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Organe de l'Association Internationale d'Archives Sonores IASA

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Le Journal de l'Association internationale d'archives sonores, le PHONOGRAPHIC BULLETIN, est publié trois fois l'an et distribué à tous les membres. Veuillez envoyer vos demandes d'adhésion au secrétaire dont vous trouverez l'adresse ci-dessous. Les cotisations annuelles sont en ce moment de 25.-Deutsche Mark pour les membres individuels et 60.-Deutsche Mark pour les membres institutionnels. Les numéros précédents (à partir de 1971) du PHONOGRAPHIC BULLETIN sont disponibles au coût de 15.-Deutsche Mark par année (frais de port inclus). Ceux qui ne sont pas membres de l'Association peuvent obtenir un abonnement au PHONOGRAPHIC BULLETIN pour l'année courante au coût de 25.-Deutsche Mark.

Das PHONOGRAPHIC BULLETIN erscheint dreimal jährlich und geht allen Mitgliedern der IASA zu. Aufnahmeanträge für die Mitgliedschaft bei der IASA sind an den Sekretär (Anschrift siehe unten) zu richten. Die Mitgliedsbeiträge betragen derzeit DM 25.-für individuelle Mitglieder, DM 60.-für Institutionen. Frühere Jahrgänge des Bulletins (als 1971) können zum Preis von DM 15.- (einschließlich Porto) bestellt werden. Nicht-Mitglieder können das PHONOGRAPHIC BULLETIN zum Preis von DM 25.-jährlich abonnieren.

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EDITORIAL

The Guest Editor of this issue of the PHONOGRAPHIC BULLETIN is Dr. Dietrich Schüller who, as Technical Editor of the BULLETIN, is responsible for the inclusion of the three technical articles. The wealth of material about EDP and radio archives was solicited by Dr. Ulf Scharlau as Chairman of the IAML/IASA Committee on Music and Sound Archives. I want to express my appreciation to both of them.

Of interest to those of you planning to attend the Washington, D.C. annual meeting, May 8 - 14, we are including here the preliminary program as prepared by the General Secretary, Helen Harrison. A special mailing with registration and hotel information has been made separately. If you did not receive your copy, or if you desire additional information, please contact Helen at the address listed on the inside front cover of this issue. I heartily encourage you to attend the conference and to "share the experience" in the capital of the United States, home of one of the most famous libraries and sound archives in the world, the Library of Congress. The planning committee has done their very best to provide attendees with an enriching experience. Hope to see you there!

Ann Briegleb

PRESIDENT'S COLUMN

Last November the Executive Board met in Stuttgart for its regular interconference business meeting, the main items of which Helen Harrison has summarized in this issue of the PHONOGRAPHIC BULLETIN. The composition of the Executive Board that will take office after the 1984 conference was one question that occupied our discussions.

Of course, neither serving presidents nor any other current Board members have any prerogative on the choice of the succession. Nor indeed have they any influence beyond that which every other IASA member also enjoys. Lack of statutory power does not however preclude lack of interest and, at a mid-point in our own term of office, it is hardly surprising that we should engage in some speculation about our successors. Fundamental in these thoughts was the question of the Association's electoral system itself. That is to say, have we got it right? Both inside and outside the present Board I detect some doubts!

In the course of its history IASA has operated two different methods for electing its officers. Before the 1978 conference in Lisbon it was a function of the serving Executive Board to recommend its successors to a so-called Nominating Committee which, provided its members approved of the candidates who were proposed, had the task of presenting them in the form of a "slate" on which IASA members attending the conference during election year voted either to accept or to reject. Not surprisingly the system had its critics! Allegations against the procedures included the contentions that Executive Boards had become self-perpetuating oligarchies, were insensitive to the wishes of the membership as a whole, which was thereby prevented from making any real expression of its own will. In a nutshell, it was undemocratic.

Having touched on some of its alleged faults it seems only fair also to mention some of the arguable benefits of IASA's first electoral procedure. It permitted a selection of officers more representative of the international distribution of IASA's members; it offered greater insurance that those elected would be people regularly able to attend conferences and Board meetings; it provided the Board with members who had sufficient practical resources to be able to support the burgeoning activities of the young, small and financially weak Association.

This catalogue of advantages and disadvantages could be greatly expanded, but I think that the foregoing conveys the essence of our original statutes. Within them a practical balance was struck by our founding fathers between democracy and utility. As a result Constitution Mark I served the interests of the new Association well enough for several years.

On 18 July 1978 Constitution Mark II came into effect, partly as a result of growing criticism of its predecessor but also as a result of a general constitutional revision that was instituted by the Executive Board itself. From this date elections to the Board became the statutory responsibility of the entire membership. Any (paid-up!) member of IASA could henceforth stand for office and propose or second favoured candidates. Serving members of the Board had the same rights, but no more. The International Association of Sound Archives thereby was democratized. (A process which becomes complete at the Washington conference, if the General

Assembly there approves the introduction of postal voting.)

After the Board elections in Budapest - the first to be held under the new arrangements - some of the criticisms made of Mark I were to be heard whispered of Mark II. "There is only one candidate for each office; we have no choice!" "There are two British members; the Board is unrepresentative!" "These are the same old faces; the oligarchy still rules!" Ironically IASA's first "democratic" election had produced a result which was in many ways identical to the kinds of Boards which had emerged during preceding paternalistic successions.

What conclusions may we draw? It is that the kind of people recognized by earlier Boards of well-intentioned members to be good candidates, tend to be also the people who would get themselves nominated for office under any electoral system? Is it that the large majority of members are disinterested in actively using the rights they now possess? Are most of our members actually unaware of the "new" procedures? Is the present electoral system simply unsuitable for this Association? At this distance in time, it seems likely that the Board which is elected in 1984 by Mark II procedures will have to consider some of these questions and come up with answers which, possibly, may lead on to electoral system Mark III. Or maybe next time

Members who are not familiar with the present constitutional basis of Executive Board elections can, and indeed should, become so, by writing to our Membership Secretary for a copy of IASA's statutes. The future composition of the Board, and with it much of the professional development of the Association, rests for the moment with the membership as a whole. It is much to be hoped that a sufficient number of colleagues make use of their opportunities so that our 1984 elections will be as democratic, as representative and as competitive as the terms of electoral system Mark II envisaged and allow.

I wish a happy and successful 1983 to sound archivists anywhere.

