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# Ease of Altering Ca On Reliability of Tc

By Thomas O'Toole

Washington Post Staff Writer

If they are ever released to Sen. Sam J. Ervin Jr., the tape-recorded conversations President Nixon had with former White House counsel John W. Dean III could prove to be nothing more than supporting evidence in the Watergate conspiracy case.

The reason has nothing to do with President Nixon or John Dean. It lies instead with the tapes themselves and with the technology that has grown up with the booming tape recording industry, which make it impossible for anybody to guarantee the original integrity of tape-recorded conversations.

"It is so easy, so incredibly easy to change words and meanings of words on tapes," said George Messen- burg, vice president and studio manager for International Telecomm, Inc., located just outside Balti- more, "that I can't imagine how a tape of a private conversation can be used as original evidence in a case like Watergate."

Messenburg and men like him who have been in the tape business for years point out that tapes can be erased, edited and re- worked to alter completely the substance and meaning of original conversations. The \$3.5 billion tape business has specialists today who spend their time doing just that to polish the tapes of everything from concerts to comedy routines.

"I've put together tapes for Shelley Berman, Mort Sahl and Jonathan Winters," said Dayton (Bones) Howe, owner and president of Mr. Bones Productions, Inc., of Los Angeles, "and let me tell you that it's possible to do almost anything with tapes to fool the human ear."

Deleting a word, a few words or a full sentence is

the easiest way to alter a tape, the unnatural silence brought on by the deletion can be eliminated by splicing the tape and re-recording the altered conversation on a clean tape.

Disguising the splices can be done even without going through the expense of making a second recording.

"I'd look for a room sound, like somebody moving a piece of paper or flipping the top of a Zippo lighter, which makes a definite clinking sound almost as loud as somebody's voice," Howe said. "I'd use that sound to cover up the splice. It interrupts the conversation in a very natural way."

Tape editors can change affirmatives to negatives and negatives to affirmatives, simply by deleting or by inserting "nots" into conversations. Editors can borrow words from one part of a tape to change inflections of another part, so the whole meaning of words is altered.

Sibilant sounds can be dropped onto a tape to change singular to plural. "G" sounds can be added to make "great" out of "rate." Vowels are harder to toy with, but the experts have no trouble altering them, either.

"Words can be rearranged and whole new words can be built by rearranging syllables," select Watergate committee chief counsel Samuel Dash said yesterday in response to a question. "The experts are in total disagreement as to whether or not these changes can be detected."

Most experts say changes can be detected, but only by other experts. They say that experts listen to the back-

ground noise of a tape, waiting to spot sudden rises and drops in background noise that suggest a tape has been tampered with at a later date, in a different room or at a higher or lower noise level.

"I often hear splices that other people don't," Howe said. "They're often splices made by the wrong placement of a microphone, so that the spliced voice suddenly sounds closer to the microphone or farther away than it did a second before the splice was made."

Even background noise can be tampered with, even that on the telephone, which is the hardest of all to alter because of the hum on the line.

"You can get around that by filtering out the low frequency hum on the telephone tape," George Messen- burg said. "It's possible to disguise just about anything if you want to take the time to do it."

One reason tapes can be tinkered with so easily is the physical makeup of the tapes. Those used these days are all magnetic tapes, meaning they record conversations on thousands of microscopic magnetized iron particles baked onto the surface of a tape.

become a problem for the legal profession. Lawyers say it is getting tougher to get taped conversations admitted as original evidence into court proceedings involving divorce cases for just this reason.

One other thing stands out about magnetic tapes. They're good for centuries, provided they're stored in cool, dry rooms. The National Archives now has 30,000 tapes in storage, including an 1896 campaign speech by Grover Cleveland they were able to transfer 20 years ago from an original recording.