Those of us who take full advantage of the Electronic Age by doing most or all of our folklore field collecting with a tape recorder must sometimes remind ourselves that at one time a field worker's sole transcription tools were a notebook and a pencil. It is true that mechanical recording has been used in field collecting for over sixty years, dating from the period of the introduction of the cylinder phonograph. The poor quality of reproduction and the difficulty in handling this equipment caused many collectors to stick to their notebooks and pencils. However, the development of somewhat simpler (although still cumbersome) recording equipment in the early 1930's, and the large scale recording trips sponsored by the Archive of American Folk Song of the Library of Congress, beginning in 1933, impelled more and more collectors to turn to mechanical transcription. With the appearance, during the 1940's, of wire and tape recording processes, transcription by hand became largely a thing of the past.

Ever since the Library of Congress began to amass mechanical transcriptions on a large scale, with the aim of developing a permanent archive of folk song and folklore, there has been great speculation concerning the aging qualities of sound recordings. When wire and tape, as well as new disc materials, came into wide use, the speculation was compounded. Realizing the need for specific information in this area, the Library of Congress approached the Rockefeller Foundation for aid and received a grant for the purpose of initiating the necessary study.

The study, which was conducted by the Southwest Research Institute of San Antonio, Texas, was limited to acetate, shellac, and vinyl base phonograph discs and to acetate and mylar base magnetic tapes, since the bulk of recorded collections are in these forms. Furthermore, only storage deterioration was studied, although it was recognized that playback wear is a significant factor in the aging process. Following a brief "Introduction," the core of the report is in three parts: "Factors Relating to the Degradation of Sound Recording Materials," "The Study of Phonograph Discs," and "The Study of Magnetic Tape."

The authors turned first to the materials from which sound recording discs are manufactured. It was noted that the basic resin is subject to both chemical and physical degradation. Chemical degradation can take several forms: 1) chain scission (a reduction in molecular size), 2) cross linking (a change in the type of forces operative between the molecules), and, 3) side group modification (a change in the amount of forces operative between the molecules). These can be induced by light, heat, water, oxygen, atmospheric contaminants, and dust and grit, either singly or in combination. The major types of physical degradation are 1) permanent deformation, 2) breaking, tearing,

(Continued on fourth page)
or delamination, and 3) scratching or particle embed-
ment. These are induced by 1) temperature changes or excessive temperatures, 2) dust and grit abrasion or embedment caused by removal of the record from the jacket, by horizontal stacking, or in the course of playback, and 3) stress.

A further problem of degradation is that caused by the deterioration of the various plasticizers, fillers, and extenders added to the basic resin during manu-
facture. The problem is compounded by the great vari-
ation in the quality and stability of these materials. It is almost impossible to make an accurate study of the problem, for as deficiencies appear, manufacturers make constant improvements, and over a period of just a few years apparently identical items may represent considerably different stages of development.

A final problem in regard to the basic materials of sound recordings is that of fungal action. The basic resins are fungi resistant, but the added materials pro-
vide excellent nutrients for fungus growth. An unsuc-
cessful attempt was made to develop a fungicide that would at the same time 1) destroy a wide range of fungi, 2) be non-toxic to human beings, 3) be long last-
ing, and 4) not contribute to the degradation of other materials. It was finally concluded that the best con-
trol was to keep the environmental moisture content be-
low that needed for fungal activity.

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(To be continued in the next issue)

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