

**PRESERVATION OF RARE AND UNIQUE MATERIALS
AT THE INSTITUTE OF JAZZ STUDIES**

by Marie P. Griffin

The Institute of Jazz Studies (IJS), located on the Newark, New Jersey campus of Rutgers, The State University of New Jersey, is the largest collection of jazz and jazz-related materials under university auspices anywhere. Like every archive the Institute has many preservation needs and has established procedures, such as temperature and humidity control for the storage of sound recordings, to safeguard its valuable collections. Preventive practices, however, are never sufficient. Indeed, some gift collections arrive at the Institute in need of preservation.

With grant support from the National Endowment for the Humanities (NEH), the Institute is engaged in two essential preservation projects:¹

1. The preservation and cataloging/indexing of approximately 800 rare and unique sound recordings in the IJS collections;
2. The physical protection of the clipping files both for eventual microfilming and for continued use as an active file.

The project, which began April 1, 1984, continues to June 30, 1986. A three-month extension was approved because the time required for the purchase and installation of equipment and supplies far exceeded our original expectations.

Two library assistants and a library associate were hired for the project. I devote 50% of my time, and IJS Director Dan Morgenstern and Curator Edward Berger devote 35% of their time, to the project.

Specialists were hired during the preparation of the grant proposal to ensure compliance with preservation standards. Tom Owen, one of three audio consultants recommended by NEH, worked closely with IJS staff in designing this facility and also installed and tested the equipment.² The Northeast Document Conservation Center provides guidance for the clipping file project and has completed a Conservation Survey which delineates the Institute's overall preservation requirements.

Preservation/Restoration of Sound Recordings

The heart of the IJS archive is its fabulous collection of recorded jazz performances which now includes more than 75,000 sound recordings, primarily commercial 78 rpm shellac discs and 33 1/3 rpm vinyl discs. It is probable that many of these discs will outlast the paper or cardboard sleeves

in which they are shelved. Quite a few of these are, however, rare or unique, and the collections of glass-base acetates are extremely fragile. To avoid unnecessary wear, some of these exceptionally precious recordings have not been played. Indeed, since some of these recordings lack identifying labels or accompanying notes, the actual sound content has not yet been determined. These collections include 78 rpm and 33 1/3 rpm 16" glass-base acetate transcriptions of radio broadcasts; complete session safety acetates associated with the V-Disc program during World War II; unissued recordings from studio sessions at Columbia and Savoy; test pressings; and private recordings.

Under this NEH-supported project performances on these recordings are being rerecorded and restored on preservation audio tape and cataloged/indexed in the IJS Jazz Register and Indexes. The first step in the process was to convert and equip a room, formerly used for storage, as a state-of-the-art sound preservation/restoration studio. To protect the sound restoration process from extraneous noise and reverberations the walls have been covered with Sonex padding and the floor has been carpeted. The sound restoration process is protected from ultraviolet light distortion by Halo indirect lighting.

Except for glass-base acetate discs which have begun to peel, all recordings on disc are washed with distilled water before the taping process begins, using a specially designed RCM-2 record-cleaning machine (the American-made equivalent of the British Keith Monk) manufactured by P.M.G. Diversified. In washing, the disc is placed on the turntable and the cleaning brush swung into position over the record. The operator switches the control to the "WET" position and depresses the plunger gently, allowing the distilled water to wet the surface completely. Embedded dirt is loosened by the action of the brush on the disc. Then the brush is released and the machine is switched to the "CLEAN" position. A nylon thread acts as a buffer between the cleaning nozzle and the disc. The motor operating as a vacuum cleaner releases the thread, and the suction tracks it through the groove, pulling the thread with the dirty liquid into the waste-water container.

On glass-base or aluminum-base acetate discs, the acetate is a wafer-thin layer of sound attached to the glass or aluminum surface. If the acetate is beginning to peel, the peeling process could be accelerated by washing. Therefore, these exceedingly fragile discs are dusted off with a small compressed-air gun and recorded before they are washed. If the fragile acetate remains on the glass or aluminum base after the washing process, the disc is rerecorded.

The cleaned disc is placed on the Technics variable-speed turntable, oversized to cut off and absorb external vibra-

tions and equipped with a quartz synthesizer system for digital pitch control and rotation accuracy. The turntable assembly includes an SME 3012 tonearm mounted on an oak base with vibro-isolation mounts and damped with a Shure FD300 fluid damping system to suppress spurious low frequencies and attendant resonances. The tonearm shell holds the Stanton 500 AL magnetic cartridge which is fitted for rerecording with an appropriate stylus (discussed below).

The tonearm-cartridge assembly must be adjusted to the disc on the turntable. When the tonearm-base pivot, the turntable spindle, and the stylus form a straight line, the stylus overhang is properly adjusted to the diameter of the disc. The vertical tracking angle must be adjusted at the base of the tonearm so that the distance between tonearm and disc is the same at the outer and inner edges of the grooved surface. In adjusting for tilt or azimuth, the stylus should be resting on a horizontal mirror, and must form a straight line with its mirror image.

