took issue with Joe's work in reports prepared for Secretary of State Colin L. Powell. Joe was "very convinced, but not very convincing," recalled Greg Thielmann, then director of strategic, proliferation and military affairs in the Bureau of Intelligence and Research.

By year's end, Energy Department analysts published a classified report that even more firmly rejected the theory that the tubes could work as rotors in a 1950's Zippe centrifuge. These particular Zippe centrifuges, they noted, were especially ill suited for bomb making. The machines were a prototype designed for laboratory experiments and meant to be operated as single units. To produce enough enriched uranium to make just one bomb a year, Iraq would need up to 16,000 of them working in concert, a challenge for even the most sophisticated centrifuge plants.

Continue reading the main story

Iraq had never made more than a dozen centrifuge prototypes. Half failed when rotors broke. Of the rest, one actually worked to enrich uranium, Dr. Mahdi Obeidi, who once ran Iraq's centrifuge program, said in an interview last week.

The Energy Department team concluded it was "unlikely that anyone" could build a centrifuge site capable of producing significant amounts of enriched uranium "based on these tubes." One analyst summed it up this way: the tubes were so poorly suited for centrifuges, he told Senate investigators, that if Iraq truly wanted to use them this way, "we should just give them the tubes."

Enter Cheney

In the months after Sept. 11, 2001, as the Bush administration devised a strategy to fight Al Qaeda, Vice President Cheney immersed himself in the world of top-secret threat assessments. Bob Woodward, in his book "Plan of Attack," described Mr. Cheney as the administration's new "self-appointed special examiner of worst-case scenarios," and it was a role that fit.

Mr. Cheney had grappled with national security threats for three decades, first as President Gerald R. Ford's chief of staff, later as secretary of defense for the first President Bush. He was on intimate terms with the intelligence community, 15 spy agencies that frequently feuded over the significance of raw intelligence. He knew well their record of getting it wrong (the Bay of Pigs) and underestimating threats (Mr. Hussein's pre-1991 nuclear program) and failing to connect the dots (Sept. 11).

As a result, the vice president was not simply a passive recipient of intelligence analysis. He was known as a man who asked hard, skeptical questions, a man who paid attention to detail. "In my office I have a picture of John Adams, the first vice president," Mr. Cheney said in one of his first speeches as vice president. "Adams liked to say, 'The facts are stubborn things.' Whatever the issue, we are going to deal with facts and show a decent regard for other points of view."

With the Taliban routed in Afghanistan after Sept. 11, Mr. Cheney and his aides began to focus on intelligence assessments of Saddam Hussein. Mr. Cheney had long argued for more forceful action to topple Mr. Hussein. But in January 2002, according to Mr. Woodward's book, the C.I.A. told Mr. Cheney that Mr. Hussein could not be removed with covert action alone. His ouster, the agency said, would take an invasion, which would require persuading the public that Iraq posed a threat to the United States.

The evidence for that case was buried in classified intelligence files. Mr. Cheney and his aides began to meet repeatedly with analysts who specialized in Iraq and unconventional weapons. They wanted to know about any Iraqi ties to Al Qaeda and Baghdad's ability to make unconventional weapons.

Continue reading the main story

"There's no question they had a point of view, but there was no attempt to get us to hew to a particular point of view ourselves, or to come to a certain conclusion," the deputy director of analysis at Winpac told the Senate Intelligence Committee. "It was trying to figure out, why do we come to this conclusion, what was the evidence. A lot of questions were asked, probing questions."

Of all the worst-case possibilities, the most terrifying was the idea that Mr. Hussein might slip a nuclear weapon to terrorists, and Mr. Cheney and his staff zeroed in on Mr. Hussein's nuclear ambitions.

Mr. Cheney, for example, read a Feb. 12, 2002, report from the Defense Intelligence Agency about Iraq's reported attempts to buy 500 tons of yellowcake, a uranium concentrate, from Niger, according to the Senate Intelligence Committee report. Many American intelligence analysts did not put much stock in the Niger report. Mr. Cheney pressed for more information.

At the same time, a senior intelligence official said, the agency was fielding repeated requests from Mr. Cheney's office for intelligence about the tubes, including updates on Iraq's continuing efforts to procure thousands more after the seizure in Jordan.

"Remember," Dr. David A. Kay, the chief American arms inspector after the war, said in an interview, "the tubes were the only piece of physical evidence about the Iraqi weapons programs that they had."

In March 2002, Mr. Cheney traveled to Europe and the Middle East to build support for a confrontation with Iraq. It is not known whether he mentioned Niger or the tubes in his meetings. But on his return, he made it clear that he had repeatedly discussed Mr. Hussein and the nuclear threat.

"He is actively pursuing nuclear weapons at this time," Mr. Cheney asserted on CNN.

At the time, the C.I.A. had not reached so firm a conclusion. But on March 12, the day Mr. Cheney landed in the Middle East, he and other senior administration officials had been sent two C.I.A. reports about the tubes. Each cited the tubes as evidence that "Iraq currently may be trying to reconstitute its gas centrifuge program."

Neither report, however, mentioned that leading centrifuge experts at the Energy Department strongly disagreed, according to Congressional officials who have read the reports.

What White House Is Told

As the Senate Intelligence Committee report made clear, the American intelligence community "is not a level playing field when it comes to the competition of ideas in intelligence analysis."

The C.I.A. has a distinct edge: "unique access to policy makers and unique control of intelligence reporting," the report found. The Presidential Daily Briefs, for example, are prepared and presented by agency analysts; the agency's director is the president's principal intelligence adviser. This allows agency analysts to control the presentation of information to policy makers "without having to explain dissenting views or defend their analysis from potential challenges," the committee's report said.

This problem, the report said, was "particularly evident" with the C.I.A.'s analysis of the tubes, when agency analysts "lost objectivity and in several cases took action that improperly excluded useful expertise from the intelligence debate." In interviews, Senate investigators said the agency's written assessments did a poor job of describing the debate over the intelligence.

From April 2001 to September 2002, the agency wrote at least 15 reports on the tubes. Many were sent only to high-level policy makers, including President Bush, and did not circulate to other intelligence agencies. None have been released, though some were described in the Senate's report.

Several senior C.I.A. officials insisted that those reports did describe at least in general terms the intelligence debate. "You don't go into all that detail but you do try to evince it when you write your current product," one agency official said.

But several Congressional and intelligence officials with access to the 15 assessments said not one of them informed senior policy makers of the Energy Department's dissent. They described a series of reports, some with ominous titles, that failed to convey either the existence or the substance of the intensifying debate.

Continue reading the main story

Over and over, the reports restated Joe's main conclusions for the C.I.A. -- that the tubes matched the 1950's Zippe centrifuge design and were built to specifications that "exceeded any known conventional weapons application." They did not state what Energy Department experts had noted -- that many common industrial items, even aluminum cans, were made to specifications as good or better than the tubes sought by Iraq. Nor did the reports acknowledge a significant error in Joe's claim -- that the tubes "matched" those used in a Zippe centrifuge.

The tubes sought by Iraq had a wall thickness of 3.3 millimeters. When Energy Department experts checked with Dr. Zippe, a step Joe did not take, they learned that the walls of Zippe tubes did not exceed 1.1 millimeters, a substantial difference.

"They never lay out the other case," one Congressional official said of those C.I.A. assessments.

The Senate report provides only a partial picture of the agency's communications with the White House. In an arrangement endorsed by both parties, the Intelligence Committee agreed to delay an examination of whether White House descriptions of Iraq's military capabilities were

"substantiated by intelligence information." As a result, Senate investigators were not permitted to interview White House officials about what they knew of the tubes debate and when they knew it.

But in interviews, C.I.A. and administration officials disclosed that the dissenting views were repeatedly discussed in meetings and telephone calls.

One senior official at the agency said its "fundamental approach" was to tell policy makers about dissenting views. Another senior official acknowledged that some of their agency's reports "weren't as well caveated as, in retrospect, they should have been." But he added, "There was certainly nothing that was hidden."

Four agency officials insisted that Winpac analysts repeatedly explained the contrasting assessments during briefings with senior National Security Council officials who dealt with nuclear proliferation issues. "We think we were reasonably clear about this," a senior C.I.A. official said.

A senior administration official confirmed that Winpac was indeed candid about the differing views. The official, who recalled at least a half dozen C.I.A. briefings on tubes, said he knew by late 2001 that there were differing views on the tubes. "To the best of my knowledge, he never hid anything from me," the official said of his counterpart at Winpac.

Continue reading the main story

This official said he also spoke to senior officials at the Department of Energy about the tubes, and a spokeswoman for the department said in a written statement that the agency "strongly conveyed its viewpoint to senior policy makers."

But if senior White House officials understood the department's main arguments against the tubes, they also took into account its caveats. "As far as I know," the senior administration official said, "D.O.E. never concluded that these tubes could not be used for centrifuges."

A Referee Is Ignored

Over the summer of 2002, the White House secretly refined plans to invade Iraq and debated whether to seek more United Nations inspections. At the same time, in response to a White House request in May, C.I.A. officials were quietly working on a report that would lay out for the public declassified evidence of Iraq's reported unconventional weapons and ties to terror groups.

That same summer the tubes debate continued to rage. The primary antagonists were the C.I.A. and the Energy Department, with other intelligence agencies drawn in on either side.

Much of the strife centered on Joe. At first glance, he seemed an unlikely target. He held a relatively junior position, and according to the C.I.A. he did not write the vast majority of the agency's reports on the tubes. He has never met Mr. Cheney. His one trip to the White House was to take his family on the public tour.

But he was, as one staff member on the Senate Intelligence Committee put it, "the ringleader" of a small group of Winpac analysts who were convinced that the tubes were destined for centrifuges. His views carried special force within the agency because he was the only Winpac analyst with experience operating uranium centrifuges. In meetings with other intelligence agencies, he often took the lead in arguing the technical basis for the agency's conclusions.

"Very few people have the technical knowledge to independently arrive at the conclusion he did," said Dr. Kay, the weapons inspector, when asked to explain Joe's influence.

Without identifying him, the Senate Intelligence Committee's report repeatedly questioned Joe's competence and integrity. It portrayed him as so determined to prove his theory that he twisted test results, ignored factual discrepancies and excluded dissenting views.

The Senate report, for example, challenged his decision not to consult the Energy Department on tests designed to see if the tubes were strong enough for centrifuges. Asked why he did not seek their help, Joe told the committee: "Because we funded it. It was our testing. We were trying to prove some things that we wanted to prove with the testing." The Senate report singled out that comment for special criticism, saying, "The committee believes that such an effort should never have been intended to prove what the C.I.A. wanted to prove."

Joe's superiors strongly defend his work and say his words were taken out of context. They describe him as diligent and professional, an open-minded analyst willing to go the extra mile to test his theories. "Part of the job of being an analyst is to evaluate alternative hypotheses and possibilities, to build a case, think of alternatives," a senior agency official said. "That's what Joe did in this case. If he turned out to be wrong, that's not an offense. He was expected to be wrong occasionally."

Still, the bureaucratic infighting was by then so widely known that even the Australian government was aware of it. "U.S. agencies differ on whether aluminum tubes, a dual-use item sought by Iraq, were meant for gas centrifuges," Australia's intelligence services wrote in a July 2002 assessment. The same report said the tubes evidence was "patchy and inconclusive."

There was a mechanism, however, to resolve the dispute. It was called the Joint Atomic Energy Intelligence Committee, a secret body of experts drawn from across the federal government. For a half century, Jaeic (pronounced jake) has been called on to resolve disputes and give authoritative assessments about nuclear intelligence. The committee had specifically assessed the Iraqi nuclear threat in 1989, 1997 and 1999. An Energy Department expert was the committee's

chairman in 2002, and some department officials say the C.I.A. opposed calling in Jaeic to mediate the tubes fight.

Not so, agency officials said. In July 2002, they insist, they were the first intelligence agency to seek Jaeic's intervention. "I personally was concerned about the extent of the community's disagreement on this and the fact that we weren't getting very far," a senior agency official recalled.

The committee held a formal session in early August to discuss the debate, with more than a dozen experts on both sides in attendance. A second meeting was scheduled for later in August but was postponed. A third meeting was set for early September; it never happened either.

"We were O.B.E. -- overcome by events," an official involved in the proceedings recalled.

White House Makes a Move

"The case of Saddam Hussein, a sworn enemy of our country, requires a candid appraisal of the facts," Mr. Cheney said on Aug. 26, 2002, at the outset of an address to the Veterans of Foreign Wars national convention in Nashville.

Warning against "wishful thinking or willful blindness," Mr. Cheney used the speech to lay out a rationale for pre-emptive action against Iraq. Simply resuming United Nations inspections, he argued, could give "false comfort" that Mr. Hussein was contained.

"We now know Saddam has resumed his efforts to acquire nuclear weapons," he declared, words that quickly made headlines worldwide. "Many of us are convinced that Saddam will acquire nuclear weapons fairly soon. Just how soon, we cannot really gauge. Intelligence is an uncertain business, even in the best of circumstances."

But the world, Mr. Cheney warned, could ill afford to once again underestimate Iraq's progress.

"Armed with an arsenal of these weapons of terror, and seated atop 10 percent of the world's oil reserves, Saddam Hussein could then be expected to seek domination of the entire Middle East, take control of a great portion of the world's energy supplies, directly threaten America's friends throughout the region, and subject the United States or any other nation to nuclear blackmail."

A week later President Bush announced that he would ask Congress for authorization to oust Mr. Hussein. He also met that day with senior members of the House and Senate, some of whom expressed concern that the administration had yet to show the American people tangible evidence of an imminent threat. The fact that Mr. Hussein gassed his own people in the 1980's, they argued, was not sufficient evidence of a threat to the United States in 2002.

President Bush got the message. He directed Mr. Cheney to give the public and Congress a more complete picture of the latest intelligence on Iraq.

In his Nashville speech, Mr. Cheney had not mentioned the aluminum tubes or any other fresh intelligence when he said, "We now know that Saddam has resumed his efforts to acquire nuclear weapons." The one specific source he did cite was Hussein Kamel al-Majid, a son-in-law of Mr. Hussein's who defected in 1994 after running Iraq's chemical, biological and nuclear weapons programs. But Mr. Majid told American intelligence officials in 1995 that Iraq's nuclear program had been dismantled. What's more, Mr. Majid could not have had any insight into Mr. Hussein's current nuclear activities: he was assassinated in 1996 on his return to Iraq.

The day after President Bush announced he was seeking Congressional authorization, Mr. Cheney and Mr. Tenet, the director of central intelligence, traveled to Capitol Hill to brief the four top Congressional leaders. After the 90-minute session, J. Dennis Hastert, the House speaker, told Fox News that Mr. Cheney had provided new information about unconventional weapons, and Fox went on to report that one source said the new intelligence described "just how dangerously close Saddam Hussein has come to developing a nuclear bomb."

Tom Daschle, the South Dakota Democrat and Senate majority leader, was more cautious. "What has changed over the course of the last 10 years, that brings this country to the belief that it has to act in a pre-emptive fashion in invading Iraq?" he asked.

A few days later, on Sept. 8., the lead article on Page 1 of The New York Times gave the first detailed account of the aluminum tubes. The article cited unidentified senior administration officials who insisted that the dimensions, specifications and numbers of tubes sought showed that they were intended for a nuclear weapons program.

"The closer he gets to a nuclear capability, the more credible is his threat to use chemical and biological weapons," a senior administration official was quoted as saying. "Nuclear weapons are his hole card."

The article gave no hint of a debate over the tubes.

The White House did much to increase the impact of The Times' article. The morning it was published, Mr. Cheney went on the NBC News program "Meet the Press" and confirmed when asked that the tubes were the most alarming evidence behind the administration's view that Iraq had resumed its nuclear weapons program. The tubes, he said, had "raised our level of concern." Ms. Rice, the national security adviser, went on CNN and said the tubes "are only really suited for nuclear weapons programs."

Neither official mentioned that the nation's top nuclear design experts believed overwhelmingly that the tubes were poorly suited for centrifuges.

Advertisement

Continue reading the main story

Mr. Cheney, who has a history of criticizing officials who disclose sensitive information, typically refuses to comment when asked about secret intelligence. Yet on this day, with a Gallup poll showing that 58 percent of Americans did not believe President Bush had done enough to explain why the United States should act against Iraq, Mr. Cheney spoke openly about one of the closest held secrets regarding Iraq. Not only did Mr. Cheney draw attention to the tubes; he did so with a certitude that could not be found in even the C.I.A.'s assessments. On "Meet the Press," Mr. Cheney said he knew "for sure" and "in fact" and "with absolute certainty" that Mr. Hussein was buying equipment to build a nuclear weapon.

"He has reconstituted his nuclear program," Mr. Cheney said flatly.

But in the C.I.A. reports, evidence "suggested" or "could mean" or "indicates" -- a word used in a report issued just weeks earlier. Little if anything was asserted with absolute certainty. The intelligence community had not yet concluded that Iraq had indeed reconstituted its nuclear program.

"The vice president's public statements have reflected the evolving judgment of the intelligence community," Kevin Kellems, Mr. Cheney's spokesman, said in a written statement.

The C.I.A. routinely checks presidential speeches that draw on intelligence reports. This is how intelligence professionals pull politicians back from factual errors. One such opportunity came soon after Mr. Cheney's appearance on "Meet the Press." On Sept. 11, 2002, the White House asked the agency to clear for possible presidential use a passage on Iraq's nuclear program. The passage included this sentence: "Iraq has made several attempts to buy high-strength aluminum tubes used in centrifuges to enrich uranium for nuclear weapons."

The agency did not ask speechwriters to make clear that centrifuges were but one possible use, that intelligence experts were divided and that the tubes also matched those used in Iraqi rockets. In fact, according to the Senate's investigation, the agency suggested no changes at all.

The next day President Bush used virtually identical language when he cited the aluminum tubes in an address to the United Nations General Assembly.

Dissent, but to Little Effect

The administration's talk of clandestine centrifuges, nuclear blackmail and mushroom clouds had a powerful political effect, particularly on senators who were facing fall election campaigns. "When you hear about nuclear weapons, this is the national security knock-out punch," said Senator Ron Wyden, a Democrat from Oregon who sits on the Intelligence Committee and ultimately voted against authorizing war.

Advertisement

Continue reading the main story

Even so, it did not take long for questions to surface over the administration's claims about Mr. Hussein's nuclear capabilities. As it happened, Senator Dianne Feinstein, another Democratic member of the Intelligence Committee, had visited the International Atomic Energy Agency in Vienna in August 2002. Officials there, she later recalled, told her they saw no signs of a revived nuclear weapons program in Iraq.

At that point, the tubes debate was in its 16th month. Yet Mr. Tenet, of the C.I.A., the man most responsible for briefing President Bush on intelligence, told the committee that he was unaware until that September of the profound disagreement over critical evidence that Mr. Bush was citing to world leaders as justification for war.

Even now, committee members from both parties express baffled anger at this possibility. How could he not know? "I don't even understand it," Olympia Snowe, a Republican senator from Maine, said in an interview. "I cannot comprehend the failures in judgment or breakdowns in communication."

Mr. Tenet told Senate investigators that he did not expect to learn of dissenting opinions "until the issue gets joined" at the highest levels of the intelligence community. But if Mr. Tenet's lack of knowledge meant the president was given incomplete information about the tubes, there was still plenty of time for the White House to become fully informed.

Yet so far, Senate investigators say, they have found little evidence the White House tried to find out why so many experts disputed the C.I.A. tubes theory. If anything, administration officials minimized the divide.

On Sept. 13, The Times made the first public mention of the tubes debate in the sixth paragraph of an article on Page A13. In it an unidentified senior administration official dismissed the debate as a "footnote, not a split." Citing another unidentified administration official, the story reported that the "best technical experts and nuclear scientists at laboratories like Oak Ridge supported the C.I.A. assessments."

As a senior Oak Ridge official pointed out to the Intelligence Committee, "the vast majority of scientists and nuclear experts" in the Energy Department's laboratories in fact disagreed with the agency. But on Sept. 13, the day the article appeared, the Energy Department sent a directive forbidding employees from discussing the subject with reporters.

Continue reading the main story

The Energy Department, in a written statement, said that it was "completely appropriate" to remind employees of the need to protect nuclear secrets and that it had made no effort "to quash dissent."

In closed hearings that month, though, Congress began to hear testimony about the debate. Several Democrats said in interviews that secrecy rules had prevented them from speaking out about the gap between the administration's view of the tubes and the more benign explanations described in classified testimony.

One senior C.I.A. official recalled cautioning members of Congress in a closed session not to speak publicly about the possibility that the tubes were for rockets. "If people start talking about that and the Iraqis see that people are saying rocket bodies, that will automatically become their explanation whenever anyone goes to Iraq," the official said in an interview.

So while administration officials spoke freely about the agency's theory, the evidence that best challenged this view remained almost entirely off limits for public debate.

Correct decision?

In late September, the C.I.A. sent policymakers its most detailed classified report on the tubes. For the first time, an agency report acknowledged that "some in the intelligence community" believed rockets were "more likely end uses" for the tubes, according to officials who have seen the report.

Meanwhile, at the Energy Department, scientists were startled to find senior White House officials embracing a view of the tubes they considered thoroughly discredited. "I was really shocked in 2002 when I saw it was still there," Dr. Wood, the Oak Ridge adviser, said of the centrifuge claim. "I thought it had been put to bed."

Members of the Energy Department team took a highly unusual step: They began working quietly with a Washington arms-control group, the Institute for Science and International Security, to help the group inform the public about the debate, said one team member and the group's president, David Albright.

On Sept. 23, the institute issued the first in series of lengthy reports that repeated some of the Energy Department's arguments against the C.I.A. analysis, though no classified ones. Still, after more than 16 months of secret debate, it was the first public airing of facts that undermined the most alarming suggestions about Iraq's nuclear threat.

The reports got little attention, partly because reporters did not realize they had been done with the cooperation of top Energy Department experts. The Washington Post ran a brief article about the findings on Page A18. Many major newspapers, including The Times, ran nothing at all.

Scrambling for an 'Estimate'

Soon after Mr. Cheney's appearance on "Meet the Press," Democratic senators began pressing for a new National Intelligence Estimate on Iraq, terrorism and unconventional weapons. A

National Intelligence Estimate is a classified document that is supposed to reflect the combined judgment of the entire intelligence community. The last such estimate had been done in 2000.

Most estimates take months to complete. But this one had to be done in days, in time for an October vote on a war resolution. There was little time for review or reflection, and no time for Jaeic, the joint committee, to reconcile deep analytical differences.

This was a potentially thorny obstacle for those writing the nuclear section: What do you do when the nation's nuclear experts strongly doubt the linchpin evidence behind the C.I.A.'s claims that Iraq was rebuilding its nuclear weapons program?

The Energy Department helped solve the problem. In meetings on the estimate, senior department intelligence officials said that while they still did not believe the tubes were for centrifuges, they nonetheless could agree that Iraq was reconstituting its nuclear weapons capability.

Several senior scientists inside the department said they were stunned by that stance; they saw no compelling evidence of a revived nuclear program.

Some laboratory officials blamed time pressure and inexperience. Thomas S. Ryder, the department's representative at the meetings, had been acting director of the department's intelligence unit for only five months. "A heck of a nice guy but not savvy on technical issues," is the way one senior nuclear official described Mr. Ryder, who declined comment.

Mr. Ryder's position was more alarming than prior assessments from the Energy Department. In an August 2001 intelligence paper, department analysts warned of suspicious activities in Iraq that "could be preliminary steps" toward reviving a centrifuge program. In July 2002 an Energy Department report, "Nuclear Reconstitution Efforts Underway?", noted that several developments, including Iraq's suspected bid to buy yellowcake uranium from Niger, suggested Baghdad was "seeking to reconstitute" a nuclear weapons program.

According to intelligence officials who took part in the meetings, Mr. Ryder justified his department's now firm position on nuclear reconstitution in large part by citing the Niger reports. Many C.I.A. analysts considered that intelligence suspect, as did analysts at the State Department.

Nevertheless, the estimate's authors seized on the Energy Department's position to avoid the entire tubes debate, with written dissents relegated to a 10-page annex. The estimate would instead emphasize that the C.I.A. and the Energy Department both agreed that Mr. Hussein was rebuilding his nuclear weapons program. Only the closest reader would see that each agency was basing its assessment in large measure on evidence the other considered suspect.

On Oct. 2, nine days before the Senate vote on the war resolution, the new National Intelligence Estimate was delivered to the Intelligence Committee. The most significant change from past estimates dealt with nuclear weapons; the new one agreed with Mr. Cheney that Iraq was in aggressive pursuit of the atomic bomb.

Asked when Mr. Cheney became aware of the disagreements over the tubes, Mr. Kellems, his spokesman, said, "The vice president knew about the debate at about the time of the National Intelligence Estimate."

Today, the Intelligence Committee's report makes clear, that 93-page estimate stands as one of the most flawed documents in the history of American intelligence. The committee concluded unanimously that most of the major findings in the estimate were wrong, unfounded or overblown.

Continue reading the main story

This was especially true of the nuclear section.

Estimates express their most important findings with high, moderate or low confidence levels. This one claimed "moderate confidence" on how fast Iraq could have a bomb, but "high confidence" that Baghdad was rebuilding its nuclear program. And the tubes were the leading and most detailed evidence cited in the body of the report.

According to the committee, the passages on the tubes, which adopted much of the C.I.A. analysis, were misleading and riddled with factual errors.

The estimate, for example, included a chart intended to show that the dimensions of the tubes closely matched a Zippe centrifuge. Yet the chart omitted the dimensions of Iraq's 81-millimeter rocket, which precisely matched the tubes.

The estimate cited Iraq's alleged willingness to pay top dollar for the tubes, up to $17.50 each, as evidence they were for secret centrifuges. But Defense Department rocket engineers told Senate investigators that 7075-T6 aluminum is "the material of choice for low-cost rocket systems."

The estimate also asserted that 7075-T6 tubes were "poor choices" for rockets. In fact, similar tubes were used in rockets from several countries, including the United States, and in an Italian rocket, the Medusa, which Iraq had copied.

Beyond tubes, the estimate cited several other "key judgments" that supported its assessment. The committee found that intelligence just as flawed.

The estimate, for example, pointed to Iraq's purchases of magnets, balancing machines and machine tools, all of which could be used in a nuclear program. But each item also had

legitimate non-nuclear uses, and there was no credible intelligence whatsoever showing they were for a nuclear program.

The estimate said Iraq's Atomic Energy Commission was building new production facilities for nuclear weapons. The Senate found that claim was based on a single operative's report, which described how the commission had constructed one headquarters building and planned "a new high-level polytechnic school."

Finally, the estimate stated that many nuclear scientists had been reassigned to the A.E.C. The Senate found nothing to back that conclusion. It did, though, discover a 2001 report in which a commission employee complained that Iraq's nuclear program "had been stalled since the gulf war."

Such "key judgments" are supposed to reflect the very best American intelligence. (The Niger intelligence, for example, was considered too shaky to be included as a key judgment.) Yet as they studied raw intelligence reports, those involved in the Senate investigation came to a sickening realization. "We kept looking at the intelligence and saying, 'My God, there's nothing here,'" one official recalled.

The Vote for War

Soon after the National Intelligence Estimate was completed, Mr. Bush delivered a speech in Cincinnati in which he described the "grave threat" that Iraq and its "arsenal of terror" posed to the United States. He dwelled longest on nuclear weapons, reviewing much of the evidence outlined in the estimate. The C.I.A. had warned him away from mentioning Niger.

"Facing clear evidence of peril," the president concluded, "we cannot wait for the final proof -- the smoking gun -- that could come in the form of a mushroom cloud."

Four days later, on Oct. 11, the Senate voted 77-23 to give Mr. Bush broad authority to invade Iraq. The resolution stated that Iraq posed "a continuing threat" to the United States by, among other things, "actively seeking a nuclear weapons capability."

