

Explaining the 18½ Minute Gap

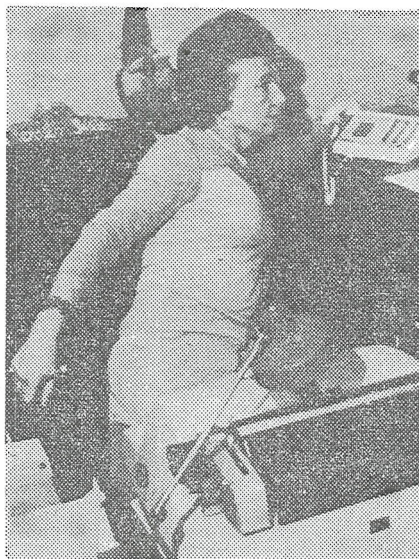
Joseph Alsop's stirring disquisition on the Watergate tapes depicts *Science* magazine as "galloping to the President's rescue in the manner of Young Lochinvar." The immediate intent of the *Science* article was, it should be confessed, less chivalrous. The purpose was simply to show that the panel of experts appointed by Judge Sirica had apparently failed to consider and rule out an alternative explanation of the how the 18½-minute gap on the tape of June 20 might have been caused.

The alternate explanation, as it happens, interprets the various sounds and marks on the erased section as the product of electrical failure rather than that of five to nine separate hand manipulations—whether accidental or deliberate. This would still leave us with an 18½ minute gap, presumably made by one continuous operation and the question of how it was caused. In other words, even if this alternate explanation should be proved correct, there would be a long way yet to go before President Nixon's disentanglement became as simple as Fair Ellen's.

Mr. Alsop writes that the panel of experts "have been accused of tampering with vital evidence. They have also been accused of quite possible gross error." Their behavior was perhaps not quite as felonious as this implies. What happened was that the Uher 5000 tape recorder used by Miss Woods broke down while the panel was carrying out tests. The expert's first instinct was to fix it. They replaced an electrical part called a diode bridge which was saved — not thrown-away—and tightened down a few screws and ground connections. After being fixed the machine wouldn't make its famous buzz any more but the panel was not particularly concerned because they had decided the buzz was irrelevant to their investigation. There can be no question that the repairs on the machine, however inadvisable from a legal point of view, were made completely innocently. Quite apart from the fact that the panel members are men of integrity, all distinguished in their own specialized fields, it is fairly certain that at the time of making the repairs they had not considered the possibility that the malfunction might be the key to the problem.

It was this possibility that was seized upon by Allan D. Bell, president of Dektor Counterintelligence and Security Inc. After reading the summary report of the panel of experts, he and his colleagues at Dektor performed various tests on the Uher 4000 tape recorders they had in their laboratories and on a Uher 5000 which they were able to borrow for a brief period. According to the theory they developed, a defect might have started in the Uher 5000's rectifier, a piece of electrical circuitry which converts alternating current from the main into the direct current needed to drive what is known as the bias oscillator. The bias oscillator, in turn, supplies current to the erase and record heads of the Uher 5000. Because of the defect, the Dektor theory goes, the rectifier in the process of failing might have caused a series of momentary cut-offs in the direct current to the oscillator. The cut-offs would have produced both the brief snatches of speech discovered by the panel on the erased section, as well as the characteristic "signatures" left

Yesterday, on the opposite page, syndicated columnist Joseph Alsop wrote that "the gravest charges have now been convincingly made" against the panel of six experts appointed by Judge John J. Sirica—with the advice and consent of both the White House and Special Prosecutor Leon Jaworski—to investigate the President's Watergate tapes. His column was based on an article in the magazine Science by Nicholas Wade. Today, Mr. Wade offers his own somewhat abbreviated version of that article and of the implications of his "charges."



Rose Mary Woods demonstrates how she believes she may have erased a portion of a White House tape.

by the erase and record heads when they are de-energized. (The rectifier cut-offs would have produced both the forward movement of the tapes because the tape capstans in the Uher 5000 are driven by unrectified, alternating current direct from the main).

The panel of experts, on the other hand, started with the erase head signatures, which they described in testimony before Sirica as the "key and guts" of their report. They decided that the one and only way in which the erase head signatures could get on the tape was by hand operation of the Uher 5000's control buttons to turn the erase head off. Hence they concluded that the presence of at least five erase signatures on the tape could only mean that the tape had been erased in at

least five separate manual operations.