D.G.L.

IASA EXECUTIVE BOARD MEETING, STUTTGART 18-19 NOVEMBER 1982

SUMMARY OF THE MINUTES

Present: David Lance (President), Dietrich Schüller, Rolf Schuurmsma (Vice-Presidents), Ulf Scharlau (Treasurer), Helen Harrison (General Secretary) and Poul von Linstow (Membership Secretary)

1. Apologies were received from Ann Briegleb (Editor) and Peter Burgis (Vice-President)

2. Minutes of the Brussels Board Meeting

Some outstanding items from the Brussels meeting needed clarification.

The Directory. The Treasurer has fixed the price for sale to non-members at 15 DM plus postage. Review copies have been dispatched.

Membership in future conference venue countries. Efforts are being made to increase membership and find representatives in two future conference venues; Italy and East Germany. Das Schallarchiv papers. Papers from the Austrian journal are to be translated and published in a forthcoming PHONOGRAPHIC BULLETIN. A simple translation is not enough and some rewriting is necessary.

3. Washington Conference

The organization of the conference and sessions were discussed in some detail and the results can be seen in this issue of the PHONOGRAPHIC BULLETIN and in the conference papers already received by members.

Members are warned that because of the expense of photocopying, these facilities will be limited in Washington DC. We will also be limiting translations in 1983 due partly to the expense and also the difficulty of finding suitable translators.

Exhibitions. Several members are planning exhibitions at the conference and we hope to have a larger one than last year. There will also be a commercial exhibition and all members are invited to canvass support for this.

Programme. The preliminary programme has been mailed to all members and in addition the Board decided to mail the ARSC membership in North America with details and a special letter of invitation encouraging them to attend. The latest details of the programme are included elsewhere in this BULLETIN, and the final programme will be available at the conference itself.

Sessions. The content of the opening session is a matter of debate between IASA and IAML in an endeavour to achieve a formula which will be acceptable to as many participants in the conference as possible.

The conference programme is becoming very full and there are considerable difficulties of scheduling items so that they do not overlap. It is also a problem to allow participants some breathing time during the conference to take advantage of the many other events which occur during the week. The Secretary General is aware of these difficulties and has tried to overcome them as far as possible.

4. Treasurer's Report

Ulf Scharlau has circulated the financial report and tabled a report of the expenditures for 1982 for information. This showed expenditure of 14752 DM including the directory, while total dues received were only 10670 DM. To balance the expenditures the directory had been paid for out of the special account which meant that our current account was still in credit of 1930 DM. The Board has agreed to set aside one year's normal expenditure as a reserve and use it as working capital. It was noted that routine expenditure by 1983 might well be in excess of receipts. Three principles had to be agreed:

1. The maintenance of a reserve
2. The use of current funds
3. An increase in dues.

The reserve will be used for special projects such as publications, and any income from the sale of publications will be returned to the reserve. The reserve should be equal to one year's normal expenditure.

Current expenditure includes the costs of printing the PHONOGRAPHIC BULLETIN, postage, other printing, translations, current costs for committees, typing and administration costs for banking.

On 3) To cover current expenditure the Treasurer recommended an increase in dues. Institutions from 60 DM to 80 DM. Individuals 25 DM to 35 DM and Subscribers from 25 DM to 45 DM. These are based on a 3-year projection and the increase will be effective from 1984-1986. Information on the increase in dues was circulated to the membership with the invitation, preliminary programme and constitutional amendments in January 1983. There was some discussion about funding for Executive Board members. It is becoming increasingly difficult for Board members to acquire funding from their respective institutions for the mid-year Board meetings in particular. The Treasurer will present a paper in Washington covering the question of Board funding.

5. Membership Secretary's Report

IASA has 142 institutional, and 192 individual members and 26 subscribers. Recruitment policy was discussed and several ideas were put forward to increase the membership, including some delegation of recruitment responsibility to National Branch officers. Recruitment literature will include a list of publications and of articles in the PHONOGRAPHIC BULLETIN.

6. Committees

Committees were discussed with particular emphasis on the future programme of activities. The Technical Committee has experienced difficulty in concluding its business during the annual conference and the Chairman was asked to suggest that the committee use an extra day before or after the annual conference for extra working sessions. The Cataloging Committee has been in difficulties during the past year or so and Rolf Schuurmsma looked into the problems in a paper dated November 1982. There will be a meeting in Washington to reorganize the committee on the basis of the November 1982 paper. The Copyright Committee has also experienced difficulties, the working session in Brussels had been disappointing as no one would take executive positions. It is hoped that the committee can sort itself out in Washington. National Branches Working Group. It was reported that Anna Maria Foyer (SwedishRadio) had been appointed Chairman of the Internordic branch for a two year period.

7. Constitutional Revisions

Discussions at this point concerned the revisions in Group 1 presented to the members in January 1983. Revisions included minor rewordings and the new postal ballot arrangements. Amendments to the Constitution. These were discussed at length. There were two separate topics for discussion:

1. Principles involved in the amendments
2. Wording of the amendments

The principles include:

- a. Relationships between the various groups
- b. Finance
- c. Rights of other groups

a. Relationships between groups. After discussion the Board agreed that a clear distinction has to be drawn between the different kinds of national groups: national branches with a close relationship to IASA and affiliated organisations with less close ties. National branches would indicate a nominal subordination to the international body which we should not expect from affiliated organisations. But groups would be left free to decide which type of association they wanted with the international body. Application to join IASA should provide a statement on the relationship required. A close relationship indicates a national or regional branch. A loose relationship with a priority for national needs indicates an affiliated organisation. National or regional branches should include at least 50% membership of IASA. The Board agreed to leave this dividing line at 50% in the realisation that many national branches cannot achieve a higher percentage let alone a 100% membership, but are still prepared to fulfil the other criteria of a national branch. The chairman and one other member of the executive committee of national or regional branches should be members of IASA. After discussion the criteria of affiliation were accepted. It was further agreed that a third category of Associate members was needed for organisations in related fields of interest.

b. Finances and national branches. The principle was that all dues should be paid to the Association and further that national branches should if necessary raise their own dues. There was considerable discussion on reimbursement to national branches. It was agreed that such reimbursement should not be put into the Constitution or By-Laws as this would be too formalised.