Many senators who voted for the resolution emphasized the nuclear threat.

"The great danger is a nuclear one," Senator Feinstein, the California Democrat, said on the Senate floor.

But Senator Bob Graham, then chairman of the Intelligence Committee, said he voted against the resolution in part because of doubts about the tubes. "It reinforced in my mind pre-existing questions I had about the unreliability of the intelligence community, especially the C.I.A.," Mr. Graham, a Florida Democrat, said in an interview.

At the Democratic convention in Boston this summer, Senator John Kerry pledged that should he be elected president, "I will ask hard questions and demand hard evidence." But in October 2002, when the Senate voted on Iraq, Mr. Kerry had not read the National Intelligence Estimate, but instead had relied on a briefing from Mr. Tenet, a spokeswoman said. "According to the C.I.A.'s report, all U.S. intelligence experts agree that Iraq is seeking nuclear weapons," Mr. Kerry said then, explaining his vote. "There is little question that Saddam Hussein wants to develop nuclear weapons."

The report cited by Mr. Kerry, an unclassified white paper, said nothing about the tubes debate except that "some" analysts believed the tubes were "probably intended" for conventional arms.

"It is common knowledge that Congress does not have the same access as the executive branch," Brooke Anderson, a Kerry spokeswoman, said yesterday.

Mr. Kerry's running mate, Senator John Edwards, served on the Intelligence Committee, which gave him ample opportunity to ask hard questions. But in voting to authorize war, Mr. Edwards expressed no uncertainty about the principal evidence of Mr. Hussein's alleged nuclear program.

"We know that he is doing everything he can to build nuclear weapons," Mr. Edwards said then.

On Dec. 7, 2002, Iraq submitted a 12,200-page declaration about unconventional arms to the United Nations that made no mention of the tubes. Soon after, Winpac analysts at the C.I.A. assessed the declaration for President Bush. The analysts criticized Iraq for failing to acknowledge or explain why it sought tubes "we believe suitable for use in a gas centrifuge uranium effort." Nor, they said, did it "acknowledge efforts to procure uranium from Niger."

Neither Energy Department nor State Department intelligence experts were given a chance to review the Winpac assessment, prompting complaints that dissenting views were being withheld from policy makers.

Continue reading the main story

"It is most disturbing that Winpac is essentially directing foreign policy in this matter," one Energy Department official wrote in an e-mail message. "There are some very strong points to be made in respect to Iraq's arrogant noncompliance with U.N. sanctions. However, when individuals attempt to convert those 'strong statements' into the 'knock-out' punch, the administration will ultimately look foolish -- i.e., the tubes and Niger!"

The U.N. Inspectors Return

For nearly two years Western intelligence analysts had been trying to divine from afar Iraq's plans for the tubes. At the end of 2002, with the resumption of United Nations arms inspections, it became possible to seek answers inside Iraq. Inspectors from the International Atomic Energy Agency immediately zeroed in on the tubes.

The team quickly arranged a field trip to the Nasser metal fabrication factory, where they found 13,000 completed rockets, all produced from 7075-T6 aluminum tubes. The Iraqi rocket engineers explained that they had been shopping for more tubes because their supply was running low.

Why order tubes with such tight tolerances? An Iraqi engineer said they wanted to improve the rocket's accuracy without making major design changes. Design documents and procurement records confirmed his account.

The inspectors solved another mystery. The tubes intercepted in Jordan had been anodized, given a protective coating. The Iraqis had a simple explanation: they wanted the new tubes protected from the elements. Sure enough, the inspectors found that many thousands of the older tubes, which had no special coating, were corroded because they had been stored outside.

The inspectors found no trace of a clandestine centrifuge program. On Jan. 10, 2003, The Times reported that the international agency was challenging "the key piece of evidence" behind "the primary rationale for going to war." The article, on Page A10, also reported that officials at the Energy Department and State Department had suggested the tubes might be for rockets.

The C.I.A. theory was in trouble, and senior members of the Bush administration seemed to know it.

Also that January, White House officials who were helping to draft what would become Secretary Powell's speech to the Security Council sent word to the intelligence community that they believed "the nuclear case was weak," the Senate report said. In an interview, a senior administration official said it was widely understood all along at the White House that the evidence of a nuclear threat was piecemeal and weaker than that for other unconventional arms.

Continue reading the main story

But rather than withdraw the nuclear card -- a step that could have undermined United States credibility just as tens of thousands of troops were being airlifted to the region -- the White House cast about for new arguments and evidence to support it.

Gen. Richard B. Myers, chairman of the Joint Chiefs of Staff, asked the intelligence agencies for more evidence beyond the tubes to bolster the nuclear case. Winpac analysts redoubled efforts to prove that Iraq was trying to acquire uranium from Africa. When rocket engineers at the Defense Department were approached by the C.I.A. and asked to compare the Iraqi tubes with American ones, the engineers said the tubes "were perfectly usable for rockets." The agency analysts did

not appear pleased. One rocket engineer complained to Senate investigators that the analysts had "an agenda" and were trying "to bias us" into agreeing that the Iraqi tubes were not fit for rockets. In interviews, agency officials denied any such effort.

According to the Intelligence Committee report, the agency also sought to undermine the I.A.E.A.'s work with secret intelligence assessments distributed only to senior policy makers. Nonetheless, on Jan. 22, in a meeting first reported by The Washington Post, the ubiquitous Joe flew to Vienna in a last-ditch attempt to bring the international experts around to his point of view.

The session was a disaster.

"Everybody was embarrassed when he came and made this presentation, embarrassed and disgusted," one participant said. "We were going insane, thinking, 'Where is he coming from?"'

On Jan. 27, the international agency rendered its judgment: it told the Security Council that it had found no evidence of a revived nuclear weapons program in Iraq. "From our analysis to date," the agency reported, "it appears that the aluminum tubes would be consistent with the purpose stated by Iraq and, unless modified, would not be suitable for manufacturing centrifuges."

The Powell Presentation

The next night, during his State of the Union address, President Bush cited I.A.E.A. findings from years past that confirmed that Mr. Hussein had had an "advanced" nuclear weapons program in the 1990's. He did not mention the agency's finding from the day before.

He did, though, repeat the claim that Mr. Hussein was trying to buy tubes "suitable for nuclear weapons production." Mr. Bush also cited British intelligence that Mr. Hussein had recently sought "significant quantities" of uranium from Africa -- a reference in 16 words that the White House later said should have been stricken, though the British government now insists the information was credible.

"Saddam Hussein," Mr. Bush said that night, "has not credibly explained these activities. He clearly has much to hide. The dictator of Iraq is not disarming."

A senior administration official involved in vetting the address said Mr. Bush did not cite the I.A.E.A. conclusion of Jan. 27 because the White House believed the agency was analyzing old Iraqi tubes, not the newer ones seized in Jordan. But senior officials in Vienna and Washington said the international group's analysis covered both types of tubes.

The senior administration official also said the president's words were carefully chosen to reflect the doubts at the Energy Department. The crucial phrase was "suitable for nuclear weapons

production." The phrase stopped short of asserting that the tubes were actually being used in centrifuges. And it was accurate in the sense that Energy Department officials always left open the possibility that the tubes could be modified for use in a centrifuge.

"There were differences," the official said, "and we had to address those differences."

In his address, the president announced that Mr. Powell would go before the Security Council on Feb. 5 and lay out the intelligence on Iraq's weapons programs. The purpose was to win international backing for an invasion, and so the administration spent weeks drafting and redrafting the presentation, with heavy input from the C.I.A., the National Security Council and I. Lewis Libby, Mr. Cheney's chief of staff.

The Intelligence Committee said some drafts prepared for Mr. Powell contained language on the tubes that was patently incorrect. The C.I.A. wanted Mr. Powell to say, for example, that Iraq's specifications for roundness were so exacting "that the tubes would be rejected as defective if I rolled one under my hand on this table, because the mere pressure of my hand would deform it."

Intelligence analysts at the State Department waged a quiet battle against much of the proposed language on tubes. A year before, they had sent Mr. Powell a report explaining why they believed the tubes were more likely for rockets. The National Intelligence Estimate included their dissent -- that they saw no compelling evidence of a comprehensive effort to revive a nuclear weapons program. Now, in the days before the Security Council speech, they sent the secretary detailed memos warning him away from a long list of assertions in the drafts, the intelligence committee found. The language on the tubes, they said, contained "egregious errors" and "highly misleading" claims. Changes were made, language softened. The line about "the mere pressure of my hand" was removed.

"My colleagues," Mr. Powell assured the Security Council, "every statement I make today is backed up by sources, solid sources. These are not assertions."

Continue reading the main story

He made his way to the subject of Mr. Hussein's current nuclear capabilities.

"By now," he said, "just about everyone has heard of these tubes, and we all know there are differences of opinion. There is controversy about what these tubes are for. Most U.S. experts think they are intended to serve as rotors in centrifuges used to enrich uranium. Other experts and the Iraqis themselves argue that they are really to produce the rocket bodies for a conventional weapon, a multiple rocket launcher."

But Mr. Powell did not acknowledge that those "other experts" included many of the nation's most authoritative nuclear experts, some of whom said in interviews that they were offended to find themselves now lumped in with a reviled government.

In making the case that the tubes were for centrifuges, Mr. Powell made claims that his own intelligence experts had told him were not accurate. Mr. Powell, for example, asserted to the Security Council that the tubes were manufactured to a tolerance "that far exceeds U.S. requirements for comparable rockets."

Yet in a memo written two days earlier, Mr. Powell's intelligence experts had specifically cautioned him about those very same words. "In fact," they explained, "the most comparable U.S. system is a tactical rocket -- the U.S. Mark 66 air-launched 70-millimeter rocket -- that uses the same, high-grade (7075-T6) aluminum, and that has specifications with similar tolerances."

In the end, Mr. Powell put his personal prestige and reputation behind the C.I.A.'s tube theory.

"When we came to the aluminum tubes," Richard A. Boucher, the State Department spokesman, said in an interview, "the secretary listened to the discussion of the various views among intelligence agencies, and reflected those issues in his presentation. Since his task at the U.N. was to present the views of the United States, he went with the overall judgment of the intelligence community as reflected by the director of central intelligence."

As Mr. Powell summed it up for the United Nations, "People will continue to debate this issue, but there is no doubt in my mind these illicit procurement efforts show that Saddam Hussein is very much focused on putting in place the key missing piece from his nuclear weapons program: the ability to produce fissile material."

Six weeks later, the war began.

MARCH 29, 2023

THINKING IN TIME

— NEUSTADT + MAY

ıents in the LBJ Library suggest that Bundy and other sers believed the President's decision on Westmoreland's uest to be still in doubt as late as the end of June, the ıe memorandum on the French analogy. On June 30 and ndy signed two other documents dealing with Vietnam. ommented on recommendations that Secretary of Defense 'a was about to send the President. The second, a day marized for LBJ the state of debate in Washington con-/estmoreland's proposals.[10]

the later little-contested denunciation of Bundy as fore-ıg the "best and brightest" who blundered into an im-l unwinnable war, the comment to McNamara is an ıg document. In it Bundy challenged the Westmoreland more sharply and more tellingly than had Ball. Character-ı as "rash to the point of folly," Bundy ticked off key (1) Could American troops fight a counter-guerrilla war? the Vietcong accommodate Westmoreland by accepting engagements? (3) What, if anything, would keep the ation off a "slippery slope toward total US responsibility ponding fecklessness on the Vietnamese side?" (4) What upper limit of US liability?" Bundy added, "If we send and men now for these quite limited missions, may we 100 thousand later? Is this a rational course of action?" here any threat that could move Hanoi to seek peace, wer's threat to use nuclear weapons allegedly had moved Koreans to agree to a truce in 1953? (6) Why did a ıave to be made in July on the basis of "fragmentary

does not remember writing that memorandum, although s hallmark: lean, bold prose. He does feel sure that in he was not just voicing to McNamara misgivings he nt to expose to Johnson. Instead, he thinks it probable ne in the Pentagon—perhaps Assistant Secretary of De-ı McNaughton, a friend from days when Bundy was Dean of Arts and Sciences and McNaughton a Harvard ssor—had asked him to help McNamara pose hard ques-Westmoreland and the Joint Chiefs.

emorandum had little apparent effect. McNamara sent nendations, backing Westmoreland, to Johnson virtually

s other memorandum, dated July 1, summarized McNa-

mara's recommendations as well as those made by Rusk, Ball, and Bundy's brother, William, then Assistant Secretary of State for East Asian Affairs. William Bundy argued for holding off further deployments while testing U.S. forces, exploring ways of stiffening Saigon, and working on Congress as well as the media. Labeling this "a middle course for the next two months," McGeorge Bundy wrote to LBJ: "My hunch is that you will want to listen hard to George Ball and then reject his proposal. Discussion could then move to the narrower choice between my brother's course and McNamara's." Putting much less sharply some of the points in the earlier communication to McNamara, Bundy listed some "disputed questions" on which, he said, the President might "want to have pretty tight and hard analyses":

1. What are the chances of our getting into a white man's war with all the brown men against us or apathetic?
2. How much of the McNamara planning could be on a contingency basis with no decision until August or September [near the start of the rainy season]?
3. What would a really full political and public relations campaign look like in both the [William] Bundy and the McNamara option?
4. What is the upper limit of our liability if we now go to 44 battalions?
5. Can we frame this program in such a way as to keep very clear our own determination to keep the war limited?"

Bundy knew that Johnson would be inclined to go along with McNamara. As Bundy read his boss, Johnson counted on McNamara to identify the minimum force requirements necessary to prevent the generals from claiming that they were being denied what they needed to do the job. He was very unlikely to cut back on any numbers McNamara genuinely requested. The open question was whether, face to face with the President, McNamara might indicate that the Joint Chiefs and Westmoreland could be persuaded to accept the delay William Bundy urged. That did not occur. The outcome was a fateful decision to make the war against the Vietcong and North Vietnam one to be fought primarily by American military forces.

Bundy's paper on the French, with which this chapter started, was sandwiched between the sharp memorandum to McNamara and the less sharp one to LBJ. Obviously not in our format, which had not yet been invented, it did not distinguish the *Known* from

the *Unclear* and the *Presumed.* It did, however, tick off *Likenesses* and *Differences,* using two headings: "Vietnam, 1954 and 1965," and "United States and France, 1954 and 1965." The *Likenesses* were described as almost nonexistent, the *Differences* as numerous, to wit:

- France had fought to preserve a colonial regime. The United States was backing an independent Vietnamese nation.
- France had opposed reform as well as nationalism. The American-supported South Vietnamese regime represented "non-Communist social and political revolution."
- The French in 1954 were fighting Communist regular armies totaling 350,000 men. They had committed nearly half a million French troops, were spending 8 percent of their annual national budget on the war, and were suffering casualties at a rate of about five hundred a month. In 1965 the war was one against about 200,000 guerrillas. It was being waged primarily by a South Vietnamese army, roughly 250,000 strong. For the United States, troop commitments, dollar costs, and casualties were all comparatively low.
- In metropolitan France in 1954 the war was acutely unpopular. The French government was unstable and had lost the will to fight. In the United States in 1965, said the memorandum, there was "considerable concern over U.S. casualties . . . Saigon's political instability . . . the use of air strikes and napalm, etc. but *general support for* the Administration." The memorandum cited in evidence a Harris poll showing 62 percent approval of the President's Vietnam policies. Regarding criticism from Congress, the memorandum passed it off as issuing mostly from " *'reluctant realists'* whose viscera say get out but whose heads tell them the present policy is unavoidable" (emphasis in original).[11]

Despite its length, this memorandum was not on a par with the other two from Bundy described earlier. Its length and wordiness testified to its nonseriousness. So did its security classification, which was merely "Confidential"—two long notches below the "Top Secret" stamped on most Vietnam documents. This memorandum almost surely responded to a request from LBJ for something to wave at Ball or at some senator or newsman needling him with what William Bundy called the "like the French" argument. It

was for advocacy, not analysis, and probably more for protection than persuasion. McGeorge Bundy himself has no recollection whatever of signing it, suspects that it was hastily drafted by some not very senior member of his staff, and tells us that, in giving it so much attention, we are "using a hammer on a gnat."

Suppose, however, that it had been routine in the Johnson White House to use history for analysis (or for meticulous advocacy), with procedures along our lines. Bundy's staff would regularly have distinguished among things *Known, Unclear,* and *Presumed.* The concerns animating debate were readily apparent: (1) South Vietnam was losing; (2) its fall might have effects elsewhere: hence "dominoes"; (3) to arrest its fall, the United States might become deeply involved militarily—how deeply and for how long, no one could say—and (4) every possible policy would lead toward pitfalls at home.

Had Bundy's exercise been for analysis, not just for advocacy, the itemization could not have confined itself so narrowly to France in 1954 and the United States in 1965. The memorandum could not have ducked the question: How about France in 1950 or 1951, *before* the French committed half a million men and began suffering high casualties? In 1950, looking forward, the French had embarked on a stepped-up campaign with U.S. support and strong hopes of success—stronger indeed than LBJ's in 1965! And for about a year those seemed to be borne out. A table taking 1950 or 1951 as its base year would have had much more in the *Likeness* column, with many entries adding bite to the questions Bundy posed in his memorandum to McNamara.

As a serious endeavor, examination of the analogy would also have had to look ahead. As of 1965 the Vietnam-related memoranda that were serious, whether written by Bundy or by others, envisioned as a worst-case outcome the Saigon government's collapsing as the Communists took over South Vietnam, while both friends and adversaries overseas said the United States had not done all it could and should have done. In the ideal outcome Saigon became stable and strong, Vietcong fortunes declined, North Vietnam decided the Vietcong could not win, and the two Vietnams continued for the long term, side by side, *à la* Korea. As every memorandum-writer noted, if the ideal outcome were attained, it would appear that the United States had saved South Vietnam, helped defeat the Vietcong, and stripped the North Vietnamese, in the words of one CIA memo, of "grounds for hope that they can outlast

the US." McGeorge Bundy had warned in February 1965: "At its very best, the struggle in Vietnam will be long." Rusk wrote in July of "a long and tortuous prospect." McNamara said, "the war is one of attrition and will be a long one." The chiefs told the President victory would require yet another 200,000 men and two to three years.[12] Granting that the United States in 1965 was not like France in 1954, those projections posed the obvious question for analysis: As the war stretches out, costs rise, and more and more coffins come home, what are the chances that American conditions in, say, 1968 will more resemble those of France in 1954?

Several survivors from the Johnson Administration have told us that their great mistake was to underestimate the North Vietnamese. In view of those documents in the LBJ Library, their comment may seem surprising. We have already quoted Bundy, Rusk, and others predicting in general terms a long, hard war. Planning papers sent to the President were more specific, and in hindsight they seem remarkably prescient. By early autumn of 1965, Westmoreland was forecasting need for about half a million men over the next two to three years. With such forces, he said, he could begin to turn the tide in South Vietnam. And with half a million men he did just that, and on just about the timetable he set forth. The North Vietnamese "Tet offensive" of early 1968 was, we now know, an act of near desperation resulting from their recognition that they had begun to lose ground in South Vietnam. Americans at the time interpreted the offensive quite differently, but that is a story for another book.[13] What is germane here is that those survivors from the Johnson Administration, when asked about these prescient documents, say simply that they didn't believe them. They assumed that military planners were putting the worst face on the picture. Some of them remembered how, back in 1961, the Joint Chiefs had told Kennedy to expect that any successful operation in Laos would require 250,000 men *and* nuclear weapons. Johnson's advisers just could not conceive that the North Vietnamese would not come to terms once they saw the opposition they were likely to face and the punishment they might suffer.

How could that misconception have been corrected? How better than by looking back at the punishment the Vietnamese Communists had sustained and survived in their nine-year war with the French? From Ho Chi Minh down, the leaders were the same. One might suppose that they would recognize the United States as far more powerful than France. On the other hand, they could

also recognize that the French people had had a great deal at stake in Vietnam—kinspeople, property, wealth, national prestige, possibly the rest of their colonial empire—while the American people did not. Ho had outlasted and worn down the French. Why not the Americans?

Those questions frame themselves—and answer themselves—much more clearly after the fact than before. But how else would they have come to notice in 1965 except as part of an exercise such as the one Bundy passed off on a junior staffer? The President, presumably, had asked for a memorandum on the analogy. Almost certainly his only interest was in using it for advocacy. We think his staff did him—and themselves—disservice by not taking the assignment more seriously. The President needed the memorandum, after all, because he had to deal with men like Ball and Mansfield, who thought the analogy conveyed a warning. The actual memorandum focused narrowly on two dissimilar situations (and included rhetoric about South Vietnam's "non-Communist revolution"), because it might be necessary otherwise to concede that Ball and Mansfield could make a case. General George Marshall (to whose habits of mind we shall return later) used to say to staff officers, "Gentlemen, don't fight the problem. Solve it." Bundy might say that in not wasting time on the analogies exercise, he was obeying such a rule. We feel, on the other hand, that in his place the proper translation for Marshall's precept would have been: "Don't fight the question. Answer it."

By the late 1960s the United States was, in fact, to look a great deal like France in 1954. Some of the lines in Bundy's French analogy memorandum read like prophecies. It said, for example, that Paris "had to contend with *concerted and organized domestic opposition*. . . . Leak and counter leak was an accepted domestic political tactic, and, as a result, even highly classified reports or orders pertaining to the war were often published verbatim in the pages of political journals" (emphasis in original). Identical words could have been written about the United States five years later when the streets of American cities were periodically full of antiwar protesters, and the *New York Times* and *Washington Post* construed it as their patriotic duty to publish the purloined *Pentagon Papers*.

We do not and would not argue that the actual future should have been self-evident three years ahead of time, to say nothing of five. On the contrary, we can see why in 1965 such a future should not even have seemed likely. The American political system

differed from the French. LBJ had demonstrated an ability to lead Congress and the public. The United States had no powerful Communist party like France's, and Washington had no large concentration of alienated students and clerks comparable to that in Paris. The issue was different: The United States was not a colonial power (not, at least, in its own eyes). Above all, the might of the United States seemed incomparably greater than that of the Fourth Republic. As a representative of the Joint Chiefs had commented earlier, "The French also tried to build the Panama Canal."[14]

Moreover, any thoroughgoing analysis of risks-by-analogy in American escalation on graduated terms would have had to take account of the pitfalls surrounding *all* options in 1965. Contrast the range of those pitfalls with the few hinted at in the actual memorandum on the French analogy. While the memorandum mentioned congressional expressions of doubt, emphasizing those of left and left-center Democrats, it said almost nothing about the regiments of conservatives, Democrats as well as Republicans, just waiting for a chance to say that the country had to fight a *War,* "no substitute for victory," and therefore could not now afford to fund the Great Society. Nor did it speak of the voices that might charge Johnson—if he followed Ball's counsel—with "losing" Vietnam, as Truman had been charged with "losing" China. And not just by Republicans: Robert F. Kennedy, the late President's brother, had recently warned that withdrawal from Vietnam would be "a repudiation of commitments undertaken and confirmed by three administrations."[15] Bobby's antiwar phase was yet to come. LBJ could easily imagine the Kennedy clan mobilizing American Catholics against the President who had abandoned their coreligionists in Vietnam.

In an explicit list of presumptions, all these could have been implied by some tactfully worded phrases. LBJ would have understood. Later, he said to a confidante:

> I knew that Harry Truman and Dean Acheson had lost their effectiveness from the day that the Communists took over China. I believed that the loss of China had played a large role in the rise of Joe McCarthy. And I knew that all these problems, taken together, were chickenshit compared with what might happen if we lost Vietnam.[16]

A searching look at the French analogy might have stimulated those "tight and hard analyses" which Bundy recommended to LBJ but, so far as we can discover, never conducted. *Might* developments in the United States parallel those in France? Bundy raised

that question only generally and glancingly, and more to McNamara than to Johnson. The only person to come near putting it directly to LBJ, so far as the record shows, was Vice President Hubert Humphrey, who wrote him in February 1965:

> American wars have to be politically understandable by the American public. There has to be a cogent, convincing case if we are to enjoy sustained public support. In World Wars I and II we had this. In Korea we were moving under United Nations auspices to defend South Korea against dramatic, across-the-border, conventional aggression. Yet even with those advantages, we could not sustain American political support for fighting Chinese in Korea in 1952. . . .
>
> If . . . we find ourselves leading from frustration to escalation and end up short of a war with China but embroiled deeper in fighting in Vietnam . . . political opposition will steadily mount. It will underwrite all the negativism and disillusionment which we already have about foreign involvement generally—with serious and dire effects for all the Democratic internationalist programs to which the Johnson Administration remains committed: AID, United Nations, arms control, and socially humane and constructive policies generally.[17]

As Humphrey indicated, serious use of history would have required looking not only at French analogies but at others. In relation to Vietnam, the Korean conflict served as what we have called a captivating analogy. Everyone thought of it, but, as with 1918 in the swine flu scare, different people came to it with different stances and drew from it different nuances, depending on their expertise and personal experience. Moreover, since Korea was but twelve years in the past, the experience was firsthand, not vicarious. To LBJ and others, Korea said: Be firm; hold the line; don't shrink at using force in a good cause. Ball argued on the contrary that differences between the two cases showed why we shouldn't be in Vietnam: no march across the border, no solid government; no resilient army; no ward-of-UN status; no UN resolution, and so forth. To many, Korea counseled "beware China." To some it argued: Do not try to fight protracted, limited war; go up (or down).

Of those who put their views in writing, only Humphrey stressed the point that, whatever the merits of the 1950 decision, the long war of 1950–53 had cost Truman and the Democrats their public support—along with the next election. And unlike others who advised Johnson, with the exception of Clark Clifford (who warned that Vietnam could be a "quagmire"[18]), Humphrey had felt the cost himself and sorrowed in Truman's fate. The others

APRIL 5, 2023

Excerpt from William Langewiesche, "Columbia's Last Flight *The Atlantic*, November 2003.

This excerpt starts on page 17 of the original.

The foam did it. That much was suspected from the start, and all the evidence converged on it as the caib's investigation proceeded through the months that followed. The foam was dense and dry; it was the brownish-orange coating applied to the outside of the shuttle's large external tank to insulate the extreme cold of the rocket fuels inside from the warmth and moisture of the air. Eighty-two seconds after liftoff, as the Columbia was accelerating through 1,500 mph, a piece of that foam—about nineteen inches long by eleven inches wide, weighing about 1.7 pounds—broke off from the external tank and collided with the left wing at about 545 mph. Cameras near the launch site recorded the event—though the images when viewed the following day provided insufficient detail to know the exact impact point, or the consequences. The caib's investigation ultimately found that a gaping hole about ten inches across had been punched into the wing's leading edge, and that sixteen days later the hole allowed the hot gases of the re-entry to penetrate the wing and consume it from the inside. Through enormous effort this would be discovered and verified beyond doubt. It was important nonetheless to explore the alternatives. In an effort closely supervised by the caib, groups of NASA engineers created several thousand flow charts, one for each scenario that could conceivably have led to the re-entry breakup. The thinking was rigorous. For a scenario to be "closed," meaning set aside, absolute proof had to be found (usually physical or mathematical) that this particular explanation did not apply: there was no cockpit fire, no flight-control malfunction, no act of terrorism or sabotage that had taken the shuttle down. Unexpected vulnerabilities were found during this process, and even after the investigation was formally concluded, in late August, more than a hundred scenarios remained technically open, because they could not positively be closed. For lack of evidence to the contrary, for instance, neither bird strikes nor micrometeorite impacts could be completely ruled out.

