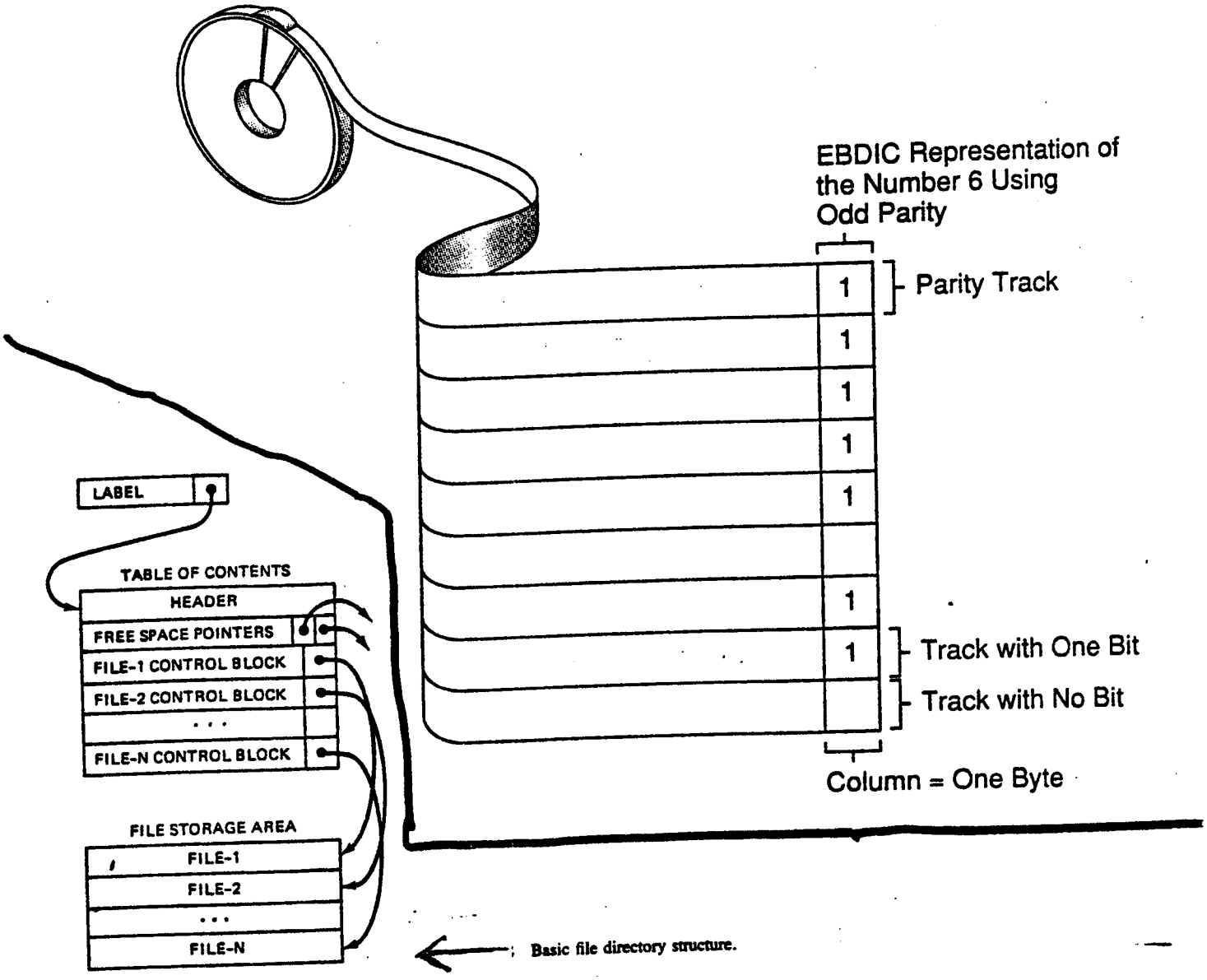
How a Magnetic Tape Stores Data

The number 6 is stored on magnetic tape using a unique combination of magnetized and nonmagnetized spots. Each magnetized area represents a "one" bit (a 1 in EBCDIC binary code); nonmagnetized areas correspond to zeros in binary representation. There is an additional parity track, containing a parity bit, for checking transmission errors.



FILE DIRECTORIES

Before a file can be accessed by a program, the file system must know where the file is located. Nearly all file systems use some sort of directory structure to manage the identification and location information about files.

Above Figure illustrates the basic concepts of a directory structure typically used to keep track of files. The directory shown is for one unit (e.g., disk pack or tape reel) of secondary storage. The label includes identifying information, access control information, and a pointer to a table of contents, which contains a control block for each file on the unit. A control block contains information about the name of a file, its attributes (such as record length, block size, organization), and its boundaries on the storage medium. A control block points to the start of the corresponding file. When a file is requested, the table of contents of the appropriate unit is consulted for information required to locate the file in storage.