The alignment of the stylus with the groove must be correct to insure the proper lateral tracking angle. The cartridge, which holds both the stylus assembly body and the cantilever that holds the stylus, is on a pivot within the tone-arm shell. The movement of the cartridge in the tone-arm shell allows the cantilever to keep its alignment parallel to the groove. Therefore, the stylus is held at the proper lateral tracking angle for the entire groove surface.

Selecting the correct stylus is equally important. For laterally-cut discs IJS uses truncated elliptical styli ranging in radius from 1.5 mil to 3.8 mil to fit groove widths of 3 mil to 7.6 mil. For vertically-cut discs a spherical stylus is used. Adjusting the stylus to the groove width is not the only criterion, however. It is also essential to determine where in the groove the sound quality is most accurate. This is tested using the Owl-1 restoration module and our ears. A smaller stylus, for example a 2.0 mil stylus, will track lower in the groove than a 3.0 mil. By using the mode controls on the Owl, the audio technician is able to select the appropriate stylus and monitor the extent of distortion at the bottom of the groove, the left channel only, the right channel only, or both channels on the mono setting.

To restore the sound as it was originally produced, some equalization is necessary. Very early acoustical recordings did not have this problem because the dynamic range was small, far less than can be heard by the human ear. When electrical recording and the invention of the microphone superseded acoustical recording, the dynamic range was greatly expanded. This presented practical problems for the recording engineer, since the recording needle oscillates more slowly and in wider circles at low frequencies and

faster but in smaller circles at higher frequencies . Therefore, when the record was cut, a pre-emphasis was introduced which reduced the decibel volume of the bass to conserve groove-space and boosted the treble range to mask surface noise. Figure 1 shows this pre-equalization and post-equalization curve. The "resultant," the flat line in the center, is what is desired, a reproduction of the original sound. The point where these two curves intersect, the "crossover frequency," is 1 kHz. This is the RIAA (Recording Industry Association of America) standard, approved in 1953.

Electrical recording, however, began for various companies between 1925 and 1929. The range of adjustment needed is graphically illustrated in Figure 2, which shows typical recording/reproduction characteristics of pre-1953 78 rpm recordings. This indicates a characteristic "turnover" at 300 Hz, the point where bass pre- and post-emphasis meet, and a "rolloff" at 6 kHz, the point where treble pre- and post-emphasis meet. The Owl-1 permits us to adjust the turnover and rolloff to whatever preemphasis was used in the original recording. In addition, the narrow-band filters on the Owl enable us to eliminate offensive noise, such as a loud hum in the bass which can be cut off by the rumble filter or scratches which can be tuned out by the high-frequency filter. A filter-bypass switch allows an instant comparison of filtered and unfiltered sound.

Elimination of other unwanted distortion and extraneous sounds is ensured by the "notch" and "narrow-band" filtering capabilities of the Owl Multifilter, which permits low frequency cutting, middle and high frequency notching, and high frequency cutting.

The equipment needed to rerecord the sound content of the disc on preservation audio tape is mounted in Russ Lang equipment racks. The nerve-center is the patch bay through which all equipment is connected via a series of input/output sockets. The IJS audio system relies upon a Crown amplifier with an output of 90 watts per channel into an 8-ohm load over a bandwidth of 20 kHz, thus ensuring low harmonic and intermodulation distortion and low noise. Controls include an input/output comparator and frequency analyzing display. The output transistor circuitry operates in a multimode configuration which permits optimum performance at low, medium, and high listening levels, monaural or stereo.

This triamplification feature drives the high, middle, and low segments of the Time-Align Monitor speaker system. The time-align feature ensures that both the fundamental and the overtones of a complex transient acoustical signal, as presented to the listener, faithfully represent the relationships they had in the electrical signal at the input terminals of the loudspeaker. For example, a sharp burst of

sound like a cymbal or a hand-clap is spread out in a conventional loudspeaker, whereas the time-align feature provides fidelity to the original sound.

The Tascam M-3 Audio Mixer transmits the sound to the various components of the system, with a series of controls for each input channel. This permits the operator to monitor the sound while rerecording the performance on the Otari tape recorder. There are 8 separate modules on the Tascam plus submix capability. Each module has input control, a mute switch, input and output fader, and pan control (compensation which allows the operator to "pan" a signal from left to right without getting an unwanted "rise" in sound power when passing through the center). Four volume unit meters have the standard volume unit ballistic; they respond to the average level of the signal, not the peak level. The zero decibel point is set to equal 0.3 volts (-10 decibels referenced to 1 volt).