But for all their willingness to explore less likely alternatives, many of NASA's managers remained stubbornly closed-minded on the subject of foam. From the earliest telemetric data it was known that intense heat inside the left wing had destroyed the Columbia, and that such heat could have gotten there only through a hole. The connection between the hole and the foam strike was loosely circumstantial at first, but it required serious consideration none-theless. NASA balked at going down that road. Its reasons were not rational and scientific but, rather, complex and cultural, and they turned out to be closely related to the errors that had led to the accident in the first place: simply put, it had become a matter of faith within NASA that foam strikes—which were a known problem—could not cause mortal damage to the shuttle. Sean O'Keefe, who was badly advised by his NASA lieutenants, made unwise public statements deriding the "foamologists"; and even Ron Dittemore, NASA's technically expert shuttle program manager, joined in with categorical denials.

At the caib, Gehman, who was not unsympathetic to NASA, watched these reactions with growing skepticism and a sense of déjà vu. Over his years in the Navy, and as a result of the Cole inquiry, he had become something of a student of large organizations under stress. To me he said, "It has been scorched into my mind that bureaucracies will do anything to defend themselves. It's not evil—it's just a natural reaction of bureaucracies, and since NASA is a bureaucracy, I expect the same out of them. As we go through the investigation, I've been looking for signs where the system is trying to defend itself." Of those signs the most obvious was this display of blind faith by an organization dependent on its engineering cool; NASA, in its absolute certainty, was unintentionally signaling the very problem that it had. Gehman had seen such certainty proved wrong too many times, and he told

me that he was not about to get "rolled by the system," as he had been rolled before. He said, "Now when I hear NASA telling me things like 'Gotta be true!' or 'We know this to be true!' all my alarm bells go off ... Without hurting anybody's feelings, or squashing people's egos, we're having to say, 'We're sorry, but we're not accepting that answer.'"

That was the form that the physical investigation took on, with hundreds of NASA engineers and technicians doing most of the detailed work, and the caib watching closely and increasingly stepping in. Despite what Gehman said, it was inevitable that feelings got hurt and egos squashed—and indeed that serious damage to people's lives and careers was inflicted. At the NASA facilities dedicated to shuttle operations (Alabama for rockets, Florida for launch and landing, Texas for management and mission control) the caib investigators were seen as invaders of sorts, unwelcome strangers arriving to pass judgment on people's good-faith efforts. On the ground level, where the detailed analysis was being done, there was active resistance at first, with some NASA engineers openly refusing to cooperate, or to allow access to records and technical documents that had not been pre-approved for release. Gehman had to intervene. One of the toughest and most experienced of the caib investigators later told me he had a gut sense that NASA continued to hide relevant information, and that it does so to this day. But cooperation between the two groups gradually improved as friendships were made, and the intellectual challenges posed by the inquiry began to predominate over fears about what had happened or what might follow. As so often occurs, it was on an informal basis that information flowed best, and that much of the truth was discovered.

Board member Steven Wallace described the investigation not as a linear path but as a picture that gradually filled in. Or as a jigsaw puzzle. The search for debris began the first day, and soon swelled to include more than 25,000 people, at a cost of well over $300 million. NASA received 1,459 debris reports, including some from nearly every state in the union, and also from Canada, Jamaica, and the Bahamas. Discounting the geographic extremes, there was still a lot to follow up on. Though the amateur videos showed pieces separating from the shuttle along the entire path over the United States, and though search parties backtracked all the way to the Pacific coast in the hope of finding evidence of the breakup's triggering mechanism, the westernmost piece found on the ground was a left-wing tile that landed near a town called Littlefield, in the Texas Panhandle. Not surprisingly, the bulk of the wreckage lay under the main breakup, from south of Dallas eastward across the rugged, snake-infested brushland of East Texas and into Louisiana; and that is where most of the search took place. The best work was done on foot, by tough and dedicated crews who walked in tight lines across several thousand square miles. Their effort became something of a close sampling of the American landscape, turning up all sorts of odds and ends, including a few apparent murder victims, plenty of junked cars, and the occasional clandestine meth lab. More to the point, it also turned up crew remains and more than 84,000 pieces of the Columbia, which, at 84,900 pounds, accounted for 38 percent of the vehicle's dry weight. Certain pieces that had splashed into the murky waters of lakes and reservoirs were never found. It was presumed that most if not all the remaining pieces had been vaporized by the heat of re-entry, either before or after the breakup.

Some of the shuttle's contents survived intact. For instance, a vacuum cleaner still worked, as did some computers and printers and a Medtronic Tono-Pen, used to measure ocular pressure. A group of worms from one of the science experiments not only survived but continued to multiply. Most of the debris, however, was a twisted mess. The recovered pieces were meticulously plotted and tagged, and transported to a hangar at the Kennedy Space Center, where the wing remnants were laid out in correct position on the floor, and what had been found of the left wing's reinforced carbon-carbon (RCC) leading edge was reconstructed in a transparent Plexiglas mold—though with large gaps where pieces were missing. The hangar was a quiet, poignant, intensely focused place, with many of the same NASA technicians who had prepared the Columbia for flight now involved in the sad task

of handling its ruins. The assembly and analysis went on through the spring. One of the principal caib agents there was an affable Air Force pilot named Patrick Goodman, an experienced accident investigator who had made both friends and enemies at NASA for the directness of his approach. When I first met him, outside the hangar on a typically warm and sunny Florida day, he explained some of the details that I had just seen on the inside—heat-eroded tiles, burned skin and structure, and aluminum slag that had emerged in molten form from inside the left wing, and had been deposited onto the aft rocket pods. The evidence was complicated because it resulted from combinations of heat, physical forces, and wildly varying airflows that had occurred before, during, and after the main-body breakup, but for Goodman it was beginning to read like a map. He had faith. He said, "We know what we have on the ground. It's the truth. The debris is the truth, if we can only figure out what it's saying. It's not a theoretical model. It exists." Equally important was the debris that did not exist, most significantly large parts of the left wing, including the lower part of a section of the RCC leading edge, a point known as Panel Eight, which was approximately where the launch cameras showed that the foam had hit. Goodman said, "We look at what we don't have. What we do have. What's on what we have. We start from there, and try to work backwards up the timeline, always trying to see the previous significant event." He called this "looking uphill." It was like a movie run in reverse, with the found pieces springing off the ground and flying upward to a point of reassembly above Dallas, and then the Columbia, looking nearly whole, flying tail-first toward California, picking up the Littlefield tile as it goes, and then higher again, through entry interface over the Pacific, through orbits flown in reverse, inverted but nose first, and then back down toward Earth, picking up the external tank and the solid rocket boosters during the descent, and settling tail-first with rockets roaring, until just before a vertical touchdown a spray of pulverized foam appears below, pulls together at the left-wing leading edge, and rises to lodge itself firmly on the side of the external tank.

The foam did it.

There was plenty of other evidence, too. After the accident the Air Force dug up routine radar surveillance tapes that upon close inspection showed a small object floating alongside the Columbia on the second day of its mission. The object slowly drifted away and disappeared from view. Subsequent testing of radar profiles and ballistic coefficients for a multitude of objects found a match for only one—a fragment of RCC panel of at least 140 square inches. The match never quite passed muster as proof, but investigators presumed that the object was a piece of the leading edge, that it had been shoved into the inside of the wing by the impact of the foam, and that during maneuvering in orbit it had floated free. The picture by now was rapidly filling in.

But the best evidence was numerical. It so happened that because the Columbia was the first of the operational shuttles, it was equipped with hundreds of additional engineering sensors that fed into an onboard data-collection device, a box known as a modular auxiliary data system, or mads recorder, that was normally used for postflight analysis of the vehicle's performance. During the initial debris search this box was not found, but such was its potential importance that after careful calculation of its likely ballistic path, another search was mounted, and on March 19 it was discovered—lying in full view on ground that had been gone over before. The really surprising thing was its condition. Though the recorder was not designed to be crash-proof, and used Mylar tape that was vulnerable to heat, it had survived the breakup and fall completely intact, as had the data that it contained, the most interesting of which pertained to heat rises and sequential sensor failures inside the left wing. When combined with the telemetric data that already existed, and with calculations of the size and location of the sort of hole that might have been punched through the leading edge by the foam, the new data allowed for a good fit with computational models of the theoretical airflow and heat propagation inside the left wing, and it steered the investigation to an inevitable conclusion that the breach must

have been in the RCC at Panel Eight.

By early summer the picture was clear. Though strictly speaking the case was circumstantial, the evidence against the foam was so persuasive that there remained no reasonable doubt about the physical cause of the accident. As a result, Gehman gave serious consideration to NASA's request to call off a planned test of the launch incident, during which a piece of foam would be carefully fired at a fully rigged RCC Panel Eight. NASA's argument against the test had some merit: the leading-edge panels (forty-four per shuttle) are custom-made, $700,000 components, each one different from the others, and the testing would require the use of the last spare Panel Eight in the entire fleet. NASA said that it couldn't afford the waste, and Gehman was inclined to agree, precisely because he felt that breaking the panel would prove nothing that hadn't already been amply proved. By a twist of fate it was the sole NASA member of the caib, the quiet, cerebral, earnestly scientific Scott Hubbard, who insisted that the test proceed. Hubbard was one of the original seven board members. At the time of the accident he had just become the director of NASA's Ames Research Center, in California. Months later now, in the wake of Gehman's rebellion, and with the caib aggressively moving beyond the physical causes and into the organizational ones, he found himself in the tricky position of collaborating with a group that many of his own people at NASA saw as the enemy. Hubbard, however, had an almost childlike belief in doing the right thing, and having been given this unfortunate job, he was determined to see it through correctly. Owing to the closeness of his ties to NASA, he understood an aspect of the situation that others might have overlooked: despite overwhelming evidence to the contrary, many people at NASA continued stubbornly to believe that the foam strike on launch could not have caused the Columbia's destruction. Hubbard argued that if NASA was to have any chance of self-reform, these people would have to be confronted with reality, not in abstraction but in the most tangible way possible. Gehman found the argument convincing, and so the foam shot proceeded.

The work was done in San Antonio, using a compressed-nitrogen gun with a thirty-five-foot barrel, normally used to fire dead chickens—real and artificial—against aircraft structures in bird-strike certification tests. NASA approached the test kicking and screaming all the way, insisting, for instance, that the shot be used primarily to validate an earlier debris-strike model (the so-called Crater model of strikes against the underside tiles) that had been used for decision-making during the flight, and was now known to be irrelevant. Indeed, it was because of NASA obstructionism—and specifically the illogical insistence by some of the NASA rocket engineers that the chunk of foam that had hit the wing was significantly smaller (and therefore lighter) than the video and film record showed it to be—that the caib and Scott Hubbard finally took direct control of the testing. There was in fact a series of foam shots, increasingly realistic according to the evolving analysis of the actual strike, that raised the stakes from a glancing blow against the underside tiles to steeper-angle hits directly against leading-edge panels. The second to last shot was a 22-degree hit against the bottom of Panel Six: it produced some cracks and other damage deemed too small to explain the shuttle's loss. Afterward there was some smugness at NASA, and even Sean O'Keefe, who again was badly advised, weighed in on the matter, belittling the damage. But the shot against Panel Six was not yet the real thing. That was saved for the precious Panel Eight, in a test that was painstakingly designed to duplicate (conservatively) the actual impact against the Columbia's left wing, assuming a rotational "clocking angle" 30 degrees off vertical for the piece of foam. Among the engineers who gathered to watch were many of those still living in denial. The gun fired, and the foam hit the panel at a 25-degree relative angle at about 500 mph. Immediately afterward an audible gasp went through the crowd. The foam had knocked a hole in the RCC large enough to allow people to put their heads through. Hubbard told me that some of the NASA people were close to tears. Gehman had stayed away in order to avoid the appearance of gloating. He could not keep the satisfaction out of his voice, however, when later he said to me, "Their whole house of cards came falling down."

NASA's house was by then what this investigation was really all about. The caib discovered that on the morning of January 17, the day after the launch, the low-level engineers at the Kennedy Space Center whose job was to review the launch videos and film were immediately concerned by the size and speed of the foam that had struck the shuttle. As expected of them, they compiled the imagery and disseminated it by e-mail to various shuttle engineers and managers—most significantly those in charge of the shuttle program at the Johnson Space Center. Realizing that their blurred or otherwise inadequate pictures showed nothing of the damage that might have been inflicted, and anticipating the need for such information by others, the engineers at Kennedy then went outside normal channels and on their own initiative approached the Department of Defense with a request that secret military satellites or ground-based high-resolution cameras be used to photograph the shuttle in orbit. After a delay of several days for the back-channel request to get through, the Air Force proved glad to oblige, and made the first moves to honor the request. Such images would probably have shown a large hole in the left wing—but they were never taken.

When news of the foam strike arrived in Houston, it did not seem to be crucially important. Though foam was not supposed to shed from the external tank, and the shuttle was not designed to withstand its impacts, falling foam had plagued the shuttle from the start, and indeed had caused damage on most missions. The falling foam was usually popcorn sized, too small to cause more than superficial dents in the thermal protection tiles. The caib, however, discovered a history of more-serious cases. For example, in 1988 the shuttle Atlantis took a heavy hit, seen by the launch cameras eighty-five seconds into the climb, nearly the same point at which the Columbia strike occurred. On the second day of the Atlantis flight Houston asked the crew to inspect the vehicle's underside with a video camera on a robotic arm (which the Columbia did not have). The commander, Robert "Hoot" Gibson, told the caib that the belly looked as if it had been blasted with shotgun fire. The Atlantis returned safely anyway, but afterward was found to have lost an entire tile, exposing its bare metal belly to the re-entry heat. It was lucky that the damage had happened in a place where a heavy aluminum plate covered the skin, Gibson said, because otherwise the belly might have been burned through.

Nonetheless, over the years foam strikes had come to be seen within NASA as an "in-family" problem, so familiar that even the most serious episodes seemed unthreatening and mundane. Douglas Osheroff, a normally good-humored Stanford physicist and Nobel laureate who joined the caib late, went around for months in a state of incredulity and dismay at what he was learning about NASA's operational logic. He told me that the shuttle managers acted as if they thought the frequency of the foam strikes had somehow reduced the danger that the impacts posed. His point was not that the managers really believed this but that after more than a hundred successful flights they had come blithely to accept the risk. He said, "The excitement that only exists when there is danger was kind of gone—even though the danger was not gone." And frankly, organizational and bureaucratic concerns weighed more heavily on the managers' minds. The most pressing of those concerns were the new performance goals imposed by Sean O'Keefe, and a tight sequence of flights leading up to a drop-dead date of February 19, 2004, for the completion of the International Space Station's "core." O'Keefe had made it clear that meeting this deadline was a test, and that the very future of NASA's human space-flight program was on the line.

From Osheroff's scientific perspective, deadlines based on completion of the International Space Station were inherently absurd. To me he said, "And what would the next goal be after that? Maybe we should bring our pets up there! 'I wonder how a Saint Bernard urinates in zero gravity!' NASA sold the International Space Station to Congress as a great science center—but most scientists just don't agree with that. We're thirty years from being able to go to Mars. Meanwhile, the only reason to have man in space is to study man in space. You can do that stuff—okay—and there are also some

biology experiments that are kind of fun. I think we are learning things. But I would question any statement that you can come up with better drugs in orbit than you can on the ground, or that sort of thing. The truth is, the International Space Station has become a huge liability for NASA"—expensive to build, expensive to fly, expensive to resupply. "Now members of Congress are talking about letting its orbit decay—just letting it fall into the ocean. And it does turn out that orbital decay is a very good thing, because it means that near space is a self-cleaning place. I mean, garbage does not stay up there forever."

In other words, completion of the Space Station could provide a measure of NASA's performance only in the most immediate and superficial manner, and it was therefore an inherently poor reason for shuttle managers to be ignoring the foam strikes and proceeding at full speed. It was here that you could see the limitations of leadership without vision, and the consequences of putting an executive like O'Keefe in charge of an organization that needed more than mere discipline. This, however, was hardly an argument that the managers could use, or even in private allow themselves to articulate. If the Space Station was unimportant —and perhaps even a mistake—then one had to question the reason for the shuttle's existence in the first place. Like O'Keefe and the astronauts and NASA itself, the managers were trapped by a circular space policy thirty years in the making, and they had no choice but to strive to meet the timelines directly ahead. As a result, after the most recent Atlantis launch, in October of 2002, during which a chunk of foam from a particularly troublesome part of the external tank, known as the "bipod ramp," had dented one of the solid rocket boosters, shuttle managers formally decided during the post-flight review not to classify the incident as an "in-flight anomaly." This was the first time that a serious bipod-ramp incident had escaped such a classification. The decision allowed the following two launches to proceed on schedule. The second of those launches was the Columbia's, on January 16.

The videos of the foam strike reached Houston the next day, January 17. They made it clear that again the offending material had come from the area of the bipod ramp, that this time the foam was larger than ever before, that the impact had occurred later in the climb (meaning at higher speed), and that the wing had been hit, though exactly where was not clear. The astronauts were happily in orbit now, and had apparently not felt the impact, or been able to distinguish it from the heavy vibrations of the solid rocket boosters. In other words, they were unaware of any trouble. Responsibility for disposing of the incident lay with engineers on the ground, and specifically with the Mission Management Team, or MMT, whose purpose was to make decisions about the problems and unscripted events that inevitably arose during any flight. The MMT was a high-level group. In the Houston hierarchy it operated above the flight controllers in the Mission Control room, and just below the shuttle program manager, Ron Dittemore. Dittemore was traveling at the time, and has since retired. The MMT meetings were chaired by his protégé, the once rising Linda Ham, who has come to embody NASA's arrogance and insularity in many observers' minds. Ham is the same hard-charging manager who, with a colleague, later had to be forcefully separated from the caib's investigation. Within the strangely neutered engineering world of the Johnson Space Center, she was an intimidating figure, a youngish, attractive woman given to wearing revealing clothes, yet also known for a tough and domineering management style. Among the lower ranks she had a reputation for brooking no nonsense and being a little hard to talk to. She was not smooth. She was a woman struggling upward in a man's world. She was said to have a difficult personality.

As the head of the MMT, Ham responded to news of the foam strike as if it were just another item to be efficiently handled and then checked off the list: a water leak in the science lab, a radio communication failure, a foam strike on the left wing, okay, no safety-of-flight issues here—right? What's next? There was a trace of vanity in the way she ran her shows. She seemed to revel in her own briskness, in her knowledge of the shuttle systems, in her use of acronyms and the strange,

stilted syntax of aerospace engineers. She was decisive, and very sure of her sense for what was important and what was not. Her style got the best of her on day six of the mission, January 21, when at a recorded MMT meeting she spoke just a few words too many, much to her later regret.

It was at the end of a report given by a mid-ranking engineer named Don McCormack, who summarized the progress of an ad hoc engineering group, called the Debris Assessment Team, that had been formed at a still lower level to analyze the foam strike. The analysis was being done primarily by Boeing engineers, who had dusted off the soon to be notorious Crater model, primarily to predict damage to the underwing tile. McCormack reported that little was yet resolved, that the quality of the Crater as a predictor was being judged against the known damage on earlier flights, and that some work was being done to explore the options should the analysis conclude that the Columbia had been badly wounded. After a brief exchange Ham cut him short, saying, "And I'm really ... I don't think there is much we can do, so it's not really a factor during the flight, since there is not much we can do about it." She was making assumptions, of course, and they were later proved to be completely wrong, but primarily she was just being efficient, and moving the meeting along. After the accident, when the transcript and audiotapes emerged, those words were taken out of context, and used to portray Ham as a villainous and almost inhumanly callous person, which she certainly was not. In fact, she was married to an astronaut, and was as concerned as anyone about the safety of the shuttle crews. This was a dangerous business, and she knew it all too well. But like her boss, Ron Dittemore, with whom she discussed the Columbia foam strike several times, she was so immersed in the closed world of shuttle management that she simply did not elevate the event—this "in-family" thing—to the level of concerns requiring action. She was intellectually arrogant, perhaps, and as a manager she failed abysmally. But neither she nor the others of her rank had the slightest suspicion that the Columbia might actually go down.

The frustration is that some people on lower levels were actively worried about that possibility, and they understood clearly that not enough was known about the effects of the foam strike on the wing, but they expressed their concerns mostly to one another, and for good reason, because on the few occasions when they tried to alert the decision-makers, NASA's management system overwhelmed them and allowed none of them to be heard. The question now, of course, is why.

The caib's search for answers began long before the technical details were resolved, and it ultimately involved hundreds of interviews and 50,000 pages of transcripts. The manner in which those interviews were conducted became a contentious issue, and it was arguably Gehman's biggest mistake. As a military man, advised by military men on the board, he decided to conduct the interviews according to a military model of safety probes, in which individual fault is not formally assigned, and the interviews themselves are "privileged," meaning forever sealed off from public view. It was understood that identities and deeds would not be protected from view, only individual testimonies to the caib, but serious critics cried foul nonetheless, and pointed out correctly that Gehman was using loopholes to escape sunshine laws that otherwise would have applied. Gehman believed that treating the testimony as privileged was necessary to encourage witnesses to talk, and to get to the bottom of the story, but the long-term effect of the investigation will be diminished as a result (for instance, by lack of access to the raw material by outside analysts), and there was widespread consensus among the experienced (largely civilian) investigators actually conducting the interviews that the promise of privacy was having little effect on what people were willing to say. These were not criminals they were talking to, or careful lawyers. For the most part they were sincere engineering types who were concerned about what had gone wrong, and would have been willing even without privacy to speak their minds. The truth, in other words, would have come out even in the brightest of sunshine.

The story that emerged was a sad and unnecessary one, involving arrogance, insularity, and bad luck allowed to run unchecked. On the seventh day of the flight, January 22, just as the Air Force began to move on the Kennedy engineers' back-channel request for photographs, Linda Ham heard to her surprise that this approach (which according to front-channel procedures would have required her approval) had been made. She immediately telephoned other high-level managers in Houston to see if any of them wanted to issue a formal "requirement" for imagery, and when they informed her that they did not, rather than exploring the question with the Kennedy engineers she simply terminated their request with the Department of Defense. This appears to have been a purely bureaucratic reaction. A NASA liaison officer then e-mailed an apology to Air Force personnel, assuring them that the shuttle was in "excellent shape," and explaining that a foam strike was "something that has happened before and is not considered to be a major problem." The officer continued, "The one problem that this has identified is the need for some additional coordination within NASA to assure that when a request is made it is done through the official channels." Months later one of the caib investigators who had followed this trail was still seething with anger at what had occurred. He said, "Because the problem was not identified in the traditional way—'Houston, we have a problem!'—well, then, 'Houston, we don't have a problem!' Because Houston didn't identify the problem."

But another part of Houston was doing just that. Unbeknownst to Ham and the shuttle management, the low-level engineers of the Debris Assessment Team had concluded that the launch films were not clear enough to indicate where the foam had hit, and particularly whether it had hit the underside tile or a leading-edge RCC panel. Rather than trying to run their calculations in the blind, they had decided that they should do the simple thing and have someone take a look for damage. They had already e-mailed one query to the engineering department, about the possibility of getting the astronauts themselves to take a short spacewalk and inspect the wing. It later turned out that this would have been safe and easy to do. That e-mail, however, was never answered. This time the Debris Assessment engineers decided on a still simpler solution—to ask the Department of Defense to take some high-resolution pictures. Ignorant of the fact that the Kennedy group had already made such a request, and that it had just been peevishly canceled, they sent out two requests of their own, directed, appropriately, to Ron Dittemore and Linda Ham, but through channels that were a little off-center, and happened to fail. Those channels were ones they had used in their regular work as engineers, outside the formal shuttle-management structure. By unfortunate circumstance, the request that came closest to getting through was intercepted by a mid-level employee (the assistant to an intended recipient, who was on vacation) who responded by informing the Debris Assessment engineers, more or less correctly, that Linda Ham had decided against Air Force imagery.

The confusion was now total, yet also nearly invisible—and within the suppressive culture of the human space-flight program, it had very little chance of making itself known. At the top of the tangle, neither Ron Dittemore nor Linda Ham ever learned that the Debris Assessment Team wanted pictures; at the bottom, the Debris Assessment engineers heard the "no" without suspecting that it was not an answer to their request. They were told to go back to the Crater model and numerical analysis, and as earnest, hardworking engineers (hardly rebels, these), they dutifully complied, all the while regretting the blind assumptions that they would have to make. Given the obvious potential for a catastrophe, one might expect that they would have gone directly to Linda Ham, on foot if necessary, to make the argument in person for a spacewalk or high-resolution photos. However, such were the constraints within the Johnson Space Center that they never dared. They later said that had they made a fuss about the shuttle, they might have been singled out for ridicule. They feared for their standing, and their careers.

The caib investigator who asked the engineers what conclusion they had drawn at the time from

management's refusal later said to me, "They all thought, 'Well, none of us have a security clearance high enough to view any of this imagery.' They talked about this openly among themselves, and they figured one of three things:

"'One: The "no" means that management's already got photos, and the damage isn't too bad. They can't show us the photos, because we don't have the security clearance, and they can't tell us they have the photos, or tell us the damage isn't bad, because that tells us how accurate the photos are—and we don't have the security clearance. But wait a minute, if that's the case, then what're we doing here? Why are we doing the analysis? So no, that can't be right.

"'Okay, then, two: They already took the photos, and the damage is so severe that there's no hope for recovery. Well ... that can't be right either, because in that case, why are we doing the analysis?

"'Okay, then, three: They took the photos. They can't tell us they took the photos, and the photos don't give us clear definition. So we need to do the analysis. That's gotta be it!'"

What the Debris Assessment engineers could not imagine is that no photos had been taken, or ever would be—and essentially for lack of curiosity by NASA's imperious, self-convinced managers. What those managers in turn could not imagine was that people in their own house might really be concerned. The communication gap had nothing to do with security clearances, and it was complete.

Gehman explained the underlying realities to me. He said, "They claim that the culture in Houston is a 'badgeless society,' meaning it doesn't matter what you have on your badge—you're concerned about shuttle safety together. Well, that's all nice, but the truth is that it does matter what badge you're wearing. Look, if you really do have an organization that has free communication and open doors and all that kind of stuff, it takes a special kind of management to make it work. And we just don't see that management here. Oh, they say all the right things. 'We have open doors and e-mails, and anybody who sees a problem can raise his hand, blow a whistle, and stop the whole process.' But then when you look at how it really works, it's an incestuous, hierarchical system, with invisible rankings and a very strict informal chain of command. They all know that. So even though they've got all the trappings of communication, you don't actually find communication. It's very complex. But if a person brings an issue up, what caste he's in makes all the difference. Now, again, NASA will deny this, but if you talk to people, if you really listen to people, all the time you hear 'Well, I was afraid to speak up.' Boy, it comes across loud and clear. You listen to the meetings: 'Anybody got anything to say?' There are thirty people in the room, and slam! There's nothing. We have plenty of witness statements saying, 'If I had spoken up, it would have been at the cost of my job.' And if you're in the engineering department, you're a nobody."

One of the caib investigators told me that he asked Linda Ham, "As a manager, how do you seek out dissenting opinions?"

According to him, she answered, "Well, when I hear about them ..."

He interrupted. "Linda, by their very nature you may not hear about them."

"Well, when somebody comes forward and tells me about them."

"But Linda, what techniques do you use to get them?"

He told me she had no answer.

This was certainly not the sort of risk-versus-risk decision-making that Michael Bloomfield had in mind when he described the thinking behind his own shuttle flights.

