The reproduction of cylinder recordings

George List

(Continued from the last issue)

The sapphire stylus furnished as standard equipment with the Ediphone or Dictaphone will adequately play back cylinders cut at pitches of 100, 150, and 160 lines per inch. For playback of cylinders cut at a pitch of 200 lines per inch the standard sapphire must be removed and a much smaller one substituted. A cylinder cut at a particular pitch must be played back on a machine equipped with a feed bar machined to accept that particular pitch and no other or the recording will be ruined. It is our practice in the Archives of Folk and Primitive Music to determine the pitch of every set of cylinders before attempting re-recording. This is done by means of a microscope equipped with a special eyepiece for measuring the pitch of cylinders.

The Ediphone and Dictaphone machines are equipped with crystal pickups. Although these machines have not been manufactured for a number of years cartridges can still be purchased from the respective manufacturers. Cylinders are cut by the “hill and dale” process in which reproduction is produced by up and down movements of the stylus rather than by the “lateral” process in which the stylus moves from side to side. Since the latter process is employed in the cutting of almost all modern disks the only electronic cartridges readily available commercially for use in cylinder players are those manufactured for use with the Ediphone and Dictaphone. According to information received by the writer the cylinder playbacks in use at the Archive of Folk Song at the Library of Congress are equipped with custom made heads utilizing the capacitor effect. It is theoretically feasible to adapt a magnetic pickup for use in cylinder reproduction but the writer does not know of a case where this has been done. With the inception of stereo disk recording, in which both “hill and dale” and “lateral” groovings are used simultaneously, the possibility now exists of adapting one of the fine stereo reproducers now on the market for use in the reproduction of cylinder recordings.

The use of amplification in the electronic reproduction of cylinder recordings normally produces a corresponding and disturbing amplification of surface noise. A judicious use of filters will improve the clarity of reproduction. In the Laboratory of the Archives of Folk and Primitive Music the original amplifiers of the cylinder players are by-passed, and the signal is amplified by a Scott Pre-amplifier and recorded on either or both of twin Arnpex recorders. A gated filter forms part of the Scott Pre-amplifier package and two sharp cut-off filters—high and low frequency—can be added to the circuit by the use of a patch panel.

Determining the rpm at which to play back cylinders is indeed a vexing problem. On occasion the collector may have sounded a pitchpipe ‘A’, or he may have made a notation as to the rpm at which the recording was made. However, in most cases the transcriber must depend upon his ear and what knowledge he may have of the particular musical style in determining the rpm at which to re-record. Determination of the rpm in playing back speech recordings is somewhat easier since the variation in speed which still permits intelligibility is much smaller.

There was apparently no standardization of the rpm used in cutting cylinder recordings. In his chapter on the music of the Tinguian (Fay-Cooper Cole, The Tinguian, Field Museum of Natural History, Pub. 209, Anthropological Series, Vol. XIV, No. 2, Chicago, 1922) Albert Gale notes that the cylinder recorder used by Cole was set at the factory to record at 160 rpm. According to L. D. Norton, Research Consultant for the Dictaphone Corporation (to whom I am indebted for much of the information found in this article), Edison during the early period of manufacture used 80 rpm for speech and 125 rpm for music while Dictaphone early standardized at a speed of 96 rpm. Most machines manufactured had some means of adjusting the speed and a variation in rpm of as much as 20 percent was possible.

Notations as to the rpm at which the cylinders were recorded are found in some of the catalogues accompanying cylinder deposits in the Archives of Folk and Primitive Music. Many of these cylinders were cut upon equipment of foreign manufacture. The ranges found in these notations are given below. No notations are available for cylinders cut at 200 lines per inch.

<table>
<thead>
<tr>
<th>Pitch at which cut</th>
<th>Range of rpm</th>
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<tbody>
<tr>
<td>160 lines per inch</td>
<td>146-155</td>
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<tr>
<td>150 lines per inch</td>
<td>106-156</td>
</tr>
<tr>
<td>100 lines per inch</td>
<td>30-212</td>
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TWELFTH IFMC CONFERENCE

The Twelfth Annual Conference of the International Folk Music Council will be held in Sinaia, Rumania, August 12-22, 1959. Special activities during the Conference will include a visit to Bucharest to attend the all-country competition of groups of folk dancers and singers and to visit the Institute of Folklore and the Museum of Folk Art, and an expedition to study the living folklore of the Rumanian countryside. For further information apply to Miss Maud Karpeles, Secretary, IFMC, 35 Princess Court, Queensway, London, W. 2, England, or to The Secretariat of the Rumanian National Committee for the XIIth IFMC Conference, Str. N. Beloiannis 25, Bucharest, Rumania.

REPRODUCTIONS OF CYLINDER RECORDINGS (cont.)

The cylinder players in use in the Archives of Folk and Primitive Music are equipped with a variable speed control permitting the reproduction of the full gamut of rpm listed above. The Electronics Division of Indiana University, under the direction of George F. Siddons, has constructed for use in the Archives an electronic drive which permits feeding a variable electrical supply with a range from 45 to 65 cycles into both Ampex recorders. In combination with the three tape speeds available, 15, 7 1/2, and 3 3/4 ips, the cycle patterns of any electrical supply used in the world can be duplicated. Once a tape copy has been made of a cylinder recording any necessary adjustment of the speed can be made by tape to tape dubbing. There is no necessity of re-playing the cylinder.

Cylinders were made of various combinations of virgin waxes, scrap waxes, and metallic soaps. The older cylinders are usually of a brown color. Later a dye was incorporated in the mixture which produced a glossy black color. Cylinders mildew when stored in warm and damp areas. The surface of the recording should never be touched since the finger marks leave traces in the form of mildew spots. A knocking noise is produced when the reproducer passes over these spots. This may simulate drum beats. Old cylinders often develop a hard surface crust. In some cases the crust or patina disappears with several playings and the recording is improved. Since wax cylinders wear very rapidly they should be re-recorded as soon as possible and should be played back only as often as is absolutely necessary in this process.

Those who wish to re-record cylinders in their possession but who do not have access to equipment permitting closed circuit recording may secure fair results by playing the cylinders on a spring-wound acoustically activated player in a quiet room with the microphone of the tape recorder close to the horn of the cylinder recorder. The electronically operated office dictaphone machines cannot be used for this purpose unless a speaker is improvised since they are provided with earphones only. The reader will find several firms or individuals listed in the classified advertisements accompanying the Music Section of Hobbies Magazine who sell spring operated cylinder players, reproducers and parts, and who will repair cylinder phonographs. In some cases electronic reproducers for use with the spring driven players are also for sale. The writer of course cannot vouch for the quality of these services.

A high quality of reproduction of any cylinder recording requires both specialized equipment and considerable skill. Those who have valuable cylinder recordings which should be reproduced on tape or disk for proper preservation would be best advised to avail themselves of the facilities for this purpose found in several of the larger archives in the United States rather than to attempt this work themselves.