The Dektor people are careful to point out in their report that they cannot prove either that their explanation is right or that the panel's is wrong. All they are saying is that the power supply problems "provide an apparently equally feasible alternative." But they contradict the panel on two matters of fact. One is the crucial point that anything that produces a voltage drop in the bias oscillator—not just operation of the control buttons, as claimed by the panel—will cause the erase signature to be imprinted on the tape. The other point of difference, irrelevant to the argument but with a certain bearing on the panel's familiarity with tape problems, concerns the mark left by de-energization of the record head. The panel mentions that the record head leaves a single mark on the tape. If the panel had used the more refined method of developing tape marks employed by tape experts, Bell says, they would have picked up the second, fainter mark of the record head pair.

Did the panel consider and rule out the Dektor theory before going public with their summary report? The testimony given before Judge Sirica on Jan. 17 makes fairly evident that they did not. Asked by James St. Clair, Mr. Nixon's attorney, if de-energization of the erase head by a power cut would leave an erase signature on the tape, one panel member said it would not and passed the question to a second member who said he couldn't say. Tests conducted on Sonys and similar machines had showed that power cuts do not leave erase signatures, but the panel had not run the test on Miss Woods' machine or, it appeared, on any other Uher 5000. The testimony then went as follows:

Mr. St. Clair: Perhaps if you don't know this, maybe we could refer it, but supposing there was an interruption in the power supply of the machine, rather than the power supply to the machine [italics added]—You get the differentiation?

Mr. McKnight: Yes.

Mr. St. Clair:—you are not now prepared to tell what result if any would result on the tape, if that were to be the situation? You knew there was a—

Mr. Ben-Veniste: We don't have an answer to that question.

Mr. McKnight: I am sorry. No, I don't believe we can definitively answer that question.

What the panel made public on January 15 was a summary report containing its main findings. The data on which these were based were prom-

ised in another three or four weeks. Until this full supporting data is published, there seems to be no way of deciding whether the panel or the Dektor people are right. Barry Blesser, an associate professor of electrical engineering at the Massachusetts Institute of Technology, who advised on the selection and work program of the panel, says that on the evidence available so far, one cannot decide between the two theories. But Blesser favors the panel's version, because the bunching together of the erase signatures at the end of the buzz section conforms to the classic pattern made by someone inexperienced with tape recorders trying to erase a tape.

An obvious test that would decide between the two theories is to look at the waveform of the buzz. The buzz is composed of the 60 cycles per second hum and harmonics thereof of the main current. The waveform is a regular up and down line which wiggles from peak to trough 60 times a second in the case of the basic frequency. If the panel's theory is right, there should be a break in the waveform at each point where the recorder was stopped. If the Dektor theory is right, the recorder was not stopped and the waveform should be continuous throughout the 18-minute section.

The panel has presumably carried out this test by now, and may quite probably have proved the Dektor hypothesis incorrect. This at least will mean that the original oversight was of no practical consequence.

What if the Dektor theory is right? Joseph Alsop writes that if the charges against the panel stand up, "the President and his staff are guiltless just where they have been found most guilty, in the matter of doctoring the tapes." The situation is probably more complicated. Dektor being right would only mean that the 18½-minute buzz section was made in a single, continuous operation. It is still necessary to assume that the tape recorder was somehow put in record mode and left running for 18½ minutes. One way this could have happened is if Miss Woods accidentally pressed the record button instead of the stop button, as she related in court, and also kept her foot on the foot pedal for the full 18½ minutes. One would further have to assume that her telephone conversation lasted this long, and not for the 5 minutes she estimated. There also has to be a reason why she cannot remember who she was talking to. (Miss Woods' attorney, Charles S. Rhyne, says she receives some 90 calls a day, too many to keep a log of.)

If, on the other hand, the Dektor theory is proved false, it still will have served the useful purpose of showing that even experts are not omniscient and that, this being so, it is safer to publish one's supporting data at the same time as one's conclusions, as scientific etiquette indeed demands.

Whichever way the Dektor theory turns out, the panel cannot be said to have treated the White House well in failing to take the theory into account.