Affiliation fees. The principle of organisations paying a fee for affiliation to IASA was accepted. Fees would be decided by the Treasurer on a cost-effective basis and voting rights would allow for four votes per affiliated organisation.

c. Rights of other groups. The affiliated associations are an important focal point of the sound archive movement and IASA has to persuade them to have direct links and provide some advantages for affiliation. But it should not be made more advantageous to be an affiliated body than a national branch. Affiliated organisations will have access to the National Branches Working Group which will be asked to widen its remit to include them. The result of these discussions is contained in Group 2 of the Constitutional amendment presented to the membership in January 1983.

8. Publications

Third World Guide. Unesco had asked for amendments at a very late date and when we finally heard from them we could not accept the amendments demanded, and it will not be possible to publish the work in cooperation with Unesco. The alternatives which remain are to use the papers in the PHONOGRAPHIC BULLETIN or to issue a Special Publication no. 4. Publication in the PHONOGRAPHIC BULLETIN was the less attractive alternative as it would diffuse the material. It was agreed to publish the material in a Special Publication.

Directory. Note was taken of the publication of the directory and thanks to Grace Koch were recorded. An ISBN would be obtained for the directory.

Technical Manual. Material is coming in and now needs editing.

Selection. The timetable for this publication was discussed. It had been hoped to edit the papers immediately after Washington and produce a publication as soon as possible. In view of the "Third World Guide" this might put too much strain on Association finances and it was recommended that the publications were spread out. It was agreed to consider Selection for publication in 1984.

9. IAML/IASA

At the Brussels meeting IAML had drawn attention to the difficulty of mounting a conference every year and asked us to consider the frequency of the conference. The Board discussed this, but as the IASA constitution states that we must hold an annual General Assembly IASA would have to stay with the annual conference. Delegates from outside Europe all feel it is very important to meet at least once a year, otherwise they feel isolated.

General Assembly. The General Secretary drew attention to the problems of concluding association business in the General Assembly in Brussels. Many requests have been received to consider an extended General Assembly because of the inadequate time given to committees and national branches to report. Publication of reports in the pre-conference PHONOGRAPHIC BULLETIN is not a solution as many committees cannot meet the publication deadlines and other reports have to be more up-to-date, e.g., the Treasurer's report. It was agreed to allow for 2 General Assemblies in election year and an extended General Assembly in other years. This could only be achieved in Washington by starting the General Assembly at 10.45 allowing two hours. The Executive Board meeting would start at 8.30am. The General Secretary will work out a programme of timings and notify all speakers of this. She would also ask the reports to be given in summary in the Assembly with the opportunity for full reporting in the post-conference bulletin.

Meeting of Presidents and General Secretaries. It was reported that IAML and IASA have agreed to hold a "summit" meeting at the annual conference to discuss matters of mutual concern and organisation of the annual conference.

10. Relations with Other Organisations

Unesco. It was noted that the latest Unisist Newsletter contains no mention of IASA and no abstracts are included from the PHONOGRAPHIC BULLETIN. The Board decided to draw the omissions to the attention of the next meeting of the non-governmental organisations.

The General Secretary reported that she had received a request from Unesco to send observers to a meeting on copyright: the safeguarding of works in the Public Domain, January 17-21 in Paris.

ARSC. The President informed the Board that a meeting is being arranged in Washington between officers of IASA and ARSC. Items for consideration include the future relations between the two associations, possible affiliation and the presence of ARSC on the NBWG, a mechanism for exchanging information and newsletters, and perhaps a Joint Committee to discuss matters of mutual concern.

IFLA. Preliminary information about the next annual meeting in Munich, August 21-27 1983 has been received. A council will be held in Munich at which IASA has voting rights and it is hoped that we will be represented at the conference. Relevant commissions of IFLA include Cataloging, AV Round Table and Conservation.

11. 1984 Elections

Nominating Committee. The Board will begin the formation of the nominating committee for these elections.

Some members of the Board questioned the lack of nominations. It was suggested the Board could only draw attention to the facts in Washington and perhaps the President's column in the PHONOGRAPHIC BULLETIN.

Program for Annual Meeting, Washington, D.C.

SUNDAY 8 MAY

- 10.00 - 17.00 Registration
- 10.30 - IASA Executive Board (members only)
- 16.30 - 17.30 Special introductory session for newcomers to IAML/IASA conferences
- 18.00 Opening session

MONDAY 9 MAY

- 9.15 - 10.45 Selection. Chair: Helen Harrison (Open University, England) Criteria of Selection. National Collections, Les Waffren (National Archives, Washington DC); Selection in the Field, David Lance (Imperial War Museum, London)
- 11.15 - 12.45 IASA Training Committee: working session
IASA Technical Committee: working session
IASA Cataloging Committee: working session
Joint IAML/IASA Committee on Music and Sound Archives: Radio Sound Archivists (working meeting, members only)
- 14.15 - 15.45 IAML/IASA Committee on Music and Sound Archives: Popular music in a sound archive: criteria for selection and classification. Chair: Derek Lewis (BBC, England)
The activities and aims of the International Association for the Study of Popular Music, Charles Hamm (Dartmouth College, Hanover, New Hampshire); Recommendations on selection, cataloging and classification, Gordon Thiel (University College, Los Angeles); Subject classification in the BBC Popular Music Library and the Gramophone Library, Leslie Wilson and Derek Lewis (BBC, England); Popular music in a small radio archive, Jim Sullivan (Radio New Zealand)
- 16.15 - 17.45 Copyright Committee. Chair: Ernest Dick (Public Archives of Canada, Ottawa) The Philosophies of copyright. Speakers to be announced.