At 7:00 a.m. on the ninth day, January 24, which was one week before the Columbia's scheduled re-entry, the engineers from the Debris Assessment Team formally presented the results of their numerical analysis to Linda Ham's intermediary, Don McCormack. The room was so crowded with concerned observers that some people stood in the hall, peering in. The fundamental purpose of the meeting would have been better served had the engineers been able to project a photograph of a damaged wing onto the screen, but, tragically, that was not to be. Instead they projected a typically crude PowerPoint summary, based on the results from the Crater model, with which they attempted to explain a nuanced position: first, that if the tile had been damaged, it had probably endured well enough to allow the Columbia to come home; and second, that for lack of information they had needed to make assumptions to reach that conclusion, and that troubling unknowns therefore limited the meaning of the results. The latter message seems to have been lost. Indeed, this particular PowerPoint presentation became a case study for Edward Tufte, the brilliant communications specialist from Yale, who in a subsequent booklet, The Cognitive Style of PowerPoint, tore into it for its dampening effect on clear expression and thought. The caib later joined in, describing the widespread use of PowerPoint within NASA as one of the obstacles to internal communication, and criticizing the Debris Assessment presentation for mechanically underplaying the uncertainties that remained.

Had the uncertainties been more strongly expressed as the central factor in question, the need to inspect the wing by spacewalk or photograph might have become obvious even to the shuttle managers. Still, the Mission Management Team seemed unprepared to hear nuance. Fixated on potential tile damage as the relevant question, assuming without good evidence that the RCC panels were strong enough to withstand a foam strike, subtly skewing the discussion away from catastrophic burn-through and toward the potential effects on turnaround times on the ground and how that might affect the all-important launch schedule, the shuttle managers were convinced that they had the situation as they defined it firmly under control.

At a regularly scheduled MMT meeting later that morning McCormack summarized the PowerPoint presentation for Linda Ham. He said, "The analysis is not complete. There is one case yet that they wish to run, but kind of just jumping to the conclusion of all that, they do show that [there is], obviously, a potential for significant tile damage here, but thermal analysis does not indicate that there is potential for a burn-through. I mean, there could be localized heating damage. There is ... obviously there is a lot of uncertainty in all this in terms of the size of the debris and where it hit and the angle of incidence."

Ham answered, "No burn-through means no catastrophic damage. And the localized heating damage would mean a tile replacement?"

"Right, it would mean possible impacts to turnaround repairs and that sort of thing, but we do not see any kind of safety-of-flight issue here yet in anything that we've looked at."

This was all too accurate in itself. Ham said, "And no safety of flight, no issue for this mission, nothing that we're going to do different. There may be a turnaround [delay]."

McCormack said, "Right. It could potentially [have] hit the RCC ... We don't see any issue if it hit the RCC ..."

The discussion returned to the tiles. Ham consulted with a tile specialist named Calvin Schomburg, who for days had been energetically making a case independent of the Debris Assessment analysis that a damaged tile would endure re-entry—and thereby adding, unintentionally, to the distractions and false assumptions of the management team. After a brief exchange Ham cut off further discussion with a quick summary for some people participating in the meeting by conference call, who were having trouble hearing the speakerphone. She said, "So, no safety-of-flight kind of issue. It's more of a turnaround issue similar to what we've had on other flights. That's it? All right, any questions on that?"

And there were not.

For reasons unexplained, when the official minutes of the meeting were written up and distributed (having been signed off on by Ham), all mention of the foam strike was omitted. This was days before the Columbia's re-entry, and seems to indicate sheer lack of attention to this subject, rather than any sort of cover-up.

The truth is that Linda Ham was as much a victim of NASA as were Columbia's astronauts, who were still doing their science experiments then, and free-falling in splendor around the planet. Her predicament had roots that went way back, nearly to the time of Ham's birth, and it involved not only the culture of the human space-flight program but also the White House, Congress, and NASA leadership over the past thirty years. Gehman understood this fully, and as the investigation drew to a close, he vowed to avoid merely going after the people who had been standing close to the accident when it occurred. The person standing closest was, of course, Linda Ham, and she will bear a burden for her mismanagement. But by the time spring turned to summer, and the caib moved its operation from Houston to Washington, D.C., Gehman had taken to saying, "Complex systems fail in complex ways," and he was determined that the caib's report would document the full range of NASA's mistakes. It did, and in clean, frank prose, using linked sentences and no PowerPoint displays.

As the report was released, on August 26, Mars came closer to Earth than it had in 60,000 years. Gehman told me that he continued to believe in the importance of America's human space-flight effort, and even of the return of the shuttle to flight—at least until a replacement with a clearer mission can be built and put into service. It was a quiet day in Washington, with Congress in recess and the President on vacation. Aides were coming from Capitol Hill to pick up several hundred copies of the report and begin planning hearings for the fall. The White House was receiving the report too, though keeping a cautious distance, as had been expected; it was said that the President might read an executive summary. Down in Houston, board members were handing copies to the astronauts, the managers, and the families of the dead.

Gehman was dressed in a suit, as he had been at the start of all this, seven months before. It was up to him now to drive over to NASA headquarters, in the southwest corner of the city, and deliver the report personally to Sean O'Keefe. I went along for the ride, as did the board member Sheila Widnall, who was there to lend Gehman some moral support. The car was driven by a Navy officer in whites. At no point since the accident had anyone at NASA stepped forward to accept personal responsibility for contributing to this accident—not Linda Ham, not Ron Dittemore, and certainly not Sean O'Keefe. However, the report in Gehman's hands (248 pages, full color, well bound) made responsibility very clear. This was not going to be a social visit. Indeed, it turned out to be extraordinarily tense. Gehman and Widnall strode up the carpeted hallways in a phalanx of anxious, dark-suited NASA staffers, who swung open the doors in advance and followed close on their heels. O'Keefe's office suite was practically imperial in its expense and splendor. High officials stood in

small, nervous groups, murmuring. After a short delay O'Keefe appeared—a tall, balding, gray-haired man with stooped shoulders. He shook hands and ushered Gehman and Widnall into the privacy of his inner office. Ten minutes later they emerged. There was a short ceremony for NASA cameras, during which O'Keefe thanked Gehman for his important contribution, and then it was time to leave. As we drove away, I asked Gehman how it had been in there with O'Keefe.

He said "Stiff. Very stiff."

We talked about the future. The report had made a series of recommendations for getting the shuttle back into flight, and beyond that for beginning NASA's long and necessary process of reform. I knew that Gehman, along with much of the board, had volunteered to Congress to return in a year, to peer in deeply again, and to try to judge if progress had been made. I asked him how genuine he thought such progress could be, and he managed somehow to express hope, though skeptically.

By January 23, the Columbia's eighth day in orbit, the crew had solved a couple of minor system problems, and after a half day off, during which no doubt some of the astronauts took the opportunity for some global sightseeing, they were proceeding on schedule with their laboratory duties, and were in good spirits and health. They had been told nothing of the foam strike. Down in Houston, the flight controllers at Mission Control were aware of it, and they knew that the previous day Linda Ham had canceled the request for Air Force photographs. Confident that the issue would be satisfactorily resolved by the shuttle managers, they decided nonetheless to inform the flight crew by e-mail—if only because certain reporters at the Florida launch site had heard of it, and might ask questions at an upcoming press conference, a Public Affairs Office, or PAO, event. The e-mail was written by one of the lead flight controllers, in the standard, overly upbeat style. It was addressed to the pilots, Rick Husband and William McCool.

Under the subject line "info: Possible PAO Event Question," it read,

> Rick and Willie,
>
> You guys are doing a fantastic job staying on the timeline and accomplishing great science. Keep up the good work and let us know if there is anything that we can do better from an MCC/POCC standpoint.
>
> There is one item that I would like to make you aware of for the upcoming PAO event ... This item is not even worth mentioning other than wanting to make sure that you are not surprised by it in a question from a reporter.

The e-mail then briefly explained what the launch pictures had shown—a hit from the bipod-ramp foam. A video clip was attached. The e-mail concluded,

> Experts have reviewed the high speed photography and there is no concern for RCC or tile damage. We have seen this same phenomenon on several other flights and there is absolutely no concern for entry. That is all for now. It's a pleasure working with you every day.

The e-mail's content honestly reflected what was believed on the ground, though in a repackaged and highly simplified form. There was no mention of the inadequate quality of the pictures, of the large

size of the foam, of the ongoing analysis, or of Linda Ham's decision against Air Force imagery. This was typical for Mission Control communications, a small example of a long-standing pattern of something like information-hoarding that was instinctive and a matter as much of style as of intent: the astronauts had been told of the strike, but almost as if they were children who didn't need to be involved in the grown-up conversation. Two days later, when Rick Husband answered the e-mail, he wrote, "Thanks a million!" and "Thanks for the great work!" and after making a little joke, that "Main Wing" could sound like a Chinese name, he signed off with an e-mail smile—:). He made no mention of the foam strike at all. And with that, as we now know, the crew's last chance for survival faded away.

Linda Ham was wrong. Had the hole in the leading edge been seen, actions could have been taken to try to save the astronauts' lives. The first would have been simply to buy some time. Assuming a starting point on the fifth day of the flight, NASA engineers subsequently calculated that by requiring the crew to rest and sleep, the mission could have been extended to a full month, to February 15. During that time the Atlantis, which was already being prepared for a scheduled March 1 launch, could have been processed more quickly by ground crews working around the clock, and made ready to go by February 10. If all had proceeded perfectly, there would have been a five-day window in which to blast off, join up with the Columbia, and transfer the stranded astronauts one by one to safety, by means of tethered spacewalks. Such a rescue would not have been easy, and it would have involved the possibility of another fatal foam strike and the loss of two shuttles instead of one; but in the risk-versus-risk world of space flight, veterans like Mike Bloomfield would immediately have volunteered, and NASA would have bet the farm.

The fallback would have been a desperate measure—a jury-rigged repair performed by the Columbia astronauts themselves. It would have required two spacewalkers to fill the hole with a combination of heavy tools and metal scraps scavenged from the crew compartment, and to supplement that mass with an ice bag shaped to the wing's leading edge. In theory, if much of the payload had been jettisoned, and luck was with the crew, such a repair might perhaps have endured a modified re-entry and allowed the astronauts to bail out at the standard 30,000 feet. The engineers who came up with this plan realized that in reality it would have been extremely dangerous, and might well have led to a high-speed burn-through and the loss of the crew. But anything would have been better than attempting a normal re-entry as it was actually flown.

The blessing, if one can be found, is that the astronauts remained unaware until nearly the end. A home video shot on board and found in the wreckage documented the relaxed mood in the cockpit as the shuttle descended through the entry interface at 400,000 feet, at 7:44:09 Houston time, northwest of Hawaii. The astronauts were drinking water in anticipation of gravity's redistributive effect on their bodies. The Columbia was flying at the standard 40-degree nose-up angle, with its wings level, and still doing nearly 17,000 mph; outside, though the air was ultra-thin and dynamic pressures were very low, the aerodynamic surfaces were beginning to move in conjunction with the array of control jets, which were doing the main work of maintaining the shuttle's attitude, and would throughout the re-entry. The astronauts commented like sightseers as sheets of fiery plasma began to pass by the windows.

The pilot, McCool, said, "Do you see it over my shoulder now, Laurel?"

Sitting behind him, the mission specialist Laurel Clark said, "I was filming. It doesn't show up nearly as much as the back."

McCool said to the Israeli payload specialist, Ilan Ramon, "It's going pretty good now. Ilan, it's really

neat—it's a bright orange-yellow out over the nose, all around the nose."

The commander, Husband, said, "Wait until you start seeing the swirl patterns out your left or right windows."

McCool said, "Wow."

Husband said, "Looks like a blast furnace."

A few seconds later they began to feel gravity. Husband said, "Let's see here ... look at that."

McCool answered, "Yup, we're getting some Gs." As if it were unusual, he said, "I let go of the card, and it falls." Their instruments showed that they were experiencing one hundredth of a G. McCool looked out the window again. He said, "This is amazing. It's really getting, uh, fairly bright out there."

Husband said, "Yup. Yeah, you definitely don't want to be outside now."

The flight engineer, Kalpana Chawla, answered sardonically, "What—like we did before?" The crew laughed.

Outside, the situation was worse than they imagined. Normally, as a shuttle streaks through the upper atmosphere it heats the air immediately around it to temperatures as high as 10,000¡, but largely because of the boundary layer—a sort of air cushion created by the leading edges—the actual surface temperatures are significantly lower, generally around 3,000¡, which the vehicle is designed to withstand, if barely. The hole in the Columbia's leading edge, however, had locally undermined the boundary layer, and was now letting in a plume of superheated air that was cutting through insulation and working its way toward the inner recesses of the left wing. It is estimated that the plume may have been as hot as 8,000¡ near the RCC breach. The aluminum support structures inside the wing had a melting point of 1,200¡, and they began to burn and give way.

The details of the left wing's failure are complex and technical, but the essentials are not difficult to understand. The wing was attacked by a snaking plume of hot gas, and eaten up from the inside. The consumption began when the shuttle was over the Pacific, and it grew worse over the United States. It included wire bundles leading from the sensors, which caused the data going into the MADS recorder and the telemetry going to Houston to fail in ways that only later made sense. At some point the plume blew right through the top of the left wing, and began to throw molten metal from the insides all over the aft rocket pods. At some point it burned its way into the left main gear well, but it did not explode the tires.

As drag increased on the left wing, the autopilot and combined flight-control systems at first easily compensated for the resulting tendency to roll and yaw to the left. By external appearance, therefore, the shuttle was doing its normal thing, banking first to the right and then to the left for the scheduled energy-management turns, and tracking perfectly down the descent profile for Florida. The speeds were good, the altitudes were good, and all systems were functioning correctly. From within the cockpit the ride appeared to be right.

By the time it got to Texas the Columbia had already proved itself a heroic flying machine, having endured for so long at hypersonic speeds with little left of the midsection inside its left wing, and the plume of hot gas still in there, alive, and eating it away. By now, however, the flight-control systems

were nearing their limits. The breakup was associated with that. At 7:59:15 Mission Control noticed the sudden loss of tire pressure on the left gear as the damage rapidly progressed. This was followed by Houston's call "And Columbia, Houston, we see your tire-pressure messages, and we did not copy your last call," and at 7:59:32 by Columbia's final transmission, "Roger, ah, buh ..."

The Columbia was traveling at 12,738 mph, at 200,000 feet, and the dynamic pressures were building, with the wings "feeling" the air at about 170 mph. Now, suddenly, the bottom surface of the left wing began to cave upward into the interior void of melted and burned-through bracing and structure. As the curvature of the wing changed, the lift increased, causing the Columbia to want to roll violently to the right; at the same time, because of an increase in asymmetrical drag, it yawed violently to the left. The control systems went to their limits to maintain order, and all four right yaw jets on the tail fired simultaneously, but to no avail. At 8:00:19 the Columbia rolled over the top and went out of control.

The gyrations it followed were complex combinations of roll, yaw, and pitch, and looked something like an oscillating flat spin. They seem to have resulted in the vehicle's flying backwards. At one point the autopilot appears to have been switched off and then switched on again, as if Husband, an experienced test pilot, was trying to sort things out. The breakup lasted more than a minute. Not surprisingly, the left wing separated first. Afterward the tail, the right wing, and the main body came apart in what investigators later called a controlled sequence "right down the track." As had happened with the Challenger in 1986, the crew cabin broke off intact. It assumed a stable flying position, apparently nose high, and later disintegrated like a falling star across the East Texas sky.

Why Hawks Win

Why are hawks so influential? The answer may lie deep in the human mind. People have dozens of decision-making biases, and almost all favor conflict rather than concession. A look at why the tough guys win more than they should.

By **Daniel Kahneman** and **Jonathan Renshon**
October 13, 2009, 8:19 PM

National leaders get all sorts of advice in times of tension and conflict. But often the competing counsel can be broken down into two basic categories. On one side are the hawks: They tend to favor coercive action, are more willing to use military force, and are more likely to doubt the value of offering concessions. When they look at adversaries overseas, they often see unremittingly hostile regimes who only understand the language of force. On the other side are the doves, skeptical about the usefulness of force and more inclined to contemplate political solutions. Where hawks see little in their adversaries but hostility, doves often point to subtle openings for dialogue.

As the hawks and doves thrust and parry, one hopes that the decision makers will hear their arguments on the merits and weigh them judiciously before choosing a course of action. Don't count on it. Modern psychology suggests that policymakers come to the debate predisposed to believe their hawkish advisors more than the doves. There are numerous reasons for the burden of persuasion that doves carry, and some of them have nothing to do with politics or strategy. In fact, a bias in favor of hawkish beliefs and preferences is built into the fabric of the human mind.

Social and cognitive psychologists have identified a number of predictable errors (psychologists call them biases) in the ways that humans judge situations and evaluate risks. Biases have been documented both in the laboratory and in the real world, mostly in situations that have no connection to international politics. For example, people are prone to exaggerating their strengths: About 80 percent of us believe that our driving skills are better than average. In situations of potential conflict, the same optimistic bias makes politicians and generals receptive to advisors who offer highly favorable estimates of the outcomes of war. Such a predisposition, often shared by leaders on both sides of a conflict, is likely to produce a disaster. And this is not an isolated example.

In fact, when we constructed a list of the biases uncovered in 40 years of psychological research, we were startled by what we found: All the biases in our list favor hawks. These psychological impulses — only a few of which we discuss here — incline national leaders to exaggerate the evil intentions of adversaries, to misjudge how adversaries perceive them, to be overly sanguine when hostilities start, and overly reluctant to make necessary concessions in negotiations. In short, these biases have the effect of making wars more likely to begin and more difficult to end.

None of this means that hawks are always wrong. One need only recall the debates between British hawks and doves before World War II to remember that doves can easily find themselves on the wrong side of history. More generally, there are some strong arguments for deliberately instituting a hawkish bias. It is perfectly reasonable, for example, to demand far more than a 50-50 chance of being right before we accept the promises of a dangerous adversary. The biases that we have examined, however, operate over and beyond such rules of prudence and are not the product of thoughtful consideration. Our conclusion is not that hawkish advisors are necessarily wrong, only that they are likely to be more persuasive than they deserve to be.

VISION PROBLEMS

Several well-known laboratory demonstrations have examined the way people assess their adversary's intelligence, willingness to negotiate, and hostility, as well as the way they view their own position. The results are sobering. Even when people are aware of the context and possible constraints on another party's behavior, they often do not factor it in when assessing the other side's motives. Yet, people still assume that outside observers grasp the constraints on their own behavior. With armies on high alert, it's an instinct that leaders can ill afford to ignore.

Imagine, for example, that you have been placed in a room and asked to watch a series of student speeches on the policies of Venezuelan leader Hugo Chávez. You've been told in advance that the students were assigned the task of either attacking or supporting Chávez and had no choice in the matter. Now, suppose that you are then asked to assess the political leanings of these students. Shrewd observers, of course, would factor in the context and adjust their assessments accordingly. A student who gave an enthusiastic pro-Chávez speech was merely doing what she was told, not revealing anything about her true attitudes. In fact, many experiments suggest that people would overwhelmingly rate the pro-Chávez speakers as more leftist. Even when alerted to context that should affect their judgment, people tend to ignore it. Instead, they attribute the behavior they see to the person's nature, character, or persistent motives. This bias is so robust and common that social psychologists have given it a lofty title: They call it the fundamental attribution error.

The effect of this failure in conflict situations can be pernicious. A policymaker or diplomat involved in a tense exchange with a foreign government is likely to observe a great deal of hostile behavior by that country's representatives. Some of that behavior may indeed be the result of deep hostility. But some of it is simply a response to the current situation as it is perceived by the other side. What is ironic is that individuals who attribute others' behavior to deep hostility are quite likely to explain away their own behavior as a result of being "pushed into a corner" by an adversary. The tendency of both sides of a dispute to view themselves as reacting to the other's provocative behavior is a familiar feature of marital quarrels, and it is found as well in international conflicts. During the run-up to World War I, the leaders of every one of the nations that would soon be at war perceived themselves as significantly less hostile than their adversaries.

If people are often poorly equipped to explain the behavior of their adversaries, they are also bad at understanding how they appear to others. This bias can manifest itself at critical stages in international crises, when signals are rarely as clear as diplomats and generals believe them to be. Consider the Korean War, just one example of how misperception and a failure to appreciate an adversary's assessment of intentions can lead to hawkish outcomes. In October 1950, as coalition forces were moving rapidly up the Korean Peninsula, policymakers in Washington were debating how far to advance and attempting to predict China's response. U.S. Secretary of State Dean Acheson was convinced that "no possible shred of evidence could have existed in the minds of the Chinese Communists about the non-threatening intentions of the forces of the United Nations." Because U.S. leaders knew that their intentions toward China were not hostile, they assumed that the Chinese knew this as well. Washington was, therefore, incapable of interpreting the Chinese intervention as a reaction to a threat. Instead, the Americans interpreted the Chinese reaction as an expression of fundamental hostility toward the United States. Some historians now believe that Chinese leaders may in fact have seen advancing Allied forces as a threat to their regime.

CARELESSLY OPTIMISTIC

Excessive optimism is one of the most significant biases that psychologists have identified. Psychological research has shown that a large majority of people believe themselves to be smarter, more attractive, and more talented than average, and they commonly overestimate their future success. People are also prone to an "illusion of control": They consistently exaggerate the amount of control they have over outcomes that are important to them — even when the outcomes are in fact random or determined by other forces. It is not difficult to see that this error may have led American policymakers astray as they laid the groundwork for the ongoing war in Iraq.

Indeed, the optimistic bias and the illusion of control are particularly rampant in the run-up to conflict. A hawk's preference for military action over diplomatic measures is often built upon the assumption that victory will come easily and swiftly. Predictions that the Iraq war would be a "cakewalk," offered up by some supporters of that conflict, are just the latest in a long string of bad hawkish predictions. After all, Washington elites treated the first major battle of the Civil War as a social outing, so sure were they that federal troops would rout rebel forces. General Noel de Castelnau, chief of staff for the French Army at the outset of World War I, declared, "Give me 700,000 men and I will conquer Europe." In fact, almost every decision maker involved in what would become the most destructive war in history up to that point predicted not only victory for his side, but a relatively quick and easy victory. These delusions and exaggerations cannot be explained away as a product of incomplete or incorrect information. Optimistic generals will be found, usually on both sides, before the beginning of every military conflict.

If optimism is the order of the day when it comes to assessing one's own chances in armed conflict, however, gloom usually prevails when evaluating another side's concessions. Psychologically, we are receptive not only to hawks' arguments for war but also to their case against negotiated solutions. The intuition that something is worth less simply because the other side has offered it is referred to in academic circles as "reactive devaluation." The very fact that a

concession is offered by somebody perceived as hostile undermines the content of the proposal. What was said matters less than who said it. And so, for example, American policymakers would likely look very skeptically on any concessions made by the regime in Tehran. Some of that skepticism could be the rational product of past experience, but some of it may also result from unconscious — and not necessarily rational — devaluation.

Evidence suggests that this bias is a significant stumbling block in negotiations between adversaries. In one experiment, Israeli Jews evaluated an actual Israeli-authored peace plan less favorably when it was attributed to the Palestinians than when it was attributed to their own government. Pro-Israel Americans saw a hypothetical peace proposal as biased in favor of Palestinians when authorship was attributed to Palestinians, but as "evenhanded" when they were told it was authored by Israelis.

DOUBLE OR NOTHING

It is apparent that hawks often have the upper hand as decision makers wrestle with questions of war and peace. And those advantages do not disappear as soon as the first bullets have flown. As the strategic calculus shifts to territory won or lost and casualties suffered, a new idiosyncrasy in human decision making appears: our deep-seated aversion to cutting our losses. Imagine, for example, the choice between:

Option A: A sure loss of $890

Option B: A 90 percent chance to lose $1,000 and a 10 percent chance to lose nothing.

In this situation, a large majority of decision makers will prefer the gamble in Option B, even though the other choice is statistically superior. People prefer to avoid a certain loss in favor of a potential loss, even if they risk losing significantly more. When things are going badly in a conflict, the aversion to cutting one's losses, often compounded by wishful thinking, is likely to dominate the calculus of the losing side. This brew of psychological factors tends to cause conflicts to endure long beyond the point where a reasonable observer would see the outcome as a near certainty. Many other factors pull in the same direction, notably the fact that for the leaders who have led their nation to the brink of defeat, the consequences of giving up will usually not be worse if the conflict is prolonged, even if they are worse for the citizens they lead.

U.S. policymakers faced this dilemma at many points in Vietnam and today in Iraq. To withdraw now is to accept a sure loss, and that option is deeply unattractive. The option of hanging on will therefore be relatively attractive, even if the chances of success are small and the cost of delaying failure is high.

Hawks, of course, can cite many moments in recent history when adversaries actually were unremittingly hostile and when force produced the desired result or should have been applied much earlier. The clear evidence of a psychological bias in favor of aggressive outcomes cannot decide the perennial debates between the hawks and the doves. It won't point the international community in a clear direction on Iran or North Korea. But understanding the biases that most of us harbor can at least help ensure that the hawks don't win more arguments than they should.

Daniel Kahneman is a Nobel laureate in economics and Eugene Higgins professor of psychology and professor of public affairs at Princeton University's Woodrow Wilson School of Public and International Affairs. Jonathan Renshon is a doctoral student in the Department of Government at Harvard University and author of Why Leaders Choose War: The Psychology of Prevention (Westport: Praeger Security International, 2006).
Tags: Economics, Foreign & Public Diplomacy, Politics

APRIL 12, 2023

Peter Schuck

CHAPTER 8

Implementation

The public policy world brims with interesting, provocative, often plausible ideas for improving social welfare. These ideas emerge from executive branch policy shops, congressional staff work, independent think tanks, lobbyists, economics and political science departments, public policy programs, law schools, business organizations, "public interest" groups, and other sources. Even judges sometimes get into policy-making-in-the-large when they find constitutional violations by government bureaucracies and then fashion unusual remedies—that is, those that go beyond simply awarding monetary damages or a simple prohibitory injunction—with the goal of rectifying those violations.[1] A very small percentage of these ideas successfully run the marathon political gauntlet and make it into the United States Code.

At this point, an even greater challenge looms for these new laws: they must be implemented in the real world outside Washington, D.C. The field consists of complex social, political, fiscal, market, legal, intergovernmental, bureaucratic, and institutional conditions that even the most seasoned policy makers in Washington cannot fully anticipate. Worse, even if the policy makers could foresee these conditions, they would have relatively little control over them.

Political scientists have spilled a lot of ink describing the recurrent kinds of implementation obstacles that impede a large number of federal programs. In the policy studies field, the leading study of this phenomenon is *Implementation*, a celebrated book by Jeffrey Press-

man and Aaron Wildavsky, whose droll subtitle summarizes what they found: *How Great Expectations in Washington Are Dashed in Oakland; Or, Why It's Amazing That Federal Programs Work at All, This Being a Saga of the Economic Development Administration as Told by Two Sympathetic Observers Who Seek to Build Morals on a Foundation of Ruined Hopes.*[2] The book recounts in great detail the process by which, beginning in 1966, a grant from the Economic Development Administration (EDA) in the U.S. Department of Commerce of more than $23 million for public works projects in the port and city of Oakland, California, was implemented. The grant aimed to create infrastructure and provide three thousand new jobs to inner-city minority residents of the high-unemployment Oakland area. It was greeted with the great fanfare and high hopes that accompany such initiatives. Three years later, only forty-three jobs had been created as a result of the government's $1.08 million in business loans, and the Oakland antipoverty agency was deriding it as a "pretty big disaster."*

In chronicling this particular policy disappointment in Oakland, Pressman and Wildavsky did not merely recount what happened at each stage of this program's development as EDA officials sought to implement it at the local level. As distinguished political scientists deeply rooted in both theory and empirics, they had a larger objective: to draw from their detailed account of the program's failed implementation more general lessons about *why* so many promising, well-intended programs suffer the same fate. I now set the stage for these lessons by summarizing their rich, exhaustive chronicle of the Oakland Project.

