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**A quick transcribing technique
for oral data**

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A QUICK TRANSCRIBING TECHNIQUE FOR ORAL DATA

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Abstract.—Stenographic techniques offer a means for transcribing oral data accurately and efficiently. In one such application, during five Apollo lunar missions, a rough but helpful transcript was produced within minutes. Similarly, lectures, conferences, and audio tapes can be accurately transcribed as promptly as necessary. Computer programs for translating shorthand notes are being developed; they will increase both speed and accuracy of translation.

Complex data are difficult to study promptly and intensively when they are presented orally. This problem is particularly acute in lunar exploration, where immediate analysis of the astronauts' descriptions is essential to determining their subsequent lunar activities. One solution to this problem is to make a readable transcript as quickly as possible. But most quickly made transcriptions are either hard to study or incomprehensible to most people. Prompt study of magnetic recordings, for example, presupposes a system that can record and play back simultaneously; it is difficult to find and compare specific data on magnetic tapes; and playback interferes with other activities going on at the same time. The various types of shorthand are intelligible only to people trained in their use.

An apparently new technique for preparing a convenient and intelligible transcript within about 1 minute after the words are spoken was devised and used successfully for the Apollo 11, 12, 14, 15, and 16 missions. Two court reporters worked together*; the first reporter transcribed the oral descriptions on his stenograph (fig. 1) (shorthand typewriter), and the second reporter translated the shorthand notes and typed them (fig. 2). The resulting transcript showed the communications between the astronauts on the Moon and the Mission Control Center in Houston; it was displayed in NASA facilities on closed-circuit television as it was typed, and copies of the transcript were distributed within the Control Center.

During the missions, the resulting transcripts were indispensable to the activities of the science support group, and proved helpful for many of the mission-control activities. Because the transcripts were typed as fast as possible, many mistakes were made. Typographic errors, for example, were abundant, but errors serious enough to affect the intelligibility of the transcript were surprisingly few. In a first

*The development of the transcribing technique described here and the production of a quick transcript during the first Apollo moon-landing missions have benefited from the enthusiastic cooperation of court reporters Donald R. Thacker and Keith E. Welch, Superior Courts of Coconino and Mohave Counties, Ariz., respectively.

A S
 K A EU PL S
 W A U B G S
 O FR
 H A O E R
 T O
 H RA E EU T D
 T E R B G S
 EUF
 K O E PB S
 S RA EU PS T
 T O
 S A O E
 T P
 T HR
 W
 T P H A EU R
 K H A E PB G S
 T P H E S
 T E B G S
 T U R B G S
 S HR O E P R B G S
 K O R L
 HR O R
 O E
 O E

Figure 1.--Court-stenographic notes. These notes were made from a paraphrased revision of the transcript in figure 2.

I HAVE BEEN CONCENTRATING, HOUSTON, AS I CAME WALKING OVER HERE TO HEAD CRATER TO SEE IF THERE WERE ANY POSSIBLE CHANGES IN EITHER TEXTURES SLOPE, COLOR ANYTHING YOU CAN THINK OF OR ANYTHING THAT I COULD THINK OF THAT WOULD SAY TO ME THAT I WAS WALKING ON A DIFFERENT SURFACE, THAN I WAS WHEN I STARTED, AND I HAVEN'T SEEN A THING YET, IT ALL LOOKS THE SAME, IT ALL LOOKS LIKE ITS COVERED WITH THIS --

HITHISTROCK IS VERY TYPICAL OF ALL THE FRAGMENTS AROUND HERE.

Figure 2.--Sample excerpts reproduced from transcript made during Apollo 12 mission by the technique described here.

test of this transcribing technique (Schleicher, 1968), errors that made the transcript difficult to read were present in about 4 percent of the words, and errors that could have led to serious misinterpretation of the data affected about 1 percent of the words. In the same test, words were typed an average of 72 seconds after they were heard; the minimum lag was 45 seconds, the maximum 95 seconds. These figures are representative of the errors and time lags during the missions.

A computer program has been developed to translate stenographic notes directly into phonetic and abbreviated English (fig. 3). Currently, the stenographic notes must be transcribed onto cards for input into a computer. The program prints the translation on a high-speed printer. Further modification of the program is planned to expand the abbreviations and transform the phonetic spellings into standard English. An attempt is being made to feed the stenograph output directly into the computer. Compsten Inc. is developing a system that magnetically records the stenographic notes for off-line computer translation, which is about 98 percent accurate (A. B. Smith, Compsten, Inc., oral commun., 1970).

These developments should find application wherever an easily edited transcript is needed--especially if the transcript is needed promptly. Space exploration, and perhaps undersea exploration, are examples of such a need, and there are probably many potential applications of the technique in conferences, courts, and legislative bodies. Audio tapes and dictation can be transcribed efficiently and accurately. When direct input from the stenograph into the computer becomes possible, the technique will facilitate computer storage and associated recall of selected combinations of data (Dahlem and Bailey, 1969). For example, for the Apollo missions it was often convenient to recall all lines in the transcript containing the words "rock" or "sample." But for this retrieval the entire transcript had to be separately typed into computer storage.

References

- Dahlem, D. H., and Bailey, N. G., 1969, Oral geologic descriptions-- Their quick-time storage and retrieval [abs.], in Weiss, Alfred, ed., A decade of digital computing in the mineral industry: Am. Inst. Mining Metallurg. and Petroleum Eng., Inc., p. 950.
- Schleicher, David, 1968, A test of court-stenographic techniques for recording geologic descriptions: U.S. Geol. Survey open-file report, 13 p. [1969].

AS I KAIM WAUK ING OVER HEER TO HED KRAIT ER , IVE
BE KON SEN TRAIT ING. TO SEE IF THERE WR NI CHANG ES
IN TEX TUR , SLOEP , OR KOL LOR - - NIG AT AL THAT
WOULD SUG THAT I WAS WAUK ING ON A SUR FAIS DIF
RENT FR THAT WR I START ED . BUT I VNT SEEN NI
DIF RENS ES . , IT AL LOOX THE SAIM . IT AL LOOX
AS IF ITS KOPFD WITH THIS BLAK ROK . THIS ROK IS
TIP NI KAL OF THE ROX IN THIS AR YA . THE ROX THAT
WE SAM LD PREF YUS LI WR ALSO THE SAIM TIEP . THERE
ARE A LOT OF KOURS PITS ON THE SUR FAIS OF THIS ROK.

**Figure 3.--Computer translation from court-stenographic notes
(fig. 1) into phonetic and abbreviated English.**