TUESDAY 10 MAY

- 9.00 - 10.30 Technical Committee. Chair: Dietrich Schüller (Phonogrammarchiv, Vienna) The construction and rationale of building the Belfer Audio Laboratory and Archive, Syracuse University, William Storm (Syracuse University, USA); Library of Congress' investigation of optical systems and potential audio applications, Robert Carneal (Library of Congress, Washington DC)
- 11.00 - 12.30 Technical Committee (continued). The relevance of high technology to sound archives. Chair: William Storm (Syracuse University, USA); Future applications of compact discs for archival storage, Nick Morris (Sony Professional); Canadian National Archive study of videodisc for audio preservation, Fred Granger (Public Archives of Canada)
- 14.00 - 15.30 Association of Recorded Sound Collections. Chair: Mike Gray (Voice of America, Washington DC. Chairman ARSC Publications Committee) Activities of ARSC. The "Who, what and where of ARSC", Les Waffan (National Archives, Washington DC); Research projects under and outside the ARSC umbrella, Tim Brooks (NBC, New York); ARSC Publications and the ARSC Grants Program, Mike Gray; A report on the Associated Audio Archives 78rpm cataloging project. Overview, Gerry Gibson (Library of Congress, Washington DC); Logistics, Elwood McKee (AAA Project Coordinator); Computer applications in the AAA project, Gerry Persons (Stanford University)
- 16.00 - 17.30 National Branches Working Group: business meeting (members only)

WEDNESDAY 11 MAY

- 8.30 - 10.15 IASA Executive Board (members only)
- 10.45 - 12.45 IASA General Assembly (members only)
- 14.15 - 15.45 Training Committee. Chair: Rainer Hubert (Phonothek, Vienna) The training needs of Third World countries, Harriet Woakes (Ahmadu Bello University, Zaria); Report on Third World Training Scheme, Rainer Hubert (Phonothek, Austria); Data on existing courses, Prue Neidorf (National Library of Australia, Canberra); Subject core for training courses, Grace Koch (Australian Institute of Aboriginal Studies, Canberra)
- 16.15 - 17.45 Visit to the National Archives Recorded Sound Division

THURSDAY 12 MAY

- 9.15 - 10.45 Oral History. Chair: David Lance (Imperial War Museum, England) Speakers: Richard Lochead (Public Archives of Canada, Ottawa), Rolf Schuurmsma (Erasmus University of Rotterdam, The Netherlands), Ronald Grele (Columbia University, USA)
- 11.15 - 12.45 Cataloging Committee. Chair: New Committee Chairman. The aims and future program of the Cataloging Committee. Chair: David Sommerfield (Library of Congress, Washington DC); Computerized cataloging and indexing at the Institute of Jazz Studies, Rutgers University, Marie Griffin (Institute of Jazz Studies, New Jersey). The International Piano Music Archives, Morgan Cundiff (IPMA, University of Maryland)
- 14.15 - 15.45 Technical Committee. Chair: Dietrich Schüller (Phonogrammarchiv, Vienna) Signal enhancement of historical sound recordings by digital filtering, Werner Deutsch (Commission of Sound Research, Vienna); Horn resonances in the acoustico-mechanical recording process, the measurement and elimination in the replay situation, George Brock-Nannestad (Gentofte, Denmark)
- 16.15 - 17.45 Copyright Committee: working session

Technical Committee

PER R. FLOOD, Department of Anatomy, University of Bergen, Norway
TOR KUMMEN, Norwegian Broadcasting Corporation, Oslo, Norway
ØYSTEIN WENDELBO, University Library, University of Bergen, Norway

THE RESTORATION OF STORAGE-DAMAGED DECELITH GRAMMOPHONE RECORDS

Correspondence relating to issues discussed in this paper may be directed to Associate Professor Per R. Flood, M.D., Department of Anatomy, University of Bergen, Arstadveien 19, 5000 Bergen, Norway.

INTRODUCTION

By the end of World War II the German forces that had occupied Norway for five years left behind about 1500 grammophone records with original sound recordings from their "Soldatensender Oslo". This sender belonged to a special branch of the German controlled Norwegian broadcasting corporation and broadcasted programs in German, primarily intended for the German soldiers positioned all over Norway between 1940 and 1945.

This collection of wartime German broadcasting programs remained in the archives of the Norwegian broadcasting corporation in Oslo until recently when it was registered and transferred to the German broadcasting archives in Frankfurt. Here it will constitute a significant part of the wartime material as most recordings from this period (about 90%) were destroyed upon the German capitulation in 1945. The Oslo material may accordingly be considered to be of great historical value. However, the records have been stored in Oslo for 35 to 40 years under far from optimal conditions and most of the discs are now so severely damaged that they do not allow any direct play off or transfer of information to other media.

We have examined these records by various techniques in an attempt to understand the mechanism behind their damage. This was considered necessary to design a safe restoration procedure that would not interfere with the sound recordings and their subsequent conservation. Based on our findings we were able to restore a great number of discs that had been damaged to a state where no intelligible sounds could be retrieved.

As others may have similar problems with old phonographic materials we consider it worthwhile to inform about our findings and results here.

THE APPEARANCE OF THE OSLO MATERIAL BEFORE RESTORATION

The records all wear the name "Decelith Type L" on their labels. Each record consists of a soft and blackish, wax- or plastic-like coat, about 0.22 mm thick, wrapped around a flexible white and glossy disc-shaped plastic core about 0.62 mm thick. The records have a diameter of 12 inches and the sound tracks are engraved in the soft, blackish surface layer, usually only on one side of the record.

Upon storage the records were stacked on top of each other with only a single sheet of thin semitransparent paper in between. By now, about 40 years later, this paper is strongly attached to the surface of the Decelith records and binds them together in inseparable blocks of 10 to 15 records. If forced apart such blocks will separate either between the white core and the blackish surface layer of a single record or the paper inlay between successive records will separate and leave behind a layer of paper fibres obscuring most of the sound tracks on adjoining discs (Fig. 1a).

THE STABILITY OF THE MATERIAL USED IN DECELITH RECORDS

We have made no efforts to identify the precise chemical nature of the materials used in Decelith records, but find their blackish sound track layer to turn into a sticky semiliquid substance when exposed to fumes of organic solvents like ethanol, acetone, propylene oxide, acetic acid, diethylether, etc. Temperatures up to 40°C seem to have little effect on the sound track material. However, at 60°C the substance becomes distinctly softer.

By further experiments we found that cold water, soap and mild household detergents, combined with light mechanical brushing and cleansing in an ultrasound bath had no harmful effect on the sound track material.

SEPERATION OF ADHERING DISCS AND REMOVAL OF PAPER REMNANTS

We have been able to separate discs by prolonged soaking in cold tap water and in a mixture of cold water and mild household detergents in the usual proportions for discwashing. After some hours the inlay paper between records is moistened to such a degree that the records may be carefully pulled apart. Paper remnants adhering to the sound track surface may then be brushed away by the gentle action of a nylon brush as commonly used for discwashing. The few fibres that resist this treatment may usually be removed by water in an ultrasound cleaning apparatus (Fig. 1b).