Having explored the lessons of this case for policy implementation more generally, the chapter then turns to the empirical evidence on how a wide variety of other kinds of policies have been implemented, and with which effects. All of the policies examined here seek in one way or another to alter how particular markets function, thus extending the analysis in chapter 7. I shall discuss these policies under nine general rubrics, differentiated according to what the policies *aim to do to or with markets*: (1) perfect them; (2) supplement them; (3) suppress them; (4) simplify them; (5) subsidize them; (6) redirect them; (7) reintroduce them; (8) widwife infant markets; and (9) recruit them for regulatory purposes.

*The ineffectiveness of highly touted government programs targeted at creating jobs and getting low-skilled inner-city residents into the workforce, as in the Oakland Project, above, is an all-too-familiar story. Although politicians differed sharply in their predictions about how many new jobs the 2009 stimulus would create, subsequent reports suggest that the actual number was relatively limited. See Ianthe Jeanne Dugan & Justin Scheck, "Cost of $10 Billion Stimulus Easier to Tally Than New Jobs," *Wall Street Journal*, February 24, 2012 The research on these programs is briefly summarized later in this chapter.

THE IMPLEMENTATION OF THE OAKLAND PROJECT

The EDA's principal mission was to aid the economies of rural areas and small towns, not cities like Oakland. An EDA internal evaluation noted, however, that the agency's leader was determined to use the agency to set up employment programs "where the action was," in cities, and he decided to concentrate its efforts on one city, apparently because he had to spend program funds quickly before the appropriation expired, and this could be accomplished by doing it in one city rather than dividing the funds among more of them. Oakland was selected for three main reasons: the EDA had experience and contacts there; it hoped that a jobs program there would head off a feared riot by unemployed blacks; and the city's Republican mayor could not go over the administrator's head to complain to the Democratic White House if something went wrong with the program.

The EDA, however, did not fully appreciate the obstacles to policy implementation posed by the nature of the Oakland city government, which would have to make key decisions if the program were to succeed. But the city government was fragmented into a number of municipal agencies that city hall could not control, in part because Oakland had a council-manager form of government in which the elected, part-time mayor was only one of nine city council members, and the full-time appointed city manager effectively ran the administration with staff, information, and financial resources largely under his control. Also, the lack of politically oriented interest groups

and party activity meant that elected leaders could not mobilize relevant information or political support for policies they might wish to propose.

The EDA's program developed problems not only with its Oakland "partners" in the city government but within its own ranks and with other federal agencies. The administrator assembled a very talented group of young policy experts within the EDA to run the program for him, largely from Washington. Proud of their innovative energies and antibureaucratic values, and pressed for time by their other Washington responsibilities, they took shortcuts by disregarding prescribed bureaucratic channels. This, along with the priority that Oakland was demanding, aroused resentment in EDA headquarters, which had traditionally focused on rural development.

Other mission conflicts soon appeared. Business interests in Oakland wanted EDA funds to go to commercial development, which they predicted would create more jobs. But city officials doubted that the new jobs would go to the long-term and minority unemployed, so EDA officials designed an overall employment plan under which a board dominated by poverty group representatives would allocate program funds. Because the EDA wanted to get the funds committed quickly before the appropriation lapsed (which might cause Congress to reduce future funding), there was little time to conduct an extensive search for the best public works projects. Under these pressures, the EDA selected the Port of Oakland, the institution most adept at preparing federal applications. An EDA official explained, "EDA had to spend its funds by June of 1966. The port had the projects and the others didn't." The EDA ranked specific projects by expected job creation, and the funds were allocated to the ranked projects until the available funds ran out. The port, arguing that the EDA's stringent requirement that each project must recruit, train, and hire the local long-term unemployed would scare off potential developers, resisted the requirement but ultimately accepted it. Key EDA officials, consultants, and city personnel came and went. A new mayor took over in Oakland. The top EDA official and cheerleader for the Oakland projects resigned because, he said, the White House had decided that the

EDA should not be spending money in cities, and Vietnam was claiming more and more resources.

As program problems and danger signals appeared, officials eager to get the funds out tended to sweep the difficulties under the rug, saying that they were just glitches that did not affect developers' willingness to hire the long-term and minority unemployed. Some of these glitches, however, turned out to be far more consequential. For example, the port claimed that it could not proceed without advanced funding from the EDA for interim development and construction financing, advances that the EDA could not provide. A dispute over the quality of the fill materials on a terminal site arose, and the terminal's prospective tenant said it could not meet the program's stringent hiring conditions. The U.S. Navy's engineers complained that the construction would create both serious navigational hazards and threats to airplane safety, which brought the Federal Aviation Administration (FAA) into the dispute. When the port sought to begin dredging, the Army Corps of Engineers entered the fray, as did the Bay Area Rapid Transit District (BART), which claimed that the dredging would impinge on its operations. When the port requested changes in the plans (a larger restaurant), the EDA said this was major enough to require a new project application. The U.S. General Accounting Office (GAO) questioned the EDA's grants and loans, and the San Francisco Department of Public Works complained that the projects would interfere with water contact sports in the bay. The authors summarized the situation thus: "As 1968 ended and a new administration prepared to come to power in Washington, the future plans of the terminal lay in doubt. In the areas of dredging, filling, financing, design, and relationships with other governmental institutions, the technical problems surrounding construction of the marine terminal had proved to be formidable. What had appeared initially to be a relatively straightforward program now involved new and unforeseen participants—the navy, the GAO, local governmental bodies—whose agreement was necessary if the program was to continue."

The other major public works project—the aircraft maintenance hangar—was beset by even greater obstacles: a cost overrun of al-

most 50 percent in two years, delays caused by new rounds of bargaining among the various interests, divisions within the EDA about how to respond, and reports indicating that few new jobs were being created.

As the program bogged down, the EDA's leadership constantly changed, and bureaucratic units within the agency with differing perspectives jockeyed with each other for power. Meanwhile, the political situation in Oakland was changing, "becoming more strident, more polarized, more hostile" as black leaders sought to organize their constituents by attacking the mayor, who looked in vain for program support from the EDA—particularly when the EDA refused to pay for the huge cost overrun. With a new administration installed in Washington, new EDA policy makers coming on board, and both components of the Oakland Project—public works and jobs for the minority unemployed—floundering in delay, disarray, and unrealized promises, the EDA tried tightening the screws on the local players but to little avail.

Pressman and Wildavsky's verdict on the Oakland Project was a profoundly dismaying one. Five years after Congress had appropriated the funds and the EDA had committed them, projects and employment plans had been approved, but major obstacles to implementation remained. No final plan had been reached for the most important construction project, which was supposed to create twelve hundred jobs. The new small business loans program—targeted at inherently bad risks, replete with conflicts of interest, and competing with existing businesses—failed abjectly to create new jobs. The training programs that were to prepare the hard-core unemployed for jobs had become snarled in intergovernmental and interagency wrangling. And the EDA was having trouble enforcing its employment and affirmative action requirements even for those construction projects that were completed or underway. No one could be sure how many new jobs had been created, nor was it clear how many were filled by minorities and the hard-core unemployed, or how long they would last. (On the brighter side, one relatively small project, the West Oakland Health Center, seemed to have created 160 jobs, almost all of them for minorities.)

Blind Into Baghdad

The U.S. occupation of Iraq is a debacle not because the government did no planning but because a vast amount of expert planning was willfully ignored by the people in charge. The inside story of a historic failure

By James Fallows
January/February 2004 Issue

On a Friday afternoon last November, I met Douglas Feith in his office at the Pentagon to discuss what has happened in Iraq. Feith's title is undersecretary of defense for policy, which places him, along with several other undersecretaries, just below Secretary of Defense Donald Rumsfeld and Deputy Secretary Paul Wolfowitz in the Pentagon's hierarchy. Informally he is seen in Washington as "Wolfowitz's Wolfowitz"—that is, as a deputy who has a wide range of responsibilities but is clearly identified with one particular policy. That policy is bringing regime change to Iraq—a goal that both Wolfowitz and Feith strongly advocated through the 1990s. To opponents of the war in Iraq, Feith is one of several shadowy, Rasputinlike figures who are shaping U.S. policy. He is seen much the way enemies of the Clinton Administration saw Hillary Clinton. Others associated with the Bush Administration who are seen this way include the consultant Richard Perle; Lewis "Scooter" Libby, the chief of staff for Vice President Dick Cheney; and the Vice President himself. What these officials have in common is their presumably great private influence and—even in the case of the Vice President—their limited public visibility and accountability.

In person Douglas Feith is nothing like Rasputin. Between a Reagan-era stint in the Pentagon and his current job he was a Washington lawyer for fifteen years, and he answered my questions with a lawyer's affability in the face of presumed disagreement. I could be biased in Feith's favor, because he was the most senior Administration official who granted my request for an interview about postwar Iraq. Like Donald Rumsfeld, Feith acts and sounds younger than many others of his age (fifty). But distinctly unlike Rumsfeld at a press conference, Feith in this interview did not seem at all arrogant or testy. His replies were relatively candid and unforced, in contrast to the angry or relentlessly on-message responses that have become standard from senior Administration officials. He acknowledged what was "becoming the conventional wisdom" about the Administration's failure to plan adequately for events after the fall of Baghdad, and then explained—with animation, dramatic pauses, and gestures—why he thought it was wrong.

Feith offered a number of specific illustrations of what he considered underappreciated successes. Some were familiar —the oil wells weren't on fire, Iraqis didn't starve or flee—but others were less so. For instance, he described the Administration's careful effort to replace old Iraqi dinars, which carried Saddam Hussein's image ("It's interesting how important that is, and it ties into the whole issue of whether people think that Saddam might be coming back"), with a new form of currency, without causing a run on the currency.

But mainly he challenged the premise of most critics: that the Administration could have done a better job of preparing for the consequences of victory. When I asked what had gone better than

expected, and what had gone worse, he said, "We don't exactly deal in 'expectations.' Expectations are too close to 'predictions.' We're not comfortable with predictions. It is one of the big strategic premises of the work that we do."

The limits of future knowledge, Feith said, were of special importance to Rumsfeld, "who is death to predictions." "His big strategic theme is uncertainty," Feith said. "The need to deal strategically with uncertainty. The inability to predict the future. The limits on our knowledge and the limits on our intelligence."

In practice, Feith said, this meant being ready for whatever proved to be the situation in postwar Iraq. "You will not find a single piece of paper ... If anybody ever went through all of our records—and someday some people will, presumably—nobody will find a single piece of paper that says, 'Mr. Secretary or Mr. President, let us tell you what postwar Iraq is going to look like, and here is what we need plans for.' If you tried that, you would get thrown out of Rumsfeld's office so fast—if you ever went in there and said, 'Let me tell you what something's going to look like in the future,' you wouldn't get to your next sentence!"

"This is an important point," he said, "because of this issue of What did we believe? ... The common line is, nobody planned for security because Ahmed Chalabi told us that everything was going to be swell." Chalabi, the exiled leader of the Iraqi National Congress, has often been blamed for making rosy predictions about the ease of governing postwar Iraq. "So we predicted that everything was going to be swell, and we didn't plan for things *not* being swell." Here Feith paused for a few seconds, raised his hands with both palms up, and put on a "Can you believe it?" expression. "I mean—one would really have to be a *simpleton.* And whatever people think of me, how can anybody think that Don Rumsfeld is that dumb? He's so evidently *not* that dumb, that how can people write things like that?" He sounded amazed rather than angry.

No one contends that Donald Rumsfeld, or Paul Wolfowitz, or Douglas Feith, or the Administration as a whole is dumb. The wisdom of their preparations for the aftermath of military victory in Iraq is the question. Feith's argument was a less defensive-sounding version of the Administration's general response to criticisms of its postwar policy: Life is uncertain, especially when the lid comes off a long-tyrannized society. American planners did about as well as anyone could in preparing for the unforeseeable. Anyone who says otherwise is indulging in lazy, unfair second-guessing. "The notion that there was a memo that was once written, that if we had only listened to that memo, all would be well in Iraq, is *so* preposterous," Feith told me.

The notion of a single memo's changing history is indeed farfetched. The idea that a substantial body of knowledge could have improved postwar prospects is not. The Administration could not have known everything about what it would find in Iraq. But it could have—and should have—done far more than it did.

Almost everything, good and bad, that has happened in Iraq since the fall of Saddam Hussein's regime was the subject of extensive pre-war discussion and analysis. This is particularly true of what have proved to be the harshest realities for the United States since the fall of Baghdad: that occupying the country is much more difficult than conquering it; that a breakdown in public order can jeopardize every other goal; that the ambition of patiently nurturing a new democracy

is at odds with the desire to turn control over to the Iraqis quickly and get U.S. troops out; that the Sunni center of the country is the main security problem; that with each passing day Americans risk being seen less as liberators and more as occupiers, and targets.

All this, and much more, was laid out in detail and in writing long before the U.S. government made the final decision to attack. Even now the collective efforts at planning by the CIA, the State Department, the Army and the Marine Corps, the United States Agency for International Development, and a wide variety of other groups inside and outside the government are underappreciated by the public. The one pre-war effort that has received substantial recent attention, the State Department's Future of Iraq project, produced thousands of pages of findings, barely one paragraph of which has until now been quoted in the press. The Administration will be admired in retrospect for how much knowledge it created about the challenge it was taking on. U.S. government predictions about postwar Iraq's problems have proved as accurate as the assessments of pre-war Iraq's strategic threat have proved flawed.

But the Administration will be condemned for what it did with what was known. The problems the United States has encountered are precisely the ones its own expert agencies warned against. Exactly what went wrong with the occupation will be studied for years—or should be. The missteps of the first half year in Iraq are as significant as other classic and carefully examined failures in foreign policy, including John Kennedy's handling of the Bay of Pigs invasion, in 1961, and Lyndon Johnson's decision to escalate U.S. involvement in Vietnam, in 1965. The United States withstood those previous failures, and it will withstand this one. Having taken over Iraq and captured Saddam Hussein, it has no moral or practical choice other than to see out the occupation and to help rebuild and democratize the country. But its missteps have come at a heavy cost. And the ongoing financial, diplomatic, and human cost of the Iraq occupation is the more grievous in light of advance warnings the government had.

Before September 11, 2001: The Early Days

Concern about Saddam Hussein pre-dated the 9/11 attacks and even the inauguration of George W. Bush. In 1998 Congress passed and President Bill Clinton signed the Iraq Liberation Act, which declared that "it should be the policy of the United States to support efforts to remove the regime headed by Saddam Hussein from power." During the 2000 presidential campaign Al Gore promised to support groups working to unseat Saddam Hussein. In the week before Bush took office, Nicholas Lemann reported in *The New Yorker* that "the idea of overthrowing Saddam is not an idle fantasy—or, if it is, it's one that has lately occupied the minds of many American officials, including people close to George W. Bush." But the intellectual case for regime change, argued during the Clinton years by some Democrats and notably by Paul Wolfowitz, then the dean of the Johns Hopkins School of Advanced International Studies, shifted clearly toward operational planning after the destruction of the World Trade Center.

For much of the public this case for war against Iraq rested on an assumed connection (though this was never demonstrated, and was officially disavowed by the President) between Saddam Hussein's regime and the terrorist hijackers. Within the government the case was equally compelling but different. September 11 had shown that the United States was newly vulnerable; to protect itself it had to fight terrorists at their source; and because Saddam Hussein's regime

was the leading potential source of future "state-sponsored" terrorism, it had become an active threat, whether or not it played any role in 9/11. The very next day, September 12, 2001, James Woolsey, who had been Clinton's first CIA director, told me that no matter who proved to be responsible for this attack, the solution had to include removing Saddam Hussein, because he was so likely to be involved next time. A military planner inside the Pentagon later told me that on September 13 his group was asked to draw up scenarios for an assault on Iraq, not just Afghanistan.

Soon after becoming the Army Chief of Staff, in 1999, General Eric Shinseki had begun ordering war-game exercises to judge strategies and manpower needs for possible combat in Iraq. This was not because he assumed a war was imminent. He thought that the greater Caspian Sea region, including Iraq, would present a uniquely difficult challenge for U.S. troops, because of its geography and political tensions. After 9/11, Army war games involving Iraq began in earnest.

In his first State of the Union address, on January 29, 2002, President Bush said that Iraq, Iran, and North Korea were an "axis of evil" that threatened world peace. "By seeking weapons of mass destruction, these regimes pose a grave and growing danger. They could provide these arms to terrorists, giving them the means to match their hatred. They could attack our allies or attempt to blackmail the United States."

By the time of this speech efforts were afoot not simply to remove Saddam Hussein but also to imagine what Iraq would be like when he was gone. In late October of 2001, while the U.S. military was conducting its rout of the Taliban from Afghanistan, the State Department had quietly begun its planning for the aftermath of a "transition" in Iraq. At about the time of the "axis of evil" speech, working groups within the department were putting together a list of postwar jobs and topics to be considered, and possible groups of experts to work on them.

One Year Before the War: The "Future of Iraq"

Thus was born the Future of Iraq project, whose existence is by now well known, but whose findings and potential impact have rarely been reported and examined. The State Department first publicly mentioned the project in March of 2002, when it quietly announced the lineup of the working groups. At the time, media attention was overwhelmingly directed toward Afghanistan, where Operation Anaconda, the half-successful effort to kill or capture al-Qaeda and Taliban fighters, was under way.

For several months before announcing the project the State Department had been attempting to coordinate the efforts of the many fractious Iraqi exile organizations. The Future of Iraq project held the potential for harnessing, and perhaps even harmonizing, the expertise available from the exile groups.

It was also in keeping with a surprisingly well established U.S. government tradition of preparing for postwar duties before there was a clear idea of when fighting would begin, let alone when it would end. Before the United States entered World War II, teams at the Army War College were studying what went right and wrong when American doughboys occupied Germany after World War I. Within months of the attack on Pearl Harbor a School of Military Government had been

created, at the University of Virginia, to plan for the occupation of both Germany and Japan. In 1995, while U.S. negotiators, led by Richard Holbrooke, were still working at the Dayton peace talks to end the war in the Balkans, World Bank representatives were on hand to arrange loans for the new regimes.

Contemplating postwar plans posed a problem for those who, like many in the State Department, were skeptical of the need for war. Were they making a war more likely if they prepared for its aftermath? Thomas Warrick, the State Department official who directed the Future of Iraq project, was considered to be in the antiwar camp. But according to associates, he explained the importance of preparing for war by saying, "I'm nervous that they're actually going to do it—and the day after they'll turn to us and ask, 'Now what?'" So he pushed ahead with the project, setting up numerous conferences and drafting sessions that would bring together teams of exiles—among them Kanan Makiya, the author of the influential anti-Saddam book *Republic of Fear*, first published in 1989. A small number of "international advisers," mainly from the United States, were also assigned to the teams. Eventually there would be seventeen working groups, designed systematically to cover what would be needed to rebuild the political and economic infrastructure of the country. "Democratic Principles and Procedures" was the name of one of the groups, which was assigned to suggest the legal framework for a new government; Makiya would write much of its report. The "Transitional Justice" group was supposed to work on reparations, amnesty, and de-Baathification laws. Groups studying economic matters included "Public Finance," "Oil and Energy," and "Water, Agriculture and Environment."

In May of 2002 Congress authorized $5 million to fund the project's studies. In the flurry of news from Afghanistan the project went unnoticed in the press until June, when the State Department announced that the first meetings would take place in July. "The role of the U.S. government and State Department is to see what the Iraqis and Iraqi-Americans want," Warrick said at a conference on June 1, 2002. "The impetus for change comes from [Iraqis], not us. This is the job of Iraqis inside and outside."

That same day President Bush delivered a graduation speech at West Point, giving a first look at the doctrine of pre-emptive war. He told the cadets, to cheers, "Our security will require all Americans to be forward-looking and resolute, to be ready for pre-emptive action when necessary to defend our liberty and to defend our lives." Later in the summer the doctrine was elaborated in a new National Security Strategy, which explained that since "rogue states" could not be contained or deterred, they needed to be destroyed before they could attack.

Whenever National Security Adviser Condoleezza Rice was interviewed that summer, she talked mainly about the thinking behind the new policy. When Vice President Dick Cheney was interviewed, he talked mainly about Saddam Hussein's defiance of international law. But when Secretary of State Colin Powell was interviewed, he constantly stressed the value of an international approach to the problem and the need to give UN arms inspectors adequate time to do their job.

War with Iraq was not inevitable at this point, but it seemed more and more likely. Daily conversation in Washington, which usually reverts to "So, who do you think will be the next President?," switched instead to "So, when do you think we're going to war?"

It was in these circumstances that the Future of Iraq project's working groups deliberated. Most of the meetings were in Washington. Some were in London, and one session, in early September, took place in Surrey, where representatives of a dozen mutually suspicious exile groups discussed prospects for democratic coexistence when Saddam Hussein was gone. (Along with Chalabi's INC the meeting included several rival Kurdish groups, Assyrian and Turkomen organizations, the Iraqi Constitutional Monarchy Movement, and others.)

The project did not overcome all the tensions among its members, and the results of its deliberations were uneven. Three of its intended working groups never actually met—including, ominously, "Preserving Iraq's Cultural Heritage." The "Education" group finally produced a report only six pages long, in contrast to many hundreds of pages from most others. Some recommendations were quirky or reflected the tastes of the individual participants who drafted them. A report titled "Free Media" proposed that all Iraqi journalists be taken out of the country for a month-long re-education process: "Those who 'get it' go back as reporters; others would be retired or reassigned." A group that was considering ways of informing Iraq about the realities of democracy mentioned *Baywatch* and *Leave It to Beaver* as information sources that had given Iraqis an imprecise understanding of American society. It recommended that a new film, *Colonial America: Life in a Theocracy*, be shot, noting, "The Puritan experiments provide amazing parallels with current Moslem fundamentalism. The ultimate failures of these US experiments can also be vividly illustrated—witch trials, intolerance, etc."

But whatever may have been unrealistic or factional about these efforts, even more of what the project created was impressive. The final report consisted of thirteen volumes of recommendations on specific topics, plus a one-volume summary and overview. These I have read—and I read them several months into the occupation, when it was unfairly easy to judge how well the forecast was standing up. (Several hundred of the 2,500 pages were in Arabic, which sped up the reading process.) The report was labeled "For Official Use Only"—an administrative term that implies confidentiality but has no legal significance. The State Department held the report closely until, last fall, it agreed to congressional requests to turn over the findings.

Most of the project's judgments look good in retrospect—and virtually all reveal a touching earnestness about working out the details of reconstructing a society. For instance, one of the thickest volumes considered the corruption endemic in Iraqi life and laid out strategies for coping with it. (These included a new "Iraqi Government Code of Ethics," which began, "Honesty, integrity, and fairness are the fundamental values for the people of Iraq.") The overview volume, which appears to have been composed as a series of PowerPoint charts, said that the United States was undertaking this effort because, among other things, "detailed public planning" conveys U.S. government "seriousness" and the message that the U.S. government "wants to learn from past regime change experiences."

For their part, the Iraqi participants emphasized several points that ran through all the working groups' reports. A recurring theme was the urgency of restoring electricity and water supplies as soon as possible after regime change. The first item in the list of recommendations from the "Water, Agriculture and Environment" group read, "Fundamental importance of clean water supplies for Iraqis immediately after transition. Key to coalition/community relations." One of

the groups making economic recommendations wrote, "Stressed importance of getting electrical grid up and running immediately—key to water systems, jobs. Could go a long way to determining Iraqis' attitudes toward Coalition forces."

A second theme was the need to plan carefully for the handling and demobilization of Iraq's very sizable military. On the one hand, a functioning army would be necessary for public order and, once coalition forces withdrew, for the country's defense. ("Our vision of the future is to build a democratic civil society. In order to make this vision a reality, we need to have an army that can work alongside this new society.") On the other hand, a large number of Saddam's henchmen would have to be removed. The trick would be to get rid of the leaders without needlessly alienating the ordinary troops—or leaving them without income. One group wrote, "All combatants who are included in the demobilization process must be assured by their leaders and the new government of their legal rights and that new prospects for work and education will be provided by the new system." Toward this end it laid out a series of steps the occupation authorities should take in the "disarmament, demobilization, and reintegration" process. Another group, in a paper on democratic principles, warned, "The decommissioning of hundreds of thousands of trained military personnel that [a rapid purge] implies could create social problems."

Next the working groups emphasized how disorderly Iraq would be soon after liberation, and how difficult it would be to get the country on the path to democracy—though that was where it had to go. "The removal of Saddam's regime will provide a power vacuum and create popular anxieties about the viability of all Iraqi institutions," a paper on rebuilding civil society said. "The traumatic and disruptive events attendant to the regime change will affect all Iraqis, both Saddam's conspirators and the general populace." Another report warned more explicitly that "the period immediately after regime change might offer these criminals the opportunity to engage in acts of killing, plunder and looting." In the short term the occupying forces would have to prevent disorder. In the long term, according to a report written by Kanan Makiya, they would need to recognize that "the extent of the Iraqi totalitarian state, its absolute power and control exercised from Baghdad, not to mention the terror used to enforce compliance, cannot be overestimated in their impact on the Iraqi psyche and the attendant feeling of fear, weakness, and shame." Makiya continued, "These conditions and circumstances do not provide a strong foundation on which to build new institutions and a modern nation state."

Each of the preceding themes would seem to imply a long, difficult U.S. commitment in Iraq. America should view its involvement in Iraq, the summary report said, not as it had Afghanistan, which was left to stew in lightly supervised warlordism, but as it had Germany and Japan, which were rebuilt over many years. But nearly every working group stressed one other point: the military occupation itself had to be brief. "Note: Military government idea did not go down well," one chart in the summary volume said. The "Oil and Energy" group presented a "key concept": "Iraqis do not work for American contractors; Americans are seen assisting Iraqis."

Americans are often irritated by the illogic of "resentful dependence" by weaker states. South Koreans, for example, complain bitterly about U.S. soldiers in their country but would complain all the more bitterly if the soldiers were removed. The authors of the Future of Iraq report could by those standards also be accused of illogical thinking, in wanting U.S. support but not wanting

U.S. control. Moreover, many of the project's members had a bias that prefigured an important source of postwar tension: they were exiles who considered themselves the likeliest beneficiaries if the United States transferred power to Iraqis quickly—even though, precisely because of their exile, they had no obvious base of support within Iraq.

To skip ahead in the story: As chaos increased in Baghdad last summer, the chief U.S. administrator, L. Paul "Jerry" Bremer, wrestled constantly with a variant of this exile paradox. The Iraqi Governing Council, whose twenty-five members were chosen by Americans, was supposed to do only the preparatory work for an elected Iraqi government. But the greater the pressure on Bremer for "Iraqification," the more tempted he was to give in to the council's demand that he simply put it in charge without waiting for an election. More than a year earlier, long before combat began, the explicit recommendations and implicit lessons of the Future of Iraq project had given the U.S. government a very good idea of what political conflicts it could expect in Iraq.

Ten Months Before the War: War Games and Warnings

As combat slowed in Afghanistan and the teams of the Future of Iraq project continued their deliberations, the U.S. government put itself on a wartime footing. In late May the CIA had begun what would become a long series of war-game exercises, to think through the best- and worst-case scenarios after the overthrow of Saddam Hussein. According to a person familiar with the process, one recurring theme in the exercises was the risk of civil disorder after the fall of Baghdad. The exercises explored how to find and secure the weapons of mass destruction that were then assumed to be in and around Baghdad, and indicated that the hardest task would be finding and protecting scientists who knew about the weapons before they could be killed by the regime as it was going down.

The CIA also considered whether a new Iraqi government could be put together through a process like the Bonn conference, which was then being used to devise a post-Taliban regime for Afghanistan. At the Bonn conference representatives of rival political and ethic groups agreed on the terms that established Hamid Karzai as the new Afghan President. The CIA believed that rivalries in Iraq were so deep, and the political culture so shallow, that a similarly quick transfer of sovereignty would only invite chaos.