Audio measurements are an essential part of the rerecording process. To reproduce audio signals accurately without adding extraneous noise or distortion requires some degree of precision, and the mixer, tape recorder, and speakers must be aligned with respect to level, frequency response and bias. In addition to the monitors and voltage meters on the mixer and the tape recorder, IJS uses a Loftech test set and a Leader oscilloscope. The Loftech includes a sine wave audio test generator, plus meters to measure the two parameters of a sine wave, frequency and amplitude.

The sound is recorded for preservation on 1/4" Scotch 208 audio tape, manufactured to ensure permanent quality plus low print-through, and mounted on metal reels to prevent warping. The master tapes are stored tails-out (in played position). The original discs are stored in acid-free record sleeves lined with polyester.

The contents of the original recording and the precise location (in minutes and seconds) of each selection on the restoration audio tape are carefully documented on specially-designed worksheets. Using the extensive reference materials available at the Institute plus aural analysis, additional significant information, such as the names of all performers, is added to the worksheet. Complete cataloging data for these performances are input to RLIN (the Research Libraries Information Network) and, since Rutgers is a tape-loading participant of OCLC (the Online Computer Library Center), the data will also be available on the OCLC bibliographic network. In addition, complete information on these rare and unique performances is distributed to individuals and institutions in the United States and abroad on the IJS Jazz Register and Indexes, a COM (computer-output-microfiche) catalog with indexes which is cumulated quarterly.

A service copy is made from the master tape. When a researcher needs to listen to a performance recorded on a preservation tape, he or she is played the service copy.

Physical Protection of the Clipping Files

The clipping files were part of the original Marshall Stearns collection, and many items predate the Institute of Jazz Studies, which was founded in 1952 by Dr. Stearns and a group of musicians, scholars, critics, collectors, and jazz devotees, and donated to Rutgers in 1966. The original files have been continually enhanced by substantial donations from jazz scholars, such as George Hoefer, Charles Edward Smith, and Walter Allen, and are kept current by the continued addition of clippings, programs, and other materials.

The files are in two sections: The performer file, arranged alphabetically by individual or group name; and the topic file, arranged alphabetically by topic. Because the files are a composite from the collections of Marshall Stearns, George Hoefer, and friends of the Institute, file titles range from the very specific, such as the Village Vanguard, to the general, such as Clubs or Jazz Clubs. Therefore the topic file is being reorganized under broad general headings with appropriate subheadings and standard geographical subdivisions. In the project the contents of each folder are examined, identified, sorted, appropriately treated, and arranged chronologically for refiling in acid-free folders. The project attempts to preserve the flavor of the clipping files as well as the information in them.

Some of these materials, such as concert programs, colored illustrations, pamphlets, and promotional materials, are still in good condition. These are placed in Mylar envelopes. However, clippings of newsprint, which is highly acidic, are rapidly deteriorating. Further, small handwritten notes and tiny snips of paper tend to slide to the bottom of a folder and eventually crumble. These newsprint clippings and miscellaneous notes are copied to archival bond. On occasion, colored newsprint which includes artwork is preserved in a Mylar envelope and the remainder of the article copied. Pamphlets in deteriorating condition are copied, and the artifacts, if valuable, are placed in acid- and lignin-free document boxes. Duplicate materials are removed. When bulky items, including artworks such as posters, paintings, and memorabilia, are found (usually folded) in the clipping files, the artifacts are removed for more suitable storage and occasional display.

Because the Institute's copier proved inadequate to project requirements, we have purchased a Cannon copier with clear and precise resolution as well as graduated reduction capacity for this aspect of the project.

The clipping files include manuscripts: letters from jazz artists, the correspondence with jazz artists and the journal notes donated to the Institute by jazz journalist George Hoefer, and the original questionnaires returned to Leonard Feather for his jazz encyclopedias. These materials are copied on archival bond, and the original manuscripts, arranged alphabetically by artist under the categories "Correspondence," "Hoefer," and "Feather," are stored in acid- and lignin-free document boxes.

Special periodical issues, like the Etude August 1924 discussion of "The Jazz Problem," are stored in Mylar envelopes in document boxes after the pertinent contents have been copied for inclusion in the topics file.

Each protected item is marked with the appropriate personal name or topic, and dated so that the eventual user of the microfilm will review the file chronologically: first the specifically dated items, then the items within the month, the year, or a range of years. The protected materials are reassembled chronologically in acid-free folders and refiled.

In addition we are preparing an index to the files which will be available at cost when the project is completed. The index will serve both as a guide to the microfilm (or fiche) when this is printed and as a finding aid for reference use by the Institute's staff and the many scholars who use this valuable resource.

NOTES

1. NEH grant RC-20833, for the Preservation and Cataloging/Indexing of Sound Recordings and Physical Protection of the Clipping Files at Rutgers Institute of Jazz Studies, was awarded April 1, 1984 and continues to June 30, 1986.

2. Tom Owen is Audio Engineer at the Rodgers and Hammerstein Archives of Recorded Sound, New York Public Library.