Depending on the extent of paper adhesion to the sound track surface the damage may be graded as light or severe:

Lightly damaged areas are found where the paper adheres to the disc surface in small spots scattered throughout an otherwise undamaged surface. Such damage is typically found where the paper separating two records was slightly wrinkled.

Severely damaged areas are characterized by the paper adhering over large continuous areas of the record.

Some records were also stacked on top of each other without any paper inlays. These records were impossible to separate and adjoining sound track layers appeared melted together to a single uniform cake without any remnants of sound tracks.

EVALUATION OF THE SOUND TRACK SURFACE

Small pieces of sound track material were removed from a few discs and examined in JEOL TS200 scanning electron microscope. This kind of microscope allows us to see the surface pattern and contours of the sound tracks in great detail at high magnification.

In the undamaged state the Decelith records reveal a completely smooth surface between the engraved sound tracks. Each track is V-shaped in profile and about 0.15 mm wide near the surface of the record. Irregular longitudinal striations are typically left behind in these grooves by the engraving stylus.

In lightly damaged areas small fragments of paper adhere to the disc substance (Fig. 2a) and leave behind imprints of paper fibres in the disc surface. Usually these imprints are quite superficial and seem not to disturb the size and form of the sound tracks to a significant degree (Fig. 2b).

In severely damaged areas paper imprints cover the entire disc surface and appear to penetrate deeper into the disc substance than in lightly damaged areas. At places the imprint may extend in the full depth of the sound tracks. Each groove may in such areas be severely reduced in depth and width or even disappear completely (Fig. 3).

To the extent that a sound track is reduced in size and form its content of intelligible information is also likely to be reduced. Damage above a certain degree will probably cause noise that will prevent the extraction of any intelligible information.

THE MECHANISM BEHIND THE STORAGE DAMAGE

The storage damage consists of paper fibres being pressed into a soft sound track material. A negative replica of the paper surface is thus formed in the sound track material to the detriment of the form and size of the engraved sound tracks themselves. The very close apposition of paper fibres and sound track material and their intricately interdigitating surfaces are considered sufficient for their strong mechanical binding to each other. Chemical interaction or adhesive properties at the microscopic level seem rather unlikely as we are able to disrupt the binding by such simple treatments as waterbath, brushing and ultrasound cleaning. (The ultrasound effect is a purely mechanical one. Sound waves are pressure waves and when sufficiently strong the pressure changes will alternate to make water boil and condense at room temperature. Rapidly appearing and disappearing microscopical steam bubbles accordingly will hammer their way wherever water has penetrated and force the paper fibres away from the synthetic sound track material.)

POSSIBLE CAUSES OF THE STORAGE DAMAGE

Pressure on the inlay paper from records stacked on top of it alone or in combination with a softening of the sound track material of the records seems responsible for the damage.

Possibly the considerable weight of records in high stacks for 35 to 40 years is more than enough to explain imprints in a soft synthetic material meant for original sound track engravings. Another important factor may be the accumulation of volatile organic compounds between the tightly packed records. Such fumes normally escape from the surface of most soft and unstable wax or plastic compounds (note the characteristic smell of Decelith records), and when prevented from escaping the gases may well cause a dissolution or

softening of the sound track material itself. We may also suppose that unfavorable temperature changes, or chemical fumes in the environment or from the paper inlays may have contributed to an increased vulnerability of the sound track material over the long storing period of our material.

RECOMMENDED RESTORATION AND CONSERVATION PROCEDURE

1. Soak record over night in cold tap water with or without some household detergent.
2. Pull adhering records gently apart. Leave in waterbath for further soaking if excessive resistance against separation is felt or if paper is not properly moistened.
3. Take care of the label or the inscriptions on the label of each record.
4. Place record on flat support and rub gently with nylon brush to remove paper fibres adhering to the sound tracks.
5. Rinse in running tap water and repeat step 4 until all fibres are removed.
6. Remove excess water by lintfree tissue and allow to dry.
7. Replace or renew label
8. Store records in individual paper envelopes in a vertical position or horizontally with less than 10 records in each stack.

NB! Steps 4 and 5 should be repeated several times if sound tracks are preserved below the paper remnants. If not preserved, all efforts to restore the record will be wasted.

We have no access to an ultrasound cleaning apparatus large enough to accept intact 12" records, but found this method useful for final cleaning of smaller fragments of records. We believe an apparatus of sufficient size and strength would cost about U.S.\$ 10.000.

DRAWBACKS OF PROPOSED RESTORATION PROCEDURE

Soaking in water may dissolve ink writing on labels.

If water penetrates to the white core material through cracks in the blanchish sound track material, the latter may detach from the former especially by ultrasound treatment. In spite of numerous large cracks on records restored by us, such detachment is rare.

Although mild household detergent seems to have no deteriorating effect on the sound track material we have no proof against long term effects. We find such effects very unlikely, but recommend the use of pure water as an initial measure.

Too long and strong ultrasound treatment may possibly erode some of the sound track material or promote splitting between core and sound track material.

INFORMATION RETRIEVED ON RESTORED RECORDS

On lightly damaged records, which were impossible to play before restoration, we have been able to retrieve fully intelligible talks with sound qualities similar to well used 78 rpm records.

On more severely damaged records the sound quality rapidly drops to unintelligible and the needle frequently loses its track.

TEXT TO THE FIGURES

- Fig. 1 Microphotographs of the same segment of a Decelith record a) before and b) after restoration. The magnification is about 3 times. Paper remnants (*P*) adhering to the untreated record leave behind surface imprints (*i*) in the restored record. Corresponding spots of paper and imprints are identified by various symbols in the two micrographs. The patchy pattern to the right is characteristic for lightly damaged areas where sound tracks are preserved below the paper remnants (*arrows*). To the left more heavily damaged parts of the record are shown. Within the circle no sound tracks are preserved.
- Fig. 2 Scanning electron micrographs of a small part of a Decelith record a) before and b) after restoration. About five sound tracks are shown on each micrograph and corresponding details are identified by various symbols for ease of orientation. The paper fragment (*P*) left behind an imprint (*i*) in the sound track material. Magnification x60.
- Fig. 3 Scanning electron micrograph of a heavily damaged part of a Decelith record. The sound tracks are reduced to narrow slits (between single headed arrows) and may be obliterated completely for shorter or longer distances (between double headed arrows). Note imprints of paper fibres between asterisks. Magnification x60.