Representatives from the Defense Department were among those who participated in the first of these CIA war-game sessions. When their Pentagon superiors at the Office of the Secretary of Defense (OSD) found out about this, in early summer, the representatives were reprimanded and told not to participate further. "OSD" is Washington shorthand, used frequently in discussions about the origins of Iraq war plans, and it usually refers to strong guidance from Rumsfeld, Wolfowitz, Feith, and one of Feith's deputies, William Luti. Their displeasure over the CIA exercise was an early illustration of a view that became stronger throughout 2002: that postwar planning was an impediment to war.

Because detailed thought about the postwar situation meant facing costs and potential problems, and thus weakened the case for launching a "war of choice" (the Washington term for a war not waged in immediate self-defense), it could be seen as an "antiwar" undertaking. The knowledge

that U.S. soldiers would still be in Germany and Japan sixty-plus years after Pearl Harbor would obviously not have changed the decision to enter World War II, and in theory the Bush Administration could have presented the overthrow of Saddam Hussein in a similar way: as a job that had to be done, even though it might saddle Americans with costs and a military presence for decades to come. Everyone can think of moments when Bush or Rumsfeld has reminded the nation that this would be a long-term challenge. But during the months when the Administration was making its case for the war—successfully to Congress, less so to the United Nations—it acted as if the long run should be thought about only later on.

On July 31, 2002, the Senate Foreign Relations Committee invited a panel of experts to discuss the case for war against Iraq. On August 1 it heard from other experts about the likely "day after" consequences of military victory. Senator Joseph Biden, a Democrat from Delaware, was then the chairman of the committee. That first day Biden said that the threat of WMD might force him to vote in favor of the war (as he ultimately did). But he worried that if the United States invaded without full allied support, "we may very well radicalize the rest of the world, we may pick up a bill that's $70 billion, $80 billion, we may have to have extensive commitment of U.S. forces for an extended period of time in Iraq."

Phebe Marr, an Iraq scholar retired from the National Defense University, told the committee that the United States "should assume that it cannot get the results it wants on the cheap" from regime change. "It must be prepared to put some troops on the ground, advisers to help create new institutions, and above all, time and effort in the future to see the project through to a satisfactory end. If the United States is not willing to do so, it had best rethink the project." Rend Rahim Francke, an Iraqi exile serving on the Future of Iraq project (and now the ambassador from Iraq to the United States), said that "the system of public security will break down, because there will be no functioning police force, no civil service, and no justice system" on the first day after the fighting. "There will be a vacuum of political authority and administrative authority," she said. "The infrastructure of vital sectors will have to be restored. An adequate police force must be trained and equipped as quickly as possible. And the economy will have to be jump-started from not only stagnation but devastation." Other witnesses discussed the need to commit U.S. troops for many years—but to begin turning constitutional authority over to the Iraqis within six months. The upshot of the hearings was an emphasis on the short-term importance of security, the medium-term challenge of maintaining control while transferring sovereignty to the Iraqis, and the long-term reality of commitments and costs. All the experts agreed that what came after the fall of Baghdad would be harder for the United States than what came before.

Six Months Before the War: Getting Serious

One week before Labor Day, while President Bush was at his ranch in Texas, Vice President Cheney gave a speech at a Veterans of Foreign Wars convention in Nashville. "There is no doubt that Saddam Hussein now has weapons of mass destruction [and that he will use them] against our friends, against our allies, and against us," Cheney said. Time was running out, he concluded, for America to remove this threat. A few days later CNN quoted a source "intimately familiar with [Colin] Powell's thinking" as saying that Powell was still insistent on the need for allied support and would oppose any war in which the United States would "go it alone ... as if it doesn't give a damn" about other nations' views. Just after Labor Day, Powell apparently won a

battle inside the Administration and persuaded Bush to take the U.S. case to the United Nations. On September 12 Bush addressed the UN General Assembly and urged it to insist on Iraqi compliance with its previous resolutions concerning disarmament.

Before the war the Administration exercised remarkable "message discipline" about financial projections. When asked how much the war might cost, officials said that so many things were uncertain, starting with whether there would even be a war, that there was no responsible way to make an estimate. In part this reflected Rumsfeld's emphasis on the unknowability of the future. It was also politically essential, in delaying the time when the Administration had to argue that regime change in Iraq was worth a specific number of billions of dollars.

In September, Lawrence Lindsay, then the chief White House economic adviser, broke discipline. He was asked by *The Wall Street Journal* how much a war and its aftermath might cost. He replied that it might end up at one to two percent of the gross domestic product, which would mean $100 billion to $200 billion. Lindsay added that he thought the cost of not going to war could conceivably be greater—but that didn't placate his critics within the Administration. The Administration was further annoyed by a report a few days later from Democrats on the House Budget Committee, which estimated the cost of the war at $48 billion to $93 billion. Lindsay was widely criticized in "background" comments from Administration officials, and by the end of the year he had been forced to resign. His comment "made it clear Larry just didn't get it," an unnamed Administration official told *The Washington Post* when Lindsay left. Lindsay's example could hardly have encouraged others in the Administration to be forthcoming with financial projections. Indeed, no one who remained in the Administration offered a plausible cost estimate until months after the war began.

In September the United States Agency for International Development began to think in earnest about its postwar responsibilities in Iraq. It was the natural contact for nongovernmental organizations, or NGOs, from the United States and other countries that were concerned with relief efforts in Iraq.

USAID's administrator, Andrew Natsios, came to the assignment with a complex set of experiences and instincts. He started his career, in the 1970s, as a Republican state legislator in Massachusetts, and before the Bush Administration he had been the administrator of the state's "Big Dig," the largest public-works effort ever in the country. Before the Big Dig, Natsios spent five years as an executive at a major humanitarian NGO called World Vision. He also served in the Persian Gulf during the 1991 Gulf War, as an Army Reserve officer. By background he was the Administration official best prepared to anticipate the combination of wartime and postwar obligations in Iraq.

At any given moment USAID is drawing up contingency plans for countries that might soon need help. "I actually have a list, which I will not show you," Natsios told me in the fall, "of countries where there may not be American troops soon, but they could fall apart—and if they do, what we could do for them." By mid-September of 2002, six months before the official beginning of Operation Iraqi Freedom, Natsios had additional teams working on plans for Iraq. Representatives of about a dozen relief organizations and NGOs were gathering each week at USAID headquarters for routine coordination meetings. Iraq occupied more and more of their

time through 2002. On October 10, one day before Congress voted to authorize the war, the meetings were recast as the Iraq Working Group.

Five Months Before the War: Occupiers or Liberators?

The weekly meetings at USAID quickly settled into a pattern. The representatives of the NGOs would say, "We've dealt with situations like this before, and we know what to expect." The U.S. government representatives would either say nothing or else reply, No, this time it will be different.

The NGOs had experience dealing with a reality that has not fully sunk in for most of the American public. In the nearly three decades since U.S. troops left Vietnam, the American military has fought only two wars as most people understand the term: the two against Saddam Hussein's Iraq. But through the past thirty years U.S. troops have almost continuously been involved in combat somewhere. Because those engagements—in Grenada, Lebanon, Panama, Haiti, Somalia, Bosnia, Kosovo, Afghanistan, and elsewhere—have no obvious connection with one another, politicians and the public usually discuss them as stand-alone cases. Each one seems an aberration from the "real" wars the military is set up to fight.

To the NGO world, these and other modern wars (like the ones in Africa) are not the exception but the new norm: brutal localized encounters that destroy the existing political order and create a need for long-term international supervision and support. Within the U.S. military almost no one welcomes this reality, but many recognize that peacekeeping, policing, and, yes, nation-building are now the expected military tasks. The military has gotten used to working alongside the NGOs—and the NGOs were ready with a checklist of things to worry about once the regime had fallen.

An even larger question about historical precedent began to surface. When Administration officials talked about models for what would happen in Iraq, they almost always referred to the lasting success in Japan and Germany—or else to countries of the former Soviet bloc in Eastern Europe. (A civilian adviser who went to Baghdad early in the occupation recalls looking at his fellow passengers on the military transport plane. The ones who weren't asleep or flipping through magazines were reading books about Japan or Germany, not about the Arab world. "That was not a good sign," he told me.) If one thought of Iraq as Poland, or as the former East Germany, or as the former Czechoslovakia, or as almost any part of the onetime Soviet empire in Eastern Europe other than Romania, one would naturally conclude that regime change in itself would set the country well along the path toward recovery. These countries were fine once their repressive leaders were removed; so might Iraq well be. And if the former Yugoslavia indicated darker possibilities, that could be explained as yet another failure of Clinton-era foreign policy.

Many NGO representatives assumed that postwar recovery would not be so automatic, and that they should begin working on preparations before the combat began. "At the beginning our main message was the need for access," I was told by Sandra Mitchell, the vice-president of the International Rescue Committee, who attended the USAID meetings. Because of U.S. sanctions against Iraq, it was illegal for American humanitarian organizations to operate there. (Journalists were about the only category of Americans who would not get in trouble with their own

government by traveling to and spending money in Iraq.) "Our initial messages were like those in any potential crisis situation," Mitchell said, "but the reason we were so insistent in this case was the precarious situation that already existed in Iraq. The internal infrastructure was shot, and you couldn't easily swing in resources from neighboring countries, like in the Balkans." The NGOs therefore asked, as a first step, for a presidential directive exempting them from the sanctions. They were told to expect an answer to this request by December. That deadline passed with no ruling. By early last year the NGOs felt that it was too dangerous to go to Iraq, and the Administration feared that if they went they might be used as hostages. No directive was ever issued.

Through the fall and winter of 2002 the International Rescue Committee, Refugees International, InterAction, and other groups that met with USAID kept warning about one likely postwar problem that, as it turned out, Iraq avoided—a mass flow of refugees—and another that was exactly as bad as everyone warned: the lawlessness and looting of the "day after" in Baghdad. The Bush Administration would later point to the absence of refugees as a sign of the occupation's underreported success. This achievement was, indeed, due in part to a success: the speed and precision of the military campaign itself. But the absence of refugees was also a sign of a profound failure: the mistaken estimates of Iraq's WMD threat. All pre-war scenarios involving huge movements of refugees began with the assumption that Saddam Hussein would use chemical or biological weapons against U.S. troops or his own Kurdish or Shiite populations—and that either the fact or the fear of such assaults would force terrified Iraqis to evacuate.

The power vacuum that led to looting was disastrous. "The looting was not a surprise," Sandra Mitchell told me. "It should not have come as a surprise. Anyone who has witnessed the fall of a regime while another force is coming in on a temporary basis knows that looting is standard procedure. In Iraq there were very strong signals that this could be the period of greatest concern for humanitarian response." One lesson of postwar reconstruction through the 1990s was that even a short period of disorder could have long-lasting effects.

The meetings at USAID gave the veterans of international relief operations a way to register their concerns. The problem was that they heard so little back. "The people in front of us were very well-meaning," says Joel Charny, who represented Refugees International at the meetings. "And in fairness, they were on such a short leash. But the dialogue was one-way. We would tell them stuff, and they would nod and say, Everything's under control. To me it was like the old four-corners offense in basketball. They were there to just dribble out the clock but be able to say they'd consulted with us."

And again the question arose of whether what lay ahead in Iraq would be similar to the other "small wars" of the previous decade-plus or something new. If it was similar, the NGOs had their checklists ready. These included, significantly, the obligations placed on any "occupying power" by the Fourth Geneva Convention, which was signed in 1949 and is mainly a commonsense list of duties—from protecting hospitals to minimizing postwar reprisals—that a victorious army must carry out. "But we were corrected when we raised this point," Sandra Mitchell says. "The American troops would be 'liberators' rather than 'occupiers,' so the obligations did not apply. Our point was not to pass judgment on the military action but to describe the responsibilities."

In the same mid-October week that the Senate approved the war resolution, a team from the Strategic Studies Institute at the Army War College, in Carlisle Barracks, Pennsylvania, began a postwar-planning exercise. Even more explicitly than the NGOs, the Army team insisted that America's military past, reaching back to its conquest of the Philippines, in 1898, would be a useful guide to its future duties in Iraq. As a rule, professional soldiers spend more time thinking and talking about history than other people do; past battles are the only real evidence about doctrine and equipment. The institute—in essence, the War College's think tank—was charged with reviewing recent occupations to help the Army "best address the requirements that will necessarily follow operational victory in a war with Iraq," as the institute's director later said in a foreword to the team's report. "As the possibility of war with Iraq looms on the horizon, it is important to look beyond the conflict to the challenges of occupying the country."

The study's principal authors were Conrad Crane, who graduated from West Point in the early 1970s and taught there as a history professor through the 1990s, and Andrew Terrill, an Army Reserve officer and a strategic-studies professor. With a team of other researchers, which included representatives from the Army and the joint staff as well as other government agencies and think tanks, they began high-speed work on a set of detailed recommendations about postwar priorities. The Army War College report was also connected to a pre-war struggle with yet another profound postwar consequence: the fight within the Pentagon, between the civilian leadership in OSD and the generals running the Army, over the size and composition of the force that would conquer Iraq.

Four Months Before the War: The Battle in the Pentagon

On November 5, 2002, the Republicans regained control of the Senate and increased their majority in the House in national midterm elections. On November 8 the UN Security Council voted 15-0 in favor of Resolution 1441, threatening Iraq with "serious consequences" if it could not prove that it had abandoned its weapons programs.

Just before 9/11 Donald Rumsfeld had been thought of as standing on a banana peel. The newspapers were full of leaked anonymous complaints from military officials who thought that his efforts to streamline and "transform" the Pentagon were unrealistic and damaging. But with his dramatic metamorphosis from embattled Secretary of Defense to triumphant Secretary of War, Rumsfeld's reputation outside the Administration and his influence within it rose. He was operating from a position of great power when, in November, he decided to "cut the TPFDD."

"*Tipfid*" is how people in the military pronounce the acronym for "time-phased force and deployment data," but what it really means to the armed forces, in particular the Army, is a way of doing business that is methodical, careful, and sure. The TPFDD for Iraq was an unbelievably complex master plan governing which forces would go where, when, and with what equipment, on which planes or ships, so that everything would be coordinated and ready at the time of attack. One reason it took the military six months to get set for each of its wars against Iraq, a comparatively pitiful foe, was the thoroughness of TPFDD planning. To its supporters, this approach is old-school in the best sense: if you fight, you really fight. To its detractors, this approach is simply old—ponderous, inefficient, and, although they don't dare call it cowardly, risk-averse at the least.

A streamlined approach had proved successful in Afghanistan, at least for a while, as a relatively small U.S. force left much of the ground fighting to the Northern Alliance. In the longer run the American strategy created complications for Afghanistan, because the victorious Northern Alliance leaders were newly legitimized as warlords. Donald Rumsfeld was one member of the Administration who seemed still to share the pre-9/11 suspicion about the risks of nation-building, and so didn't much care about the postwar consequences of a relatively small invasion force. (His deputy, Paul Wolfowitz, was more open to the challenge of rebuilding Iraq, but he would never undercut or disobey Rumsfeld.) In November, Rumsfeld began working through the TPFDD, with the goal of paring the force planned for Iraq to its leanest, lightest acceptable level.

The war games run by the Army and the Pentagon's joint staff had led to very high projected troop levels. The Army's recommendation was for an invasion force 400,000 strong, made up of as many Americans as necessary and as many allied troops as possible. "All the numbers we were coming up with were quite large," Thomas White, a retired general (and former Enron executive) who was the Secretary of the Army during the war, told me recently. But Rumsfeld's idea of the right force size was more like 75,000. The Army and the military's joint leadership moderated their requests in putting together the TPFDD, but Rumsfeld began challenging the force numbers in detail. When combat began, slightly more than 200,000 U.S. soldiers were massed around Iraq.

"In what I came to think of as Secretary Rumsfeld's style," an Army official who was involved in the process told me recently, "he didn't directly say no but asked a lot of hard questions about the plan and sent us away without approval. He would ask questions that delayed the activation of units, because he didn't think the planned flow was right. Our people came back with the understanding that their numbers were far too big and they should be thinking more along the lines of Afghanistan"—that is, plan for a light, mobile attack featuring Special Forces soldiers. Another participant described Rumsfeld as looking line by line at the deployments proposed in the TPFDD and saying, "Can't we do this with one company?" or "Shouldn't we get rid of this unit?" Making detailed, last-minute adjustments to the TPFDD was, in the Army's view, like pulling cogs at random out of a machine. According to an observer, "The generals would say, Sir, these changes will ripple back to every railhead and every company."

The longer-term problem involved what would happen after Baghdad fell, as it inevitably would. This was distinctly an Army rather than a general military concern. "Where's the Air Force now?" an Army officer asked rhetorically last fall. "They're back on their bases—and they're better off, since they don't need to patrol the 'no-fly' zones [in northern and southern Iraq, which U.S. warplanes had patrolled since the end of the Gulf War]. The Navy's gone, and most of the Marines have been pulled back. It's the Army holding the sack of shit." A related concern involved what a long-term commitment to Iraq would do to the Army's "ops tempo," or pace of operations—especially if Reserve and National Guard members, who had no expectations of long-term foreign service when they signed up, were posted in Iraq for months or even years.

The military's fundamental argument for building up what Rumsfeld considered a wastefully large force is that it would be even more useful *after* Baghdad fell than during actual combat. The first few days or weeks after the fighting, in this view, were crucial in setting long-term expectations. Civilians would see that they could expect a rapid return to order, and would

behave accordingly—or they would see the opposite. This was the "shock and awe" that really mattered, in the Army's view: the ability to make clear who was in charge. "Insights from successful occupations suggest that it is best to go in real heavy and then draw down fast," Conrad Crane, of the Army War College, told me. That is, a larger force would be necessary during and immediately after the war, but might mean a much smaller occupation presence six months later.

"We're in Baghdad, the regime is toppled—what's next?" Thomas White told me, recounting discussions before the war. One of the strongest advocates of a larger force was General Eric Shinseki, the Army Chief of Staff. White said, "Guys like Shinseki, who had been in Bosnia [where he supervised the NATO force], been in Kosovo, started running the numbers and said, 'Let's assume the world is linear.' For five million Bosnians we had two hundred thousand people to watch over them. Now we have twenty-five million Iraqis to worry about, spread out over a state the size of California. How many people is this going to take?" The heart of the Army's argument was that with too few soldiers, the United States would win the war only to be trapped in an untenable position during the occupation.

A note of personal rancor complicated these discussions, as it did many disagreements over postwar plans. In our interview Douglas Feith played this down—maintaining that press reports had exaggerated the degree of quarreling and division inside the Administration. These reports, he said, mainly reflected the experience of lower-level officials, who were embroiled in one specific policy area and "might find themselves pretty much always at odds with their counterparts from another agency." Higher up, where one might be "fighting with someone on one issue but allied with them on something else," relations were more collegial. Perhaps so. But there was no concealing the hostility within the Pentagon between most uniformed leaders, especially in the Army, and the civilians in OSD.

Donald Rumsfeld viewed Shinseki as a symbol of uncooperative, old-style thinking, and had in the past gone out of his way to humiliate him. In the spring of 2002, fourteen months before the scheduled end of Shinseki's term, Rumsfeld announced who his successor would be; such an announcement, which converts the incumbent into a lame duck, usually comes at the last minute. The action was one of several calculated insults.

From OSD's point of view, Shinseki and many of his colleagues were dragging their feet. From the Army's point of view, OSD was being reckless about the way it was committing troops and high-handed in disregarding the military's professional advice. One man who was then working in the Pentagon told me of walking down a hallway a few months before the war and seeing Army General John Abizaid standing outside a door. Abizaid, who after the war succeeded Tommy Franks as commander of the Central Command, or CENTCOM, was then the director of the Joint Staff—the highest uniformed position in the Pentagon apart from the Joint Chiefs. A planning meeting for Iraq operations was under way. OSD officials told him he could not take part.

The military-civilian difference finally turned on the question of which would be harder: winning the war or maintaining the peace. According to Thomas White and several others, OSD acted as if the war itself would pose the real challenge. As White put it, "The planning assumptions were

that the people would realize they were liberated, they would be happy that we were there, so it would take a much smaller force to secure the peace than it did to win the war. The resistance would principally be the remnants of the Baath Party, but they would go away fairly rapidly. And, critically, if we didn't damage the infrastructure in our military operation, as we didn't, the restart of the country could be done fairly rapidly." The first assumption was clearly expressed by Cheney three days before the war began, in an exchange with Tim Russert on *Meet the Press*:

RUSSERT: If your analysis is not correct, and we're not treated as liberators but as conquerors, and the Iraqis begin to resist, particularly in Baghdad, do you think the American people are prepared for a long, costly, and bloody battle with significant American casualties?
CHENEY: Well, I don't think it's likely to unfold that way, Tim, because I really do believe that we will be greeted as liberators ... The read we get on the people of Iraq is there is no question but what they want to get rid of Saddam Hussein and they will welcome as liberators the United States when we come to do that.

Through the 1990s Marine General Anthony Zinni, who preceded Tommy Franks as CENTCOM commander, had done war-gaming for a possible invasion of Iraq. His exercises involved a much larger U.S. force than the one that actually attacked last year. "They were very proud that they didn't have the kind of numbers my plan had called for," Zinni told me, referring to Rumsfeld and Cheney. "The reason we had those two extra divisions was the security situation. Revenge killings, crime, chaos—this was all foreseeable."

Thomas White agrees. Because of reasoning like Cheney's, "we went in with the minimum force to accomplish the military objectives, which was a straightforward task, never really in question," he told me. "And then we *immediately* found ourselves shorthanded in the aftermath. We sat there and watched people dismantle and run off with the country, basically."

Three Months Before the War

In the beginning of December, Iraq submitted its 12,000-page declaration to the UN Security Council contending that it had no remaining WMD stores. Near the end of December, President Bush authorized the dispatch of more than 200,000 U.S. soldiers to the Persian Gulf.

There had still been few or no estimates of the war's cost from the Administration—only contentions that projections like Lawrence Lindsay's were too high. When pressed on this point, Administration officials repeatedly said that with so many uncertainties, they could not possibly estimate the cost. But early in December, just before Lindsay was forced out, The *New York Review of Books* published an article by William Nordhaus titled "Iraq: The Economic Consequences of War," which included carefully considered estimates. Nordhaus, an economist at Yale, had served on Jimmy Carter's Council of Economic Advisers; the article was excerpted from a much longer economic paper he had prepared. His range of estimates was enormous, depending on how long the war lasted and what its impact on the world economy proved to be. Nordhaus calculated that over the course of a decade the direct and indirect costs of the war to the United States could be as low as $121 billion or as high as $1.6 trillion. This was a more thoroughgoing approach than the congressional budget committees had taken, but it was similar in its overall outlook. Nordhaus told me recently that he thinks he should have increased all his

actually
$2 trillion & counting
Military times

estimates to account for the "opportunity costs" of stationing soldiers in Iraq—that is, if they are assigned to Iraq, they're not available for deployment somewhere else.

On the last day of December, Mitch Daniels, the director of the Office of Management and Budget, told *The New York Times* that the war might cost $50 billion to $60 billion. He had to backtrack immediately, his spokesman stressing that "it is impossible to know what any military campaign would ultimately cost." The spokesman explained Daniels's mistake by saying, "The only cost estimate we know of in this arena is the Persian Gulf War, and that was a sixty-billion-dollar event." Daniels would leave the Administration, of his own volition, five months later.

In the immediate run-up to the war the Administration still insisted that the costs were unforeseeable. "Fundamentally, we have no idea what is needed unless and until we get there on the ground," Paul Wolfowitz told the House Budget Committee on February 27, with combat less than three weeks away. "This delicate moment—when we are assembling a coalition, when we are mobilizing people inside Iraq and throughout the region to help us in the event of war, and when we are still trying, through the United Nations and by other means, to achieve a peaceful solution without war—is not a good time to publish highly suspect numerical estimates and have them drive our declaratory policy."

Wolfowitz's stonewalling that day was in keeping with the policy of all senior Administration officials. Until many months after combat had begun, they refused to hazard even the vaguest approximation of what financial costs it might involve. Shinseki, so often at odds with OSD, contemplated taking a different course. He was scheduled to testify, with Thomas White, before the Senate Appropriations Committee on March 19, which turned out to be the first day of actual combat. In a routine prep session before the hearing he asked his assistants what he should say about how much the operations in Iraq were going to cost. "Well, it's impossible to predict," a briefer began, reminding him of the official line.

Shinseki cut him off. "We don't know everything," he said, and then he went through a list of the many things the military already did know. "We know how many troops are there now, and the projected numbers. We know how much it costs to feed them every day. We know how much it cost to send the force there. We know what we have spent already to prepare the force and how much it would cost to bring them back. We have estimates of how much fuel and ammunition we would use per day of operations." In short, anyone who actually wanted to make an estimate had plenty of information on hand.

At this point Jerry Sinn, a three-star general in charge of the Army's budget, said that in fact he had worked up some numbers—and he named a figure, for the Army's likely costs, in the tens of billions of dollars. But when Senator Byron Dorgan, of North Dakota, asked Shinseki at hearings on March 19 how much the war just beginning would cost, Shinseki was loyally vague ("Any potential discussion about what an operation in Iraq or any follow-on probably is undefined at this point").

When Administration officials stopped being vague, they started being unrealistic. On March 27, eight days into combat, members of the House Appropriations Committee asked Paul Wolfowitz for a figure. He told them that whatever it was, Iraq's oil supplies would keep it low. "There's a

lot of money to pay for this," he said. "It doesn't have to be U.S. taxpayer money. We are dealing with a country that can really finance its own reconstruction, and relatively soon." On April 23 Andrew Natsios, of USAID, told an incredulous Ted Koppel, on *Nightline*, that the total cost to America of reconstructing Iraq would be $1.7 billion. Koppel shot back, "I mean, when you talk about one-point-seven, you're not suggesting that the rebuilding of Iraq is gonna be done for one-point-seven billion dollars?" Natsios was clear: "Well, in terms of the American taxpayers' contribution, I do; this is it for the U.S. The rest of the rebuilding of Iraq will be done by other countries who have already made pledges ... But the American part of this will be one-point-seven billion dollars. We have no plans for any further-on funding for this." Only in September did President Bush make his request for a supplemental appropriation of $87 billion for operations in Iraq.

Planning for the postwar period intensified in December. The Council on Foreign Relations, working with the Baker Institute for Public Policy, at Rice University, convened a working group on "guiding principles for U.S. post-war conflict policy in Iraq." Leslie Gelb, then the president of the Council on Foreign Relations, said that the group would take no position for or against the war. But its report, which was prepared late in January of last year, said that "U.S. and coalition military units will need to pivot quickly from combat to peacekeeping operations in order to prevent post-conflict Iraq from descending into anarchy." The report continued, "Without an initial and broad-based commitment to law and order, the logic of score-settling and revenge-taking will reduce Iraq to chaos."

The momentum toward war put officials at the United Nations and other international organizations in a difficult position. On the one hand, they had to be ready for what was coming; on the other, it was awkward to be seen discussing the impending takeover of one of their member states by another. "Off-the-record meetings were happening in every bar in New York," one senior UN official told me in the fall. An American delegation that included Pentagon representatives went to Rome in December for a confidential meeting with officials of the UN's World Food Programme, to discuss possible food needs after combat in Iraq. As *The Wall Street Journal* later reported, the meeting was uncomfortable for both sides: the Americans had to tell the WFP officials, as one of them recalled, "It is looking most probable you are going to witness one of the largest military engagements since the Second World War." This was hyperbole (Korea? Vietnam?), but it helped to convince the WFP that relief preparations should begin.

On December 11 an ice storm hit the Mid-Atlantic states. For Conrad Crane and his associates at the Army War College, deep in their crash effort to prepare their report on postwar Army challenges, this was a blessing. "The storm worked out perfectly," Crane told me afterward. "We were all on the post, there was no place anyone could go, we basically had the whole place to ourselves."