ERHARD ASCHINGER, FRANZ LECHLEITNER, DIETRICH SCHÖLLER

THE OLD PHONOGRAMS OF THE VIENNA PHONOGRAMMARCHIV;
RE-RECORDING PRINCIPLES AND PRACTICES

*This paper was read by Franz Lechleitner at the ARSC-Meeting, May 1982,
in Syracuse, N.Y., U.S.A.*

Unlike other early sound archives the Vienna Phonogrammarchiv did not make use of the Edison Phonograph but developed its own recording system, called Wiener Archivphonograph. This system used Edison diaphragms for hill-and-dale-cut, used the same pitch (100 lines per inch) but the physical shape of the recording medium was a disc of 15 cm (6 inches) diameter instead of a cylinder. This form was chosen for the sake of simplification of the multiplying procedure, having a copper master as an "everlasting" negative for subsequent remould. Between 1900 and 1930 over 3.000 such phonograms were recorded.

During World War II the collection of the negatives and that of the positives were stored

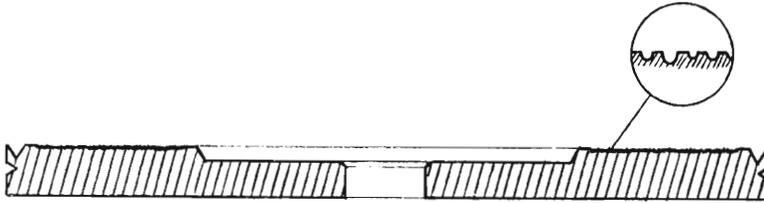


Fig.1a Wax disc, cross section
thickness approx. 10mm



Fig.1b Copper negative (master), cross section
thickness approx. 1mm
shown upside down for convenience



Fig.1c Epoxy resin cast, cross section
thickness approx. 2-3mm, 150mm dia.

in separate places for security reasons. In February 1945 a bomb hit the building where the positives had been stored and all of them were destroyed in the fire. The negatives, however, remained safe in their place. After some attempts to remould them by employing the old methods using wax, Dietrich Schüller in 1962/63 developed a method of remoulding them with epoxy resin, thus getting absolutely identical replicas, unbreakable and resistant to many replays (Fig. 1a-c). A detailed description of the old phonograms and their reconstruction will be given elsewhere. This paper deals with basic and practical considerations and experiences concerning the re-recording of these more than 3.000 epoxy resin discs which started only in 1969. It does not aim at giving an in-depth study including a complete reference to re-recording literature published so far. This paper simply seeks to document the state-of-the-art developed in the Phonogrammarchiv throughout the last 13 years in joint discussion and common work of the three authors. It shall serve as a contribution to this and forthcoming discussions concerning the re-recording of historical sound records.

TRACKING PROBLEMS

While originally the positives were replayed by a lead-screw driven tangential tone-arm, modern low friction arms enable us to replay the epoxy discs like gramophone discs despite their sometimes quite shallow grooves. However, centering the discs is sometimes a tedious operation. Problems arise whenever the surface of the disc is not parallel to the platter due to deformations of the copper master. In most cases a compensation can be achieved by proper alignment of the antiscating device. Record warp, too, sometimes causes difficulties. While for the average discs the long SME arm 1012 is quite suitable, critical discs require the low inertia SME Type III arm which is used with the liquid damping to prevent an audible noise caused by a ping-pong movement of the ever too small tip in the groove. Normally the original replay speed can be used, which ranges from 50 to 90 rpm; difficult tracking sometimes may be overcome by half-speed replay (disregarding unmatching tape equalizations). For first attempts 65 μm (2,6 mil) conical tips were used while now 100/30 μm (4/1,2 mil) biradial is standard and less noisy. 140/50 μm (5,5/2 mil) has been tried out by courtesy of Wilfried Zahn in the DRA but showed no significant improvements on the records under test. We are reluctant in using larger radii having in mind the distortions described by Hans Meulengracht-Madsen, which convert small sinusoids into cycloids.¹ Ultra shallow grooves always call for small tips. Tracking force commonly ranges from 25 - 40mN (2,5 - 4 g).

CARTRIDGES AND CUTTING ANGLE ERROR COMPENSATION

Originally, a SHURE M 75 stereo cartridge was used which was later replaced by AKG cartridges for the simple reason that it is easy for us to get blank cantilevers through the courtesy of this Viennese manufacturer. All systems are carefully checked for geometrically correct mounting and for identical frequency response in both channels to prevent compensation errors.

A simple linear sum/difference matrixing circuit is employed to obtain mono reproduction of either lateral or vertical groove information from the two 45/45° stereo channels of the pickup. However, the matrixing coefficients are made variable by means of potentiometers which allow for the electrical adjustment of the virtual pickup vector angle so that it will match the original cutting angle. This proves to be a crucial point with many of our phonograms as obviously a high percentage suffers from cutting angle error in relation to the ideal 90°. In practice, the matrixing potentiometer is adjusted for minimum reproduction noise, which setting seldom coincides with the calibrated 90° position (straight matrix sum).

Extensive considerations were given to Wilfried Zahn's paper² in which he suggests the insertion of a $\pm 90^\circ$ variable phase shift in one stereo channel (before matrixing), which, by the way, again appears in Tom Owen's paper³ without reference to Wilfried Zahn. The declared purpose of this arrangement is to compensate for any cutting angle error present in the recording.

During a working session with Wilfried Zahn in Vienna in 1979 these problems were discussed and Wilfried Zahn was able to demonstrate an audible improvement of reproduction using his device. However, measurements indicated that this device shows a phase shift which varies with frequency and also introduces a change in channel gain depending on phase control setting. Considering these facts we all agreed that the beneficial effect appears to result solely from the above mentioned virtual cutting angle correction.

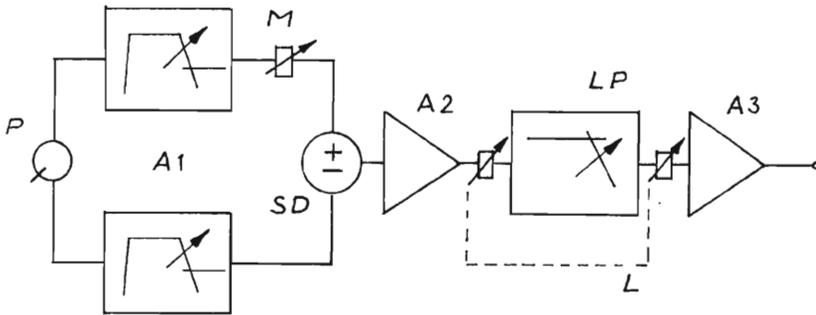


Fig. 2

- P Stereo pickup
- A1 Two-channel, ultra-low noise preamplifier
 $1/\omega$ frequency response starting at 50 Hz
switchable subsonic filter
switchable mid-frequency plateau (for electrically recorded 78 records)
- M Matrixing balance potentiometer
- SD Switchable sum/difference matrixing circuit
- A2 Matching amplifier
- L Dual ganged level control
- A3 600 ohms output amplifier

As any lateral cutting angle error would introduce a lead in one groove wall in relation to the other which is independent of frequency, a correction during the reproduction would require a frequency-independent delay in one pickup channel. Therefore, a high-quality analog delay line was built which allows the introduction of a variable lead/lag of up to $\pm 200\mu\text{s}$ in one channel before matrixing. As already suspected from our theoretical considerations, no significant results were obtained with this device.

EQUALIZATION

The most widely discussed (and, we think, overrated) problem is related to frequency response equalization. As many others, we too originally intended to find out the frequency distortions introduced by the recording system and to compensate for them by inverse equa-

lization. These plans, however, have been given up so far. Our phonograms were recorded with an unknown number of different diaphragms using an unknown number of various membranes of various materials (wood, glass, ivory, mica etc.). In addition to that, various horns of various shapes and various materials and of course various tube lengths were employed. There is written documentation on the material of the membranes and sometimes on the horn having been used. Unfortunately no reference has been made to the very specific, individual samples, quite apart from the fact that many of them did not survive World War II. No test recordings were made at those times. As in our case, frequency distortion obviously varies tremendously from recording to recording. It seems to be useless to employ one or the other equalization derived from one or the other test, because this would necessarily be left to chance. Moreover, neither the original composition of the wax (which certainly was subject to variation) nor its influence under the various climatic conditions on the frequency response can be seriously evaluated. As our material is mainly comprised of exotic music, folk music and dialects from all over the world, methods of calculating the distortion through comparison with modern recordings by amplitude-statistic evaluation are not possible. This may work in the case of piano music or some other similar medium. It is, however, hoped that within the forthcoming decade auto-correlative methods may be developed in cooperation with the Kommission für Schallforschung of the Austrian Academy of Sciences, where a digital analysis-synthesis system is being built up. In view of all that, equalization is made by a $1/\omega$ (6dB/octave slope) amplifier compensating for a theoretically postulated constant-amplitude cut. A band pass filter is used with a slope of 18 dB/octave. Its roll-off points are adjusted to the individual recording according to its signal and its noise. The lower point normally ranges between 100 and 200 Hz, the upper between 4,000 and 7,000 Hz. No dynamic noise filters, de-clickers and similar devices are used for the master-tapecopy. This philosophy makes the master copies open to any further treatment to individual need and technical development.

The experiences so far show that re-recording techniques develop dramatically especially through international cooperation. Therefore no attempts are made to copy the entire collection at once. Copies are only made whenever there is a strong demand for certain recordings and then they are copied with the latest method at hand.

ACKNOWLEDGEMENTS

This paper describes the state-of-the-art of re-recording practices as jointly developed by the authors. They were not quite alone in gathering their findings, but profited from many personal contacts they had within these last years. They are especially grateful to:

Dr. Werner A. Deutsch, Kommission für Schallforschung der
Österreichischen Akademie der Wissenschaften, Vienna,
Robert B. Carneal, Library of Congress, Washington D.C.,
Wilfried Zahn, Deutsches Rundfunk Archiv, Frankfurt am Main,
and Lloyd Stickells, previously Imperial War Museum, now
Institute of Recorded Sound, London,

for long and fruitful discussions and sometimes jointly made experiments. It may be hoped that through international cooperation even more exchange of knowledge on this challenging issue will be achieved.

NOTES

- 1 Hans Meulengracht-Madsen, "On the Transcription of Old Phonograph Wax Records", Journal of The Audio Engineering Society 24, No.1 (1976), pp.27-32.
- 2 Wilfried Zahn, "About the Reproduction Problems of Edison Cylinders", Phonographic Bulletin 21 (1978), pp.28-29.
- 3 Tom Owen, "Audio Restoration and Transfer Technology", paper presented at the 68th AES Convention, Hamburg 1981, Audio Engineering Society Reprint 1737 (X-3).

DIETRICH SCHOLLER, Chairman IASA Technical Committee

PRELIMINARY RECOMMENDATIONS FOR FIRE PRECAUTIONS AND FIRE EXTINGUISHING METHODS IN SOUND ARCHIVES

In the winter of 1979/80 the Technical Committee started an investigation under the title "Towards Standardized Fire Regulations in Sound Archives". Various archivists had expressed their concern about an obvious lack of recommendations in this field. The Technical Committee sent out a questionnaire to all IASA member archives, asking for their fire precaution methods and eventual experiences with damage caused by fire and the fight against it. The response was rather poor, astonishingly, but those who reacted emphasized how important they found this project. For all encouraging comments and valuable information the reporter would like to express his thanks. On the basis of information obtained through this questionnaire several experts have been contacted, especially those concerned with computer firms, tape-manufacturers and - last not least - the fire brigade. As a result of this investigation the following draft has been drawn which was amended and approved by the Technical Committee.¹

First of all it should be underlined that it is not the task of these recommendations to deal with general precautions, such as dividing large areas with fire-proof doors, detailed instructions of the personnel, etc. Instructions like these should be obtained from professional fire fighters and through literature. In many cases there will be local or national rules already established by authorities whose responsibilities include sound archives. This is only to examine the specific needs and peculiarities resulting from the precaution for sound carrying media.