By the end of the month the War College team had assembled a draft of its report, called "Reconstructing Iraq: Insights, Challenges, and Missions for Military Forces in a Post-Conflict Scenario." It was not classified, and can be found through the Army War College's Web site.

The War College report has three sections. The first is a review of twentieth-century occupations—from the major efforts in Japan and Germany to the smaller and more recent ones

in Haiti, Panama, and the Balkans. The purpose of the review is to identify common situations that occupiers might face in Iraq. The discussion of Germany, for instance, includes a detailed account of how U.S. occupiers "de-Nazified" the country without totally dismantling its bureaucracy or excluding everyone who had held a position of responsibility. (The main tool was a *Fragebogen*, or questionnaire, about each person's past activities, which groups of anti-Nazi Germans and Allied investigators reviewed and based decisions on.)

The second section of the report is an assessment of the specific problems likely to arise in Iraq, given its ethnic and regional tensions and the impact of decades of Baathist rule. Most Iraqis would welcome the end of Saddam Hussein's tyranny, it said. Nonetheless,

Long-term gratitude is unlikely and suspicion of U.S. motives will increase as the occupation continues. A force initially viewed as liberators can rapidly be relegated to the status of invaders should an unwelcome occupation continue for a prolonged time. Occupation problems may be especially acute if the United States must implement the bulk of the occupation itself rather than turn these duties over to a postwar international force.

If these views about the risk of disorder and the short welcome that Americans would enjoy sound familiar, that is because every organization that looked seriously into the situation sounded the same note.

The last and most distinctive part of the War College report is its "Mission Matrix"—a 135-item checklist of what tasks would have to be done right after the war and by whom. About a quarter of these were "critical tasks" for which the military would have to be prepared long before it reached Baghdad: securing the borders so that foreign terrorists would not slip in (as they in fact did), locating and destroying WMD supplies, protecting religious sites, performing police and security functions, and so on. The matrix was intended to lay out a phased shift of responsibilities, over months or years, from a mainly U.S. occupation force to international organizations and, finally, to sovereign Iraqis. By the end of December copies of the War College report were being circulated throughout the Army.

According to the standard military model, warfare unfolds through four phases: "deterrence and engagement," "seize the initiative," "decisive operations," and "post-conflict." Reality is never divided quite that neatly, of course, but the War College report stressed that Phase IV "post-conflict" planning absolutely had to start as early as possible, well before Phase III "decisive operations"—the war itself. But neither the Army nor the other services moved very far past Phase III thinking. "All the A-Team guys wanted to be in on Phase III, and the B-team guys were put on Phase IV," one man involved in Phase IV told me. Frederick Barton, of the Center for Strategic and International Studies, who was involved in postwar efforts in Haiti, Rwanda, and elsewhere, put it differently. "If you went to the Pentagon before the war, all the concentration was on the war," he said. "If you went there during the war, all the concentration was on the war. And if you went there after the war, they'd say, 'That's Jerry Bremer's job.'" Still, the War College report confirmed what the Army leadership already suspected: that its real challenges would begin when it took control of Baghdad.

Two Months Before the War

On January 27, 2003, the chief UN weapons inspector, Hans Blix, reported that "Iraq appears not to have come to a genuine acceptance, not even today, of the disarmament that was demanded of it." Twenty-four hours later, in his State of the Union address, President Bush said that the United States was still hoping for UN endorsement of an action against Iraq—but would not be limited by the absence of one.

Increasingly the question in Washington about war was When? Those arguing for delay said that it would make everything easier. Perhaps Saddam Hussein would die. Perhaps he would flee or be overthrown. Perhaps the UN inspectors would find his weapons, or determine conclusively that they no longer existed. Perhaps the United States would have time to assemble, if not a broad alliance for the battle itself, at least support for reconstruction and occupation, so that U.S. soldiers and taxpayers would not be left with the entire job. Even if the responsibility were to be wholly America's, each passing month would mean more time to plan the peace as thoroughly as the war: to train civil-affairs units (which specialize in peacekeeping rather than combat), and to hire Arabic-speakers. Indeed, several months into the U.S. occupation a confidential Army "lessons learned" study said that the "lack of competent interpreters" throughout Iraq had "impeded operations." Most of the "military linguists" who were operating in Iraq, the study said, "basically [had] the ability to tell the difference between a burro and a burrito."

Those arguing against delay said that the mere passage of time wouldn't do any good and would bring various risks. The world had already waited twelve years since the Gulf War for Saddam Hussein to disarm. Congress had already voted to endorse the war. The Security Council had already shown its resolve. The troops were already on their way. Each passing day, in this view, was a day in which Saddam Hussein might deploy his weapons of terror.

Early in January the National Intelligence Council, at the CIA, ran a two-day exercise on postwar problems. Pentagon representatives were still forbidden by OSD to attend. The exercise covered issues similar to those addressed in the Future of Iraq and Army War College reports—and, indeed, to those considered by the Council on Foreign Relations and the Senate Foreign Relations Committee: political reconstruction, public order, border control, humanitarian problems, finding and securing WMD.

On January 15 the humanitarian groups that had been meeting at USAID asked for a meeting with Donald Rumsfeld or Paul Wolfowitz. They never got one. At an earlier meeting, according to a participant, they had been told, "The President has already spent an hour on the humanitarian issues." The most senior Pentagon official to meet with them was Joseph Collins, a deputy assistant secretary of defense. The representatives of the NGOs were generally the most senior and experienced figures from each organization; the government representatives were not of the same stature. "Without naming names, the people we met were not real decision-makers," Joel Charny says.

On January 24 a group of archaeologists and scholars went to the Pentagon to brief Collins and other officials about the most important historic sites in Iraq, so that they could be spared in bombing. Thanks to precision targeting, the sites would indeed survive combat. Many, of course, were pillaged almost immediately afterward.

On January 30 the International Rescue Committee, which had been participating in the weekly Iraq Working Group sessions, publicly warned that a breakdown of law and order was likely unless the victorious U.S. forces acted immediately, with martial law if necessary, to prevent it. A week later Refugees International issued a similar warning.

At the end of January, Sam Gardiner entered the picture. Gardiner is a retired Air Force colonel who taught for years at the National War College in Washington. His specialty is war gaming, and through the 1990s he was involved once or twice a year in major simulations involving an attack on Baghdad. In the late 1990s Gardiner had been a visiting scholar at the Swedish National Defense University, where he studied the effects of the bombing of Serbia's electrical grid. The big discovery was how long it took to get the system up and running again, after even a precise and limited attack. "Decapitation" attacks on a regime, like the one planned for Iraq, routinely begin with disabling the electrical grid. Gardiner warned that this Phase III step could cause big Phase IV problems.

Late in 2002 Gardiner had put together what he called a "net assessment" of how Iraq would look after a successful U.S. attack. His intended audience, in government, would recognize the designation as droll. "Net assessment" is a familiar term for a CIA-style intelligence analysis, but Gardiner also meant it to reflect the unusual origin of his data: none of it was classified, and all of it came from the Internet. Through the power of search engines Gardiner was able to assemble what in other days would have seemed like a secret inside look at Iraq's infrastructure. He found electricity diagrams for the pumps used at Iraq's main water stations; he listed replacement parts for the most vulnerable elements of the electrical grid. He produced a scheme showing the elements of the system that would be easiest to attack but then quickest to repair. As it happened, damage to the electrical grid was a major postwar problem. Despite the precision of the bombing campaign, by mid-April wartime damage and immediate postwar looting had reduced Baghdad's power supply to one fifth its pre-war level, according to an internal Pentagon study. In mid-July the grid would be back to only half its pre-war level, working on a three-hours-on, three-hours-off schedule.

On January 19 Gardiner presented his net assessment, with information about Iraq's water, sewage, and public-health systems as well as its electrical grid, at an unclassified forum held by the RAND Corporation, in Washington. Two days later he presented it privately to Zalmay Khalilzad. Khalilzad was a former RAND analyst who had joined the Bush Administration's National Security Council and before the war was named the President's "special envoy and ambassador-at-large for Free Iraqis." (He has recently become the U.S. ambassador to Afghanistan.) Gardiner told me recently that Khalilzad was sobered by what he heard, and gave Gardiner a list of other people in the government who should certainly be shown the assessment. In the next few weeks Gardiner presented his findings to Bear McConnell, the USAID official in charge of foreign disaster relief, and Michael Dunn, an Air Force general who had once been Gardiner's student and worked with the Joint Chiefs of Staff as acting director for strategic plans and policy. A scheduled briefing with Joseph Collins, who was becoming the Pentagon's point man for postwar planning, was canceled at the last minute, after a description of Gardiner's report appeared in *Inside the Pentagon*, an influential newsletter.

The closer the nation came to war, the more the Administration seemed to view people like Gardiner as virtual Frenchmen—that is, softies who would always find some excuse to oppose the war. In one sense they were right. "It became clear that what I was really arguing was that we had to delay the war," Gardiner told me. "I was saying, 'We aren't ready, and in just six or eight weeks there is no way to get ready for everything we need to do.'" (The first bombs fell on Baghdad eight weeks after Gardiner's meeting with Khalilzad.) "Everyone was very interested and very polite and said I should talk to other people," Gardiner said. "But they had that 'Stalingrad stare'—people who had been doing stuff under pressure for too long and hadn't had enough sleep. You want to shake them and say, 'Are you really with me?'"

At the regular meeting of the Iraq Working Group on January 29, the NGO representatives discussed a recent piece of vital news. The Administration had chosen a leader for all postwar efforts in Iraq: Jay M. Garner, a retired three-star Army general who had worked successfully with the Kurds at the end of the Gulf War. The NGO representatives had no fault to find with the choice of Garner, but they were concerned, because his organization would be a subunit of the Pentagon rather than an independent operation or part of a civilian agency. "We had been pushing constantly to have reconstruction authority based in the State Department," Joel Charny told me. He and his colleagues were told by Wendy Chamberlin, a former ambassador to Pakistan who had become USAID's assistant administrator for the area including Iraq, that the NGOs should view Garner's appointment as a victory. After all, Garner was a civilian, and his office would draw representatives from across the government. "We said, 'C'mon, Wendy, his office is *in the Pentagon*!'" Charny says. Jim Bishop, a former U.S. ambassador who now works for InterAction, pointed out that the NGOs, like the U.S. government, were still hoping that other governments might help to fund humanitarian efforts. Bishop asked rhetorically, "Who from the international community is going to fund reconstruction run through the Pentagon?"

Garner assembled a team and immediately went to work. What happened to him in the next two months is the best-chronicled part of the postwar fiasco. He started from scratch, trying to familiarize himself with what the rest of the government had already done. On February 21 he convened a two-day meeting of diplomats, soldiers, academics, and development experts, who gathered at the National Defense University to discuss postwar plans. "The messiah could not have organized a sufficient relief and reconstruction or humanitarian effort in that short a time," a former CIA analyst named Judith Yaphe said after attending the meeting, according to Mark Fineman, Doyle McManus, and Robin Wright, of the *Los Angeles Times*. (Fineman died of a heart attack last fall, while reporting from Baghdad.) Garner was also affected by tension between OSD and the rest of the government. Garner had heard about the Future of Iraq project, although Rumsfeld had told him not to waste his time reading it. Nonetheless, he decided to bring its director, Thomas Warrick, onto his planning team. Garner, who clearly does not intend to be the fall guy for postwar problems in Baghdad, told me last fall that Rumsfeld had asked him to kick Warrick off his staff. In an interview with the BBC last November, Garner confirmed details of the firing that had earlier been published in Newsweek. According to Garner, Rumsfeld asked him, "Jay, have you got a guy named Warrick on your team?" "I said, 'Yes, I do.' He said, 'Well, I've got to ask you to remove him.' I said, 'I don't want to remove him; he's too valuable.' But he said, 'This came to me from such a high level that I can't overturn it, and I've just got to ask you to remove Mr. Warrick.'" *Newsweek*'s conclusion was that the man giving the instructions was Vice President Cheney.

This is the place to note that in several months of interviews I never once heard someone say "We took this step because the President indicated ..." or "The President really wanted ..." Instead I heard "Rumsfeld wanted," "Powell thought," "The Vice President pushed," "Bremer asked," and so on. One need only compare this with any discussion of foreign policy in Reagan's or Clinton's Administration—or Nixon's, or Kennedy's, or Johnson's, or most others—to sense how unusual is the absence of the President as prime mover. The other conspicuously absent figure was Condoleezza Rice, even after she was supposedly put in charge of coordinating Administration policy on Iraq, last October. It is possible that the President's confidants are so discreet that they have kept all his decisions and instructions secret. But that would run counter to the fundamental nature of bureaucratic Washington, where people cite a President's authority whenever they possibly can ("The President feels strongly about this, so ...").

To me, the more likely inference is that Bush took a strong overall position—fighting terrorism is this generation's challenge—and then was exposed to only a narrow range of options worked out by the contending forces within his Administration. If this interpretation proves to be right, and if Bush did in fact wish to know more, then blame will fall on those whose responsibility it was to present him with the widest range of choices: Cheney and Rice.

One Month Before the War

On February 14 Hans Blix reaffirmed to the United Nations his view that Iraq had decided to cooperate with inspectors. The division separating the United States and Britain from France, Germany, and Russia became stark. On February 15 antiwar demonstrators massed in major cities around the world: a million in Madrid, more than a million in Rome, and a million or more in London, the largest demonstration in Britain's history.

On February 21 Tony Blair joined George Bush at Camp David, to underscore their joint determination to remove the threat from Iraq.

Three Weeks Before the War

As the war drew near, the dispute about how to conduct it became public. On February 25 the Senate Armed Services Committee summoned all four Chiefs of Staff to answer questions about the war—and its aftermath. The crucial exchange began with a question from the ranking Democrat, Carl Levin. He asked Eric Shinseki, the Army Chief of Staff, how many soldiers would be required not to defeat Iraq but to occupy it. Well aware that he was at odds with his civilian superiors at the Pentagon, Shinseki at first deflected the question. "In specific numbers," he said, "I would have to rely on combatant commanders' exact requirements. But I think ..." and he trailed off.

"How about a range?" Levin asked. Shinseki replied—and recapitulated the argument he had made to Rumsfeld.

I would say that what's been mobilized to this point, something on the order of several hundred thousand soldiers, are probably, you know, a figure that would be required.

We're talking about post-hostilities control over a piece of geography that's fairly significant, with the kinds of ethnic tensions that could lead to other problems. And so, it takes significant ground force presence to maintain safe and secure environment to ensure that the people are fed, that water is distributed, all the normal responsibilities that go along with administering a situation like this.

Two days later Paul Wolfowitz appeared before the House Budget Committee. He began working through his prepared statement about the Pentagon's budget request and then asked permission to "digress for a moment" and respond to recent commentary, "some of it quite outlandish, about what our postwar requirements might be in Iraq." Everyone knew he meant Shinseki's remarks.

"I am reluctant to try to predict anything about what the cost of a possible conflict in Iraq would be," Wolfowitz said, "or what the possible cost of reconstructing and stabilizing that country afterwards might be." This was more than reluctance—it was the Administration's consistent policy before the war. "But some of the higher-end predictions that we have been hearing recently, such as the notion that it will take several hundred thousand U.S. troops to provide stability in post-Saddam Iraq, are wildly off the mark."

This was as direct a rebuke of a military leader by his civilian superior as the United States had seen in fifty years. Wolfowitz offered a variety of incidental reasons why his views were so different from those he alluded to: "I would expect that even countries like France will have a strong interest in assisting Iraq's reconstruction," and "We can't be sure that the Iraqi people will welcome us as liberators ... [but] I am reasonably certain that they will greet us as liberators, and that will help us to keep requirements down." His fundamental point was this: "It's hard to conceive that it would take more forces to provide stability in post-Saddam Iraq than it would take to conduct the war itself and to secure the surrender of Saddam's security forces and his army. Hard to imagine."

None of the government working groups that had seriously looked into the question had simply "imagined" that occupying Iraq would be more difficult than defeating it. They had presented years' worth of experience suggesting that this would be the central reality of the undertaking. Wolfowitz either didn't notice this evidence or chose to disbelieve it. What David Halberstam said of Robert McNamara in *The Best and the Brightest* is true of those at OSD as well: they were brilliant, and they were fools.

Two Weeks Before the War

At the beginning of March, Andrew Natsios won a little-noticed but crucial battle. Because the United States had not yet officially decided whether to go to war, Natsios had not been able to persuade the Office of Management and Budget to set aside the money that USAID would need for immediate postwar efforts in Iraq. The battle was the more intense because Natsios, unlike his counterparts at the State Department, was both privately and publicly supportive of the case for war. Just before combat he was able to arrange an emergency $200 million grant from USAID to the World Food Programme. This money could be used to buy food immediately for Iraqi relief operations—and it helped to ensure that there were no postwar food shortages.

One Week Before the War

On March 13 humanitarian organizations had gathered at USAID headquarters for what was effectively the last meeting of the Iraq Working Group. Wendy Chamberlin, the senior USAID official present, discussed the impending war in terms that several participants noted, wrote down, and later mentioned to me. "It's going to be very quick," she said, referring to the actual war. "We're going to meet their immediate needs. We're going to turn it over to the Iraqis. And we're going to be out within the year."

On March 17 the United States, Britain, and Spain announced that they would abandon their attempt to get a second Security Council vote in favor of the war, and President Bush gave Saddam Hussein an ultimatum: leave the country within forty-eight hours or suffer the consequences. On March 19 the first bombs fell on Baghdad.

Afterward

On April 9 U.S. forces took Baghdad. On April 14 the Pentagon announced that most of the fighting was over. On May 1 President Bush declared that combat operations were at an end. By then looting had gone on in Baghdad for several weeks. "When the United States entered Baghdad on April 9, it entered a city largely undamaged by a carefully executed military campaign," Peter Galbraith, a former U.S. ambassador to Croatia, told a congressional committee in June. "However, in the three weeks following the U.S. takeover, unchecked looting effectively gutted every important public institution in the city—with the notable exception of the oil ministry." On April 11, when asked why U.S. soldiers were not stopping the looting, Donald Rumsfeld said, "Freedom's untidy, and free people are free to make mistakes and commit crimes and do bad things. They're also free to live their lives and do wonderful things, and that's what's going to happen here."

This was a moment, as when he tore up the TPFDD, that Rumsfeld crossed a line. His embrace of "uncertainty" became a reckless evasion of responsibility. He had only disdain for "predictions," yes, and no one could have forecast every circumstance of postwar Baghdad. But virtually everyone who had thought about the issue had warned about the risk of looting. U.S. soldiers could have prevented it—and would have, if so instructed.

The looting spread, destroying the infrastructure that had survived the war and creating the expectation of future chaos. "There is this kind of magic moment, which you can't imagine until you see it," an American civilian who was in Baghdad during the looting told me. "People are used to *someone* being in charge, and when they realize no one is, the fabric rips."

On May 6 the Administration announced that Bremer would be the new U.S. administrator in Iraq. Two weeks into that job Bremer disbanded the Iraqi army and other parts of the Baathist security structure.

If the failure to stop the looting was a major sin of omission, sending the Iraqi soldiers home was, in the view of nearly everyone except those who made the decision, a catastrophic error of commission. There were two arguments for taking this step. First, the army had "already

disbanded itself," as Douglas Feith put it to me—soldiers had melted away, with their weapons. Second, the army had been an integral part of the Sunni-dominated Baathist security structure. Leaving it intact would be the wrong symbol for the new Iraq—especially for the Shiites, whom the army had oppressed. "These actions are part of a robust campaign to show the Iraqi people that the Saddam regime is gone, and will never return," a statement from Bremer's office said.

The case against wholesale dissolution of the army, rather than a selective purge at the top, was that it created an instant enemy class: hundreds of thousands of men who still had their weapons but no longer had a paycheck or a place to go each day. Manpower that could have helped on security patrols became part of the security threat. Studies from the Army War College, the Future of Iraq project, and the Center for Strategic and International Studies, to name a few, had all considered exactly this problem and suggested ways of removing the noxious leadership while retaining the ordinary troops. They had all warned strongly against disbanding the Iraqi army. The Army War College, for example, said in its report, "To tear apart the Army in the war's aftermath could lead to the destruction of one of the only forces for unity within the society."

"This is not something that was dreamed up by somebody at the last minute," Walter Slocombe—who held Feith's job, undersecretary of defense for policy, during the Clinton Administration, and who is now a security adviser on Bremer's team—told Peter Slevin, of *The Washington Post*, last November. He said that he had discussed the plan with Wolfowitz at least once and with Feith several times, including the day before the order was given. "The critical point," he told Slevin, "was that nobody argued that we shouldn't do this." No one, that is, the Administration listened to.

Here is the hardest question: How could the Administration have thought that it was safe to proceed in blithe indifference to the warnings of nearly everyone with operational experience in modern military occupations? Saying that the Administration considered this a truly urgent "war of necessity" doesn't explain the indifference. Even if it feared that Iraq might give terrorists fearsome weapons at any moment, it could still have thought more carefully about the day after the war. World War II was a war of absolute necessity, and the United States still found time for detailed occupation planning.

The President must have known that however bright the scenarios, the reality of Iraq eighteen months after the war would affect his re-election. The political risk was enormous and obvious. Administration officials must have believed not only that the war was necessary but also that a successful occupation *would not require* any more forethought than they gave it.

It will be years before we fully understand how intelligent people convinced themselves of this. My guess is that three factors will be important parts of the explanation.

One is the panache of Donald Rumsfeld. He was near the zenith of his influence as the war was planned. His emphasis on the vagaries of life was all the more appealing within his circle because of his jauntiness and verve. But he was not careful about remembering his practical obligations. Precisely because he could not foresee all hazards, he should have been more

zealous about avoiding the ones that were evident—the big and obvious ones the rest of the government tried to point out to him.

A second is the triumphalism of the Administration. In the twenty-five years since Ronald Reagan's rise, political conservatives have changed position in a way they have not fully recognized. Reagan's arrival marked the end of a half century of Democrat-dominated government in Washington. Yes, there has been one Democratic President since Reagan, and eventually there will be others. But as a rule the Republicans are now in command. Older Republicans—those who came of age in the 1960s and 1970s, those who are now in power in the Administration—have not fully adjusted to this reality. They still feel like embattled insurgents, as if the liberals were in the driver's seat. They recognize their electoral strength but feel that in the battle of ideology their main task is to puncture fatuous liberal ideas.

The consequence is that Republicans are less used to exposing their own ideas to challenges than they should be. Today's liberals *know* there is a challenge to every aspect of their world view. All they have to do is turn on the radio. Today's conservatives are more likely to think that any contrary ideas are leftovers from the tired 1960s, much as liberals of the Kennedy era thought that conservatives were in thrall to Herbert Hoover. In addition, the conservatives' understanding of modern history makes them think that their instincts are likely to be right and that their critics will be proved wrong. Europeans scorned Ronald Reagan, and the United Nations feared him, but in the end the Soviet Union was gone. So for reasons of personal, political, and intellectual history, it is understandable that members of this Administration could proceed down one path in defiance of mounting evidence of its perils. The Democrats had similar destructive self-confidence in the 1960s, when they did their most grandiose Great Society thinking.

The third factor is the nature of the President himself. Leadership is always a balance between making large choices and being aware of details. George W. Bush has an obvious preference for large choices. This gave him his chance for greatness after the September 11 attacks. But his lack of curiosity about significant details may be his fatal weakness. When the decisions of the past eighteen months are assessed and judged, the Administration will be found wanting for its carelessness. Because of warnings it chose to ignore, it squandered American prestige, fortune, and lives.

James Fallows is a contributing writer at The Atlantic and has written for the magazine since the late 1970s. He has reported extensively from outside the United States and once worked as President Jimmy Carter's chief speechwriter. He and his wife, Deborah Fallows, are the authors of the 2018 book Our Towns: A 100,000-Mile Journey Into the Heart of America, which was a national best seller and is the basis of a forthcoming HBO documentary.

The Atlantic, Online March 2020

Trump Leaves States to Fend for Themselves

The coronavirus is America's first 50-state disaster, and each governor is dependent on outside help that may never come.

By Juliette Kayyem

Vladimir Sviracevic / Shutterstock / The Atlantic
March 17, 2020

The United States is about to find out whether the Articles of Confederation would have worked. The nation's Founders scrapped that early charter because it left states to fend for themselves in moments of crisis. The Constitution that replaced it created a stronger federal government. But yesterday, President Donald Trump seemed to turn back the clock. In a conference call with the nation's governors about the coronavirus pandemic, the president declared, "Respirators, ventilators, all of the equipment—try getting it yourselves."

Until now, our country has not faced a disaster that directly threatened all 50 states at the same time. Although 9/11 had consequences for the entire nation, the days and weeks after the attacks—during which states and communities far distant from Ground Zero sent equipment and personnel to New York—were a triumph of a mutual-aid system that presupposes that not everyone is in trouble at once.

But now that containment efforts have so far failed to prevent community transmission of COVID-19 from occurring, governors in every state need to decide how to proceed. With little guidance from the federal government, governors—along with mayors, CEOs, university presidents, and leaders in the sports and entertainment businesses—have taken it upon themselves to try to slow the spread of the virus before it overwhelms the medical system's capacity to respond. Or, better put, a 50-state strategy has emerged to fill the vacuum left by an administration that is still unable to distribute enough testing kits, is still focused on closing borders, and was slow to tell the American public to just stay home.

The actions of governors have been a model of quick thinking—a demonstration of the benefits of federalism when the White House is unprepared and disorganized. But while the administration deserves some criticism, many of the obstacles to faster action are architectural in nature.

The hard part of homeland security often has less to do with the *security* than with the *homeland.* The United States is made up of 50 homelands. Even though the Constitution gives federal authorities more power than the Articles of Confederation did, our governance structure was still designed to limit the role of the central government. The Tenth Amendment reserves powers not specifically listed in the Constitution for the states and, through their constitutions, for local governments. Public health and law enforcement are among those powers. Even when the problem is a pathogen that spreads across state and national borders, the principles of federalism still apply.

The standard operating procedure is that the response to a crisis should be locally executed, state-managed, and federally supported. Local communities are supposed to maintain control at the operational level; outside resources and assistance flow in should the need arise. A governor helps a mayor manage a crisis by drawing on the resources of other jurisdictions within the state's borders. Should that not be enough, a state emergency-management agency will seek other states' assistance. This is quite a formal process, known as the Emergency Management Assistance Compact, and it essentially sets up a deployment-and-payment structure. It is, for example, how firefighters from Massachusetts assist with fighting wildfires in California. They don't just show up.

With the coronavirus, state and federal authorities can talk a big game about unity of effort—*we are all in this together*—but the nation's governance structure will make this more like musical chairs. No state wants to be the last one to secure necessary equipment. And so the operational difficulty is obvious: Every state's emergency-management plans foresee an influx of resources and personnel through mutual-aid agreements with other states. But because all other states will be in the same bind, no one will be willing to share. Every governor will have good reason to hold back resources. Even a state that is currently reporting no COVID-19 cases cannot afford to send any capacity outside the state. How could it justify doing so?

The coronavirus pandemic won't be the first disaster in which states have had to compete for resources. When five states along the Gulf of Mexico were affected by the BP oil spill, the distribution of resources became a flash point. The federal government had only so much containment boom—the floating lines that keep oil from spreading. So the Obama administration

gave priority to states with pristine coastal wetlands—much to the chagrin of Alabama's governor, who wanted to protect his state's open beachfronts.

That states are rivals rather than allies explains why governors have moved so swiftly and decisively to restrict large gatherings and shut down schools, bars and restaurants, and other businesses. Because testing kits are not readily available, state and local authorities have had to assume the worst about how quickly community transmission is occurring. Because the federal government has not publicly disclosed plans for supplementing civilian efforts with military ones, the governors do not know which resources will be at their disposal. And because the administration has not pushed the private sector very hard to manufacture more equipment for future needs, states have every reason to believe that shortages will occur. They know that their only Plan B is to seek help from next door. Mutual aid doesn't work when everyone needs it.

On Monday, the governors of New York, New Jersey, and Connecticut established three-state guidelines on social distancing and limits on recreation. Collaborative decisions like that are important. But who wins a fight for more respirators? As we head toward a crisis that will require a lot more stuff—ventilators, intensive-care beds, military field hospitals, temporary hospitals, volunteer staff to help, and the expansion of paid staff, at a minimum—the federal government has not seriously prepared for the surge of resources that will be needed.

For governors, the coronavirus isn't a national disaster; it's a 50-state disaster. If and when a surge of cases comes, every state is on its own.

Juliette Kayyem is a contributing writer at The Atlantic, the faculty chair of the homeland-security program at Harvard's Kennedy School of Government, and the author of The Devil Never Sleeps: Learning to Live in an Age of Disasters.

New York Times, October 13, 2013

From the Start, Signs of Trouble at Health Portal

By ROBERT PEAR, SHARON LaFRANIERE and IAN AUSTEN.

WASHINGTON — In March, Henry Chao, the chief digital architect for the Obama administration's new online insurance marketplace, told industry executives that he was deeply worried about the Web site's debut. "Let's just make sure it's not a third-world experience," he told them.

Two weeks after the rollout, few would say his hopes were realized.

For the past 12 days, a system costing more than $400 million and billed as a one-stop click-and-go hub for citizens seeking health insurance has thwarted the efforts of millions to simply log in. The growing national outcry has deeply embarrassed the White House, which has refused to say how many people have enrolled through the federal exchange.

Even some supporters of the Affordable Care Act worry that the flaws in the system, if not quickly fixed, could threaten the fiscal health of the insurance initiative, which depends on throngs of customers to spread the risk and keep prices low.

"These are not glitches," said an insurance executive who has participated in many conference calls on the federal exchange. Like many people interviewed for this article, the executive spoke on the condition of anonymity, saying he did not wish to alienate the federal officials with whom he works. "The extent of the problems is pretty enormous. At the end of our calls, people say, 'It's awful, just awful.' "

Interviews with two dozen contractors, current and former government officials, insurance executives and consumer advocates, as well as an examination of confidential administration documents, point to a series of missteps — financial, technical and managerial — that led to the troubles.

Politics made things worse. To avoid giving ammunition to Republicans opposed to the project, the administration put off issuing several major rules until after last November's elections. The Republican-controlled House blocked funds. More than 30 states refused to set up their own exchanges, requiring the federal government to vastly expand its project in unexpected ways.

The stakes rose even higher when Congressional opponents forced a government shutdown in the latest fight over the health care law, which will require most Americans to have health

insurance. Administration officials dug in their heels, repeatedly insisting that the project was on track despite evidence to the contrary.

Dr. Donald M. Berwick, the administrator of the federal Centers for Medicare and Medicaid Services in 2010 and 2011, said the time and budgetary pressures were a constant worry. "The staff was heroic and dedicated, but we did not have enough money, and we all knew that," he said in an interview on Friday.

Administration officials have said there is plenty of time to resolve the problems before the mid-December deadline to sign up for coverage that begins Jan. 1 and the March 31 deadline for coverage that starts later. A round-the-clock effort is under way, with the government leaning more heavily on the major contractors, including the United States subsidiary of the Montreal-based CGI Group and Booz Allen Hamilton.

One person familiar with the system's development said that the project was now roughly 70 percent of the way toward operating properly, but that predictions varied on when the remaining 30 percent would be done. "I've heard as little as two weeks or as much as a couple of months," that person said. Others warned that the fixes themselves were creating new problems, and said that the full extent of the problems might not be known because so many consumers had been stymied at the first step in the application process.

Confidential progress reports from the Health and Human Services Department show that senior officials repeatedly expressed doubts that the computer systems for the federal exchange would be ready on time, blaming delayed regulations, a lack of resources and other factors.

Deadline after deadline was missed. The biggest contractor, CGI Federal, was awarded its $94 million contract in December 2011. But the government was so slow in issuing specifications that the firm did not start writing software code until this spring, according to people familiar with the process. As late as the last week of September, officials were still changing features of the Web site, HealthCare.gov, and debating whether consumers should be required to register and create password-protected accounts before they could shop for health plans.

One highly unusual decision, reached early in the project, proved critical: the Medicare and Medicaid agency assumed the role of project quarterback, responsible for making sure each separately designed database and piece of software worked with the others, instead of assigning that task to a lead contractor.

Some people intimately involved in the project seriously doubted that the agency had the in-house capability to handle such a mammoth technical task of software engineering while simultaneously supervising 55 contractors. An internal government progress report in September 2011 identified a lack of employees "to manage the multiple activities and contractors happening concurrently" as a "major risk" to the whole project.

While some branches of the military have large software engineering departments capable of acting as the so-called system integrator, often on medium-size weapons projects, the rest of the federal government typically does not, said Stan Soloway, the president and chief executive of the Professional Services Council, which represents 350 government contractors. CGI officials have publicly said that while their company created the system's overall software framework, the Medicare and Medicaid agency was responsible for integrating and testing all the combined components.

By early this year, people inside and outside the federal bureaucracy were raising red flags. "We foresee a train wreck," an insurance executive working on information technology said in a February interview. "We don't have the I.T. specifications. The level of angst in health plans is growing by leaps and bounds. The political people in the administration do not understand how far behind they are."

The Government Accountability Office, an investigative arm of Congress, warned in June that many challenges had to be overcome before the Oct. 1 rollout.

"So much testing of the new system was so far behind schedule, I was not confident it would work well," Richard S. Foster, who retired in January as chief actuary of the Medicare program, said in an interview last week.

But Mr. Chao's superiors at the Department of Health and Human Services told him, in effect, that failure was not an option, according to people who have spoken with him. Nor was rolling out the system in stages or on a smaller scale, as companies like Google typically do so that problems can more easily and quietly be fixed. Former government officials say the White House, which was calling the shots, feared that any backtracking would further embolden Republican critics who were trying to repeal the health care law.

Marilyn B. Tavenner, the administrator of the Centers for Medicare and Medicaid Services, and Kathleen Sebelius, the secretary of health and human services, both insisted in July that the project was not in trouble. Last month, Gary M. Cohen, the federal official in charge of health insurance exchanges, promised federal legislators that on Oct. 1, "consumers will be able to go

online, they'll be able to get a determination of what tax subsidies they are eligible for, they'll be able to see the premium net of subsidy," and they will be able to sign up.

But just a trickle of the 14.6 million people who have visited the federal exchange so far have managed to enroll in insurance plans, according to executives of major insurance companies who receive enrollment files from the government. And some of those enrollments are marred by mistakes. Insurance executives said the government had sent some enrollment files to the wrong insurer, confusing companies that have similar names but are in different states. Other files were unusable because crucial information was missing, they said.

Many users of the federal exchange were stuck at square one. A New York Times researcher, for instance, managed to register at 6 a.m. on Oct. 1. But despite more than 40 attempts over the next 11 days, she was never able to log in. Her last attempts led her to a blank screen.

Neither Ms. Tavenner nor other agency officials would answer questions about the exchange or its performance last week.

Worried about their reputations, contractors are now publicly distancing themselves from the troubled parts of the federally run project. Eric Gundersen, the president of Development Seed, emphasized that his company had built the home page of HealthCare.gov but had nothing to do with what happened after a user hit the "Apply Now" button.

Senior executives at Oracle, a subcontractor based in California that provided identity management software used in the registration process that has frustrated so many users, defended the company's work. "Our software is running properly," said Deborah Hellinger, Oracle's vice president for corporate communications. The identical software has been widely used in complex systems, she said.

The serious technical problems threaten to obscure what some see as a nationwide demonstration of a desire for more affordable health insurance. The government has been heavily promoting the HealthCare.gov site as the best source of information on health insurance. An August government e-mail said: "35 days to open enrollment." A September e-mail followed: "5 days to open enrollment. Don't wait another minute."

The response was huge. Insurance companies report much higher traffic on their Web sites and many more callers to their phone lines than predicted.

That made the flawed opening all the more disappointing to supporters of the health plan, including Timothy S. Jost, a law professor and a consumer representative to the National Association of Insurance Commissioners.

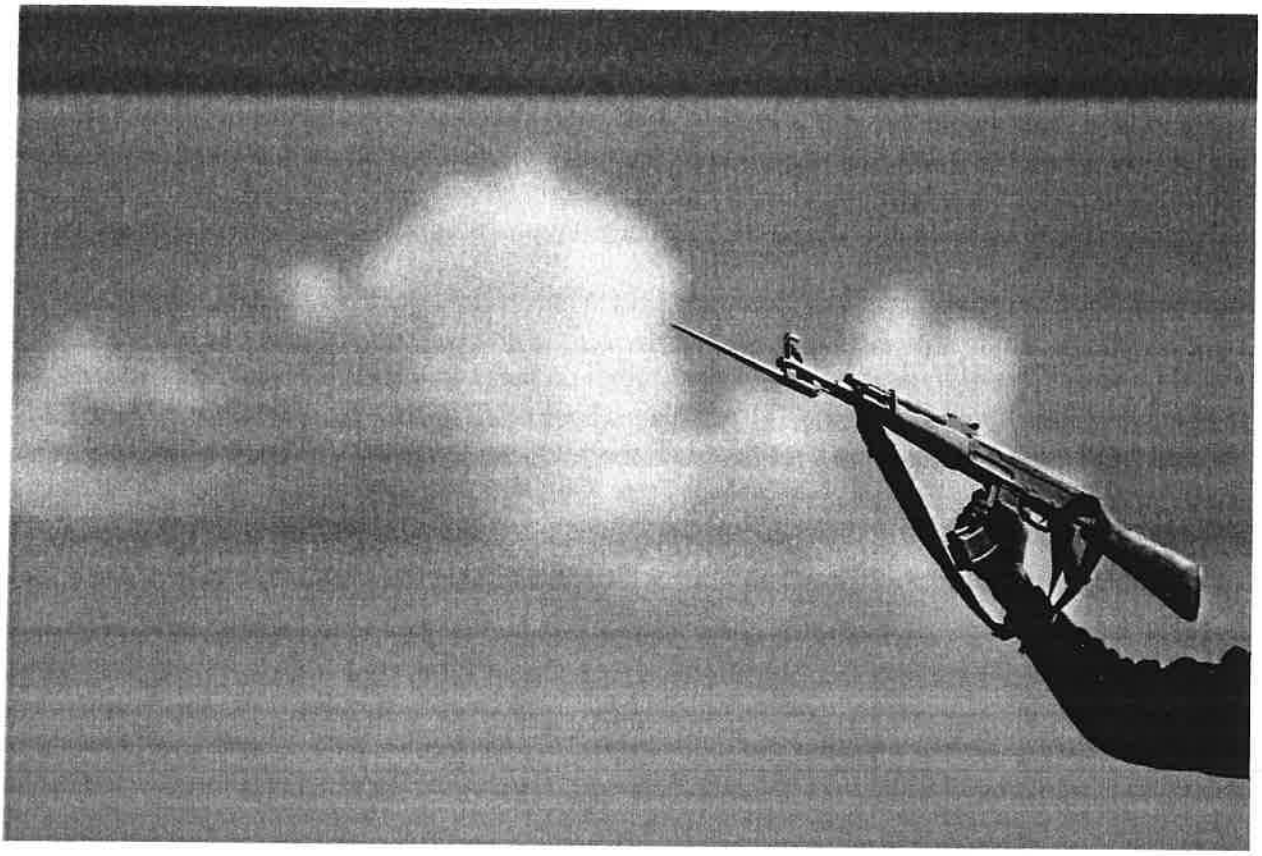
"Even if a fix happens quickly, I remain very disappointed that the Department of Health and Human Services was not better prepared for the rollout," he said.

Robert Pear reported from Washington, Sharon LaFraniere from New York and Ian Austen from Ottawa. Quentin Hardy contributed reporting from San Francisco, and Kitty Bennett contributed research.

APRIL 19, 2023

What America Didn't Understand About Its Longest War

That the war went on so long may be tragic, but it is hardly surprising.



An Afghan militiaman raises his rifle in Afghanistan's Bajur tribal region, March 2010. | AP Photo/Muhammed Muheisen

By CARTER MALKASIAN

07/06/2021 04:30 AM EDT

Carter Malkasian is the author of The American War in Afghanistan: A History. *He served as a civilian advisor in Iraq and Afghanistan and was the senior advisor to General Joseph Dunford, Chairman of the Joint Chiefs of Staff, from 2015 to 2019.*

As the United States leaves Afghanistan after 20 years of war, there can be little doubt that we lost the war — or to put it more gently, did not attain our objectives. In recent weeks, the Taliban have advanced across the north of the country. Bereft of U.S. support, the Afghan army and police have reportedly lost more than two dozen districts over the course of a month and are now fighting on the outskirts of key cities such as Kandahar and Mazar-e-Sharif. Senior U.S. officials have warned of a civil war, while intelligence reports are said to forecast the fall of the Afghan

government — which the United States has worked to strengthen for two decades — within a year.

Why did we lose? I've been trying to answer that question for 12 years, starting in 2009 when I was a civilian officer in the far-off district of Garmser in Helmand Province. I continued to ponder the question in 2013 and 2014, when I served as political adviser to Gen. Joseph Dunford, commander of all U.S. forces in Afghanistan, and later as Dunford's senior adviser when he was chairman of the Joint Chiefs of Staff. As I traveled the country with senior U.S. military commanders, I saw that in battle after battle, numerically superior and better-supplied soldiers and police were being defeated by poorly resourced and unexceptionally led Taliban — a dynamic certain to eventually doom the Afghan government unless the United States were to stay indefinitely.

I have found no single answer to why we lost the war. While various explanations address different parts of the puzzle, the one I want to highlight here can perhaps be seen most clearly in the conversations I've had with the Taliban themselves, often in their native Pashto. "The Taliban fight for belief, for *janat* (heaven) and *ghazi* (killing infidels). … The army and police fight for money," a Taliban religious scholar from Kandahar told me in 2019. "The Taliban are willing to lose their head to fight. … How can the army and police compete?"

Afghan Taliban fighters listen to one of their leaders speak, November 2015. | AP Photo

The Taliban had an advantage in inspiring Afghans to fight. Their call to fight foreign occupiers, steeped in references to Islamic teachings, resonated with Afghan identity. For Afghans, jihad — more accurately understood as "resistance" or "struggle" than the caricatured meaning it has acquired in the United States — has historically been a means of defense against oppression by outsiders, part of their endurance against invader after invader. Even though Islam preaches unity, justice and peace, the Taliban were able to tie themselves to religion and to Afghan identity in a way that a government allied with non-Muslim foreign occupiers could not match.

The very presence of Americans in Afghanistan trod on a sense of Afghan identity that incorporated national pride, a long history of fighting outsiders and a religious commitment to defend the homeland. It prodded men and women to defend their honor, their religion and their home. It dared young men to fight. It sapped the will of Afghan soldiers and police. The Taliban's ability to link their cause to the very meaning of being Afghan was a crucial factor in America's defeat.

This explanation has been underappreciated by American leaders and experts, myself included. We believed things were possible in Afghanistan — defeat of the Taliban or enabling the Afghan government to stand on its own — that probably were not. That doesn't necessarily mean that we should have abandoned Afghanistan long ago, given what we knew at the time. It does mean that the strategy could have been better managed to avoid expending resources on objectives that were unlikely to be attained. Less money could have been spent. Fewer lives could have been lost. But that America couldn't have done much more than muddle along for years in the face of a relentless enemy is the unsatisfying, sometimes frustrating coda to our longest war.

In 2009, I went to Garmser to serve on a district support team, working alongside a Marine infantry battalion. President Barack Obama's surge was underway and we were trying to drive the Taliban out of most of Helmand Province. I was hopeful, but also interested to understand why violence had returned after the initial calm that had followed the 2001 U.S. invasion. My instinct based on earlier studies of Afghanistan, including Sarah Chayes' classic *The Punishment of Virtue*, was that a main driver of the violence would be grievances — locals driven to fight by mistreatment at the hands of the government or its warlord allies. Indeed, I found ample evidence of grievances — land issues, oppressive policemen and government exploitation of the poppy trade.

Pakistan was also a tremendously important factor for Garmser. The country was already notorious in U.S. government circles for its unwillingness to cooperate against the Taliban, and indeed hundreds of fighters had come from Pakistan to attack the district. Another reason for violence was infighting within the government, its military forces, and its tribal and warlord allies, who failed to unite against the common Taliban threat.

After I left Garmser, I got the chance to view the country from a wider vista as adviser to Dunford. I felt something more was going on. Grievances, Pakistan and infighting could not explain every incident of battlefield defeat. The surge was now over and it was time for the Afghan government to stand on its own so that we could depart. But too often, police and

soldiers were giving up in battle. The average soldier and policeman simply did not want to fight as much as his Taliban counterpart. As a result, the government was losing ground on the edges of what we had regained in the surge. At the time, the losses were a trickle. But we knew if they continued, the government would be unable to control key cities and would be in danger of falling. That trickle of losses would eventually become the flood we are witnessing today.

Afghan security forces in Kabul, Afghanistan, December 2017. | AP Photo/Massoud Hossaini

Corruption was part of the problem. As is well-known, the effectiveness of soldiers and police suffered because government officials or military commanders pocketed their pay, hoarded their ammunition and diluted rosters with ghost soldiers. Yet even after accounting for corruption, the police and army were usually still numerically superior to and better equipped than the Taliban in any given battle.

A stronger explanation was that the police and soldiers did not want to put their lives on the line for a government that was corrupt and prone to neglect them. Still, I knew a number of Afghan commanders who took great pains to care for their men. Could we really rest blame on corrupt, uncaring government leaders when Taliban were fighting for less pay, with fewer heavy weapons, far worse medical care, and leaders that for years hid out in Pakistan while their soldiers fought? Moreover, the Afghan special forces — which far and away have better leaders than the Taliban and are exquisitely supported — still had great difficulty fighting without U.S. air support and advisers.

The question nagged me as I left Afghanistan in August 2014. All of these factors were clearly important, but their sum amounted to something less than the hardship that was playing out before my eyes.

A few months after returning home, I attended a discussion at the State Department with Michael McKinley, the U.S. ambassador to Afghanistan. We were having a lively debate about why the Taliban fight when the ambassador interjected. "Maybe I have read too much Hannah Arendt," he said, referring to the 20th-century philosopher who argued that human action was spurred by fears and past experiences, "but I do not think this is about money or jobs. The Taliban are fighting for something larger." McKinley captured what I was feeling but had not articulated, and what the Taliban scholar would reiterate for me five years later.

The Taliban exemplified something that inspired, something that made them powerful in battle, something tied to what it meant to be Afghan. They cast themselves as representatives of Islam and called for resistance to foreign occupation. Together, these two ideas formed a potent mix for ordinary Afghans, who tend to be devout Muslims but not extremists. Aligned with foreign occupiers, the government mustered no similar inspiration. It could not get its supporters, even if they outnumbered the Taliban, to go to the same lengths. Given its association with the Americans, the government's claim to Islam was fraught, even while the Taliban were able to co-opt Afghans' religiosity in service of their extremist vision. However wrongly, the Taliban could use U.S. occupation to differentiate themselves from the government as truer representatives of Islam. More Afghans were willing to serve on behalf of the government than the Taliban. But more Afghans were willing to kill and be killed for the Taliban. That edge made a difference on the battlefield.

1.

The explanation is powerful, but also dangerous. It can be twisted to mean that all Muslims are bent on war or are fanatics. Such an interpretation would be wrong: Islam is a source of unity and inspiration, not of terrorism or atrocity. To say that a people have sympathy for their countrymen and co-religionists over foreigners is hardly to label Islam as evil. The point is that it is tougher to risk life for country when fighting alongside what some call occupiers, especially when they do not share your faith.

The explanation came up in a variety of conversations and correspondence I have had over the years with Afghans, military commanders, tribal leaders and Taliban themselves. Kandahar's notorious police chief, the late Abdul Razziq, was renowned for caring for his officers and something of an authority on fighting the Taliban. He told me, "Taliban morale is better than

government morale. Taliban morale is very high. Look at their suicide bombers. The Taliban motivate people to do incredible things."

A Taliban religious leader from Paktia made a similar point:

I hear every day of an incident where police or army soldiers are killed. … I do not know if they are committed to fighting the Taliban or not. Many of the police and soldiers are there only for dollars. They are paid good salaries but they do not have the motivation to defend the government. … Taliban are committed to the cause of jihad. This is the biggest victory for them.

More convincingly, multiple surveys of Taliban opinion by Graeme Smith, Ashley Jackson, Theo Farrell, Antonio Giustozzi and others have confirmed that the Taliban fight in part because they believe it their Islamic duty to resist occupation and are convinced their cause will enable them to win. Jackson's survey of 50 Taliban, published in 2019, discovered that they described their decision to join the movement "in terms of religious devotion and jihad—a sense of personal and public duty. In their view, jihad against foreign occupation was a religious obligation, undertaken to defend their values." Jihad was about identity, she concluded.

This thinking extends to ordinary Afghans as well, many of whom do not subscribe to the Taliban's extremist political vision but are sympathetic to their invocation of Islamic principles against foreign occupiers. The 2012 Asia Foundation survey, the most respected survey of the Afghan people, found that of those Afghans who strongly sympathized with the Taliban, 77 percent said they did so because the Taliban were Afghans, Muslims, and waging jihad.

Over time, aware of the government's vulnerable position, Afghan leaders turned to an outside source to galvanize the population: Pakistan. Razziq, President Hamid Karzai and later President Ashraf Ghani used Pakistan as an outside threat to unite Afghans behind them. They refused to characterize the Taliban as anything but a creation of Islamabad. Razziq relentlessly claimed to be fighting a foreign Pakistani invasion. Yet Pakistan could never fully out-inspire occupation. A popular tale related to me in 2018 by an Afghan government official illuminates the reality:

An Afghan army officer and a Taliban commander were insulting each other over their radios while shooting back and forth. The Taliban commander taunted: "You are puppets of America!" The army officer shouted back: "You are the puppets of Pakistan!" The Taliban commander replied: "The Americans are infidels. The Pakistanis are Muslims." The Afghan officer had no response.

Or in the shorter Afghan proverb form: "Over an infidel, be happy with a weak Muslim."

Former Taliban militants surrender their weapons to the Afghan government in a March 2009 ceremony in Herat, Afghanistan. | AP Photo/Fraidoon Pooyaa

The literature to date has respectfully neglected this explanation — in a country where people have eagerly tried to convert me to Islam, where religion defines daily life, and where insults to

Islam instigate riots. The largest popular upheaval I witnessed firsthand in Afghanistan was not over the government's mistreatment of the people or Pakistani perfidy. It was hundreds of angry villagers marching miles to the dusty bazaars of Garmser, protesting a rumor that an American had damaged a Koran.

It would be incorrect to say that U.S. commanders on the ground were oblivious to the morale problems of the Afghan army and police. Certain commanders such as Lt. Gen. Karl Eikenberry realized that the Afghan army desperately needed a sense of nationalism that could never be imbued by foreign forces. But that U.S. occupation might be clashing with Afghan identity and giving the Taliban a significant advantage was rarely considered. Most generals and officials looked instead to solutions such as training, improving leadership, addressing grievances and countering corruption.

In fairness, it is possible that significant improvements in these areas might have made a difference. Theoretically, if grievances had been addressed, or if corruption had been thwarted, or if government leadership had cared more for their troops, it might have counteracted some of the morale problems engendered by fighting alongside an outside occupier. Practically, however, none of these problems were themselves easy to overcome. And it would have been even harder to overcome the Taliban's ability to outfight, outlast and out-believe government forces — the most intractable problem of all.

Will the situation change with U.S. departure? Will the credibility of the Taliban's war against the government weaken when we are gone, allowing Ghani's government to stem the tide of their advance? Maybe, but I am skeptical. Twenty years of foreign support has tarred the government in Kabul. It is all too easy for the Taliban to paint it as a puppet. In the summer of 2014, I was eating dinner, cross-legged in a garden, with two old friends — one a tribal leader, the other a security official — in Lashkar Gah, a town that is today surrounded by Taliban forces. We were talking about the pending departure of U.S. troops, which was then the plan, and I mentioned the dangers of Afghans appearing too frequently alongside Americans. They rolled up their sleeves, pointed to their arms, and said: "The paint is already all over us. There is nothing we can do."

Now, with the Taliban overrunning districts in the north, they will likely press their attack, further emboldened by U.S. departure over the next few weeks. Afghan soldiers and police will suffer from the same morale problems that have plagued them for two decades. Provincial capitals and Kandahar or Mazar-e-Sharif are likely to fall, possibly within a year. After that, Kabul itself will be in danger. The capital may hold, at least for a while, but the government and its allies will struggle to survive, with little chance of regaining what has been lost.

The explanation of how religion, resistance to occupation and Afghan identity intertwined to the advantage of the Taliban and disadvantage of the government helps us make sense of America's 20-year war. This is not the singular explanation for the outcome of the

Afghan war. But it is a necessary one. Its impact is resounding: Any Afghan government, however good and however democratic, could be imperiled as long as it was aligned with the United States. The Taliban were consistently inspired to fight harder and to go to greater lengths than the Afghan army and police. In turn, the United States had to stay longer and longer: civil war in perpetual motion. If any U.S. leader wanted to leave Afghanistan, they had to confront the prospect that the Afghan government was likely to fail, a humiliating future.

What should the United States have done? From today's viewpoint, it's tempting to say we should have left years ago. I don't think that answer accounts for the dilemmas facing the United States — or, indeed, for human fallibility. The idea that we should have simply pulled stakes presumes that we could have recognized the impossibility of winning in Afghanistan much sooner than we did. Moreover, it unrealistically dismisses the terrorist threat that persisted all the way up to the defeat of the Islamic State in 2016 and 2017 and the domestic political risks of ignoring that threat.

A more realistic view might be that the Afghan war was always likely to drift toward something to be endured over the long haul, an unhappy chapter of American history with few opportunities to change course. America could not easily win and America could not easily get out. The fact we stayed so long may be tragic, but it is hardly surprising.

What we could have done is managed our strategy better. For too long, we set expectations that were too high given the difficulties of understanding Afghanistan and the obstacles we were confronting. Worse, we expended resources, especially in the 2009–2011 surge, attempting to attain massive goals within a few years. A thrifty, humble strategy that could be sustained over decades would have been better than heavy investment seeking wholesale change in a short amount of time. Such a strategy would have muddled through, deploying as few forces as possible, aware that trying to force decisive change would be a waste of resources. Obama basically arrived at this strategy by the end of 2015, having forced down U.S. troop levels from nearly 100,000 in 2011 to around 10,000. I think we could have gotten there much sooner. The end result may well have been the same: The terrorist threat would have receded, President Joe Biden would today be pulling out troops, and the Afghan government would be on the ropes. But in the meantime we would have spent less money and lost fewer lives. That would have been a better outcome, if far from a rousing victory.

For the United States, Afghanistan was a long war but also an experience. It feels wrong to cast the entire experience as bad or evil. Better, I think, to see the good as well as the bad. I would not want to forget the friendships Americans forged with thousands of Afghans who were genuinely trying to improve their country, whether a hard-working farmer, an idealistic technocrat, a heroic commando, an overburdened policeman or a pathbreaking young woman. And I certainly would not want to forget the kindness U.S. servicemen and women brought to many Afghan lives and their dedication to protecting Americans at home. For me, America's Afghanistan experience is a dark, cloudy front with points of sunlight. The last thing I want to do is condemn it and all those involved.