Fire produces high temperatures which affect a wider radius than the fire itself with the phenomenon of inflaming and burning. As temperatures above 50° C constitute a risk for sound carrying media of certain materials (PVC, vinyl), storage-areas should be insulated as well as possible against extremes in temperature (this would, on the other hand, make temperature control less cost-effective). A warning system therefore should be extended far beyond the storage area to that area that may be effected by high temperatures or that may be at risk due to spreading of the fire. That means that in a building with wooden ceilings and staircases for instance, the alarm devices have to embrace a much greater area than in a modern concrete building. Another danger resulting from fires at some distance from the storage-areas themselves is water damage. Therefore, in establishing storage-areas, precautions should be considered not only against flooding but against water damage resulting from attempts to extinguish fire outside the area as well. That means water-proofing both in vertical and horizontal directions. It has to be mentioned that providing measures like those may cause legal and organizational problems wherever a sound archive shares its premises with other institutions and authorities.

An archive itself can only be absolutely protected, if this is possible at all, by the installation of an automatic warning and fire extinguishing plant. There are three different types in use: water, carbon-dioxide and halon. The pros and cons of the various agents will be dealt with later. At this point of our discussion it is important to state that water and carbon-dioxide need elaborate installation, while halon can be installed room by room without being connected to one another by a system of tubes. In case of false

alarm this latter plant will probably cause the least damage because fire-extinguishing concentration, as we will see, will constitute relatively low risks to material and human health. With ventilation, fumes can be cleared. On the other hand water would exhibit all its disadvantages which will be dealt with later, whereas carbon-dioxide in case of false alarm constitutes a risk of life, despite all security measures.

Automatic fire extinguishing plants, however, will not always be feasible, mainly for financial reasons. Therefore at least a considerable amount of hand-operated fire-extinguishers should be available to enable the immediate fight against small fires if they are luckily detected in time. It is essential to choose the right type of extinguishers throughout the whole archive, as sound carrying media may be kept not only in the storage-areas themselves but in other rooms too and, moreover, valuable machinery should not be unnecessarily exposed to the danger of damage. The following four types of extinguishing agents are used: water, powder, carbon-dioxide, and halon.

Leaving out of account the risk of damage that might arise to shellac discs and records of exotic materials like gelatine caused by the use of water, none of these agents according to experts' opinions is chemically reactive with sound carrying media. However, no chemist will yet guarantee that in every imaginable case absolutely no harm will occur, but it is generally pointed out that such risks are highly improbable and, in any case, far below the risks to health and materials constituted by evaporating by-products from burning records, tapes and their packing materials.

As all of the four mentioned agents have their specific indirect risks, the advantages and disadvantages should be examined carefully:

Water: As already stated, water - with the exception of shellac and some exotic materials - is not aggressive to sound carrying media themselves. It can, however, be dangerous if it soaks packing materials and thus fosters fungus growth which severely affects the surface of sound carrying media of all kinds. In addition, water in some cases carries dirt (sand, plaster, etc.), which damages mechanical apparatus. After having used water as an extinguishing agent, extensive drying measures are indispensable and probably most of the packing materials must be exchanged during cleaning operations if the water has carried dirt. If small amounts are affected, this should be unproblematic, but it is questionable whether great amounts of material, especially tapes, can be treated in time to avoid fungus growth. For the tape-recorders and other equipment, water constitutes the well known risk of corrosion. But immediate drying may minimize the damage. The aimed application to the center of the fire is one of the advantages of water-filled extinguishers, the greatest disadvantage, however, is the fact that the operator risks an electrical shock if equipment connected to the mains is hit by the stream of water.²

Powder: The extinguishing effect of powder (in most cases sodium-bicarbonate) is caused by suffocation of the fire. Nowadays it is probably the widest used filling for fire-extinguishers. Its great disadvantage lies in the fact that even its local application spoils the whole room with dust, which, because of its very fine nature, is very difficult to remove. Dust in all forms, however, is one of the greatest enemies of tapes and discs and a risk for all machinery with revolving parts, such as tape-recorders. Simply for that reason powder extinguishers are not recommended for use in sound archives.

Carbon-dioxide: As all other agents, carbon-dioxide is not regarded as a chemical danger. It is, however, a risk to health. It may also damage both sound carrying media as well as equipment through temperature shock. The level of concentration of CO₂ to extinguish fire is deadly and, therefore, greatest care has to be taken when it is applied.

Halon: Halons are more recently developed fire extinguishing agents; they are various combinations of halogens with carbon. To extinguish fire, only low concentrations of halon are necessary, and that, it is claimed, does not constitute health risks. One minute of breathing in an atmosphere of fire-extinguishing concentration is reported not to be dangerous, while experiences of volunteers showed that even longer exposures did not cause irreversible damage. The older Halon 1211 is now followed by Halon 1301 which is regarded to be even less poisonous. Furthermore, halons are considered to be relatively harmless to all kinds of materials.

As a result of this survey, halon seems to be an attractive agent for automatic fire-extinguishing plants as well as for hand-operated fire-extinguishers. In both cases the containers should be sized according to the volume of the room, to avoid over- or under-concentration of halon in the atmosphere. Therefore the personnel should be instructed not to bring along fire-extinguishers from other rooms in order to help their colleagues. The choice between water and carbon-dioxide is difficult and should be based on the personal preference and judgment of the archivists. Powder-extinguishers, however, seem to constitute a too great overall risk and therefore should be avoided.

Technology develops quickly, national and local law may prescribe certain procedures and, finally, certain archives may deserve special arrangements: it may therefore be emphasized again that this report is preliminary and, in the first instance, an impulse to reflect the individual situation and solve it with the help of local expertise.

NOTES

- 1 This issue has been dealt with at the annual conferences in Budapest 1981 and Brussels 1982 during the Open Session of the Technical Committee.
- 2 cf. Dietrich Lotichius, "Measures for the Preservation and the Protection of Archive Program Property on Sound Carriers", PHONOGRAPHIC BULLETIN No.31, November 1981. This article deals especially with measures to rescue tapes after an influx of water in an storage-area.

CLIFFORD HARKNESS, Secretary, IASA Technical Committee

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IAML/IASA Committee on Music and Sound Archives

ELECTRONIC DATA PROCESSING IN RADIO SOUND ARCHIVES

Preliminary Remarks

At the annual conference in Budapest the IASA/IAML Joint Committee on Music and Sound Archives had been asked by several participants to hold in Brussels 1982 a special session in order to inform radio sound archivists about EDP adaptations in radio archives represented in IASA. As the present president of the Joint Committee it was a pleasure for me to prepare and to care for this session which especially thanks to the excellent reports from Colleagues of Radio Denmark and the Swiss Radio was so interesting that my suggestion to all colleagues in attendance to give me a small report about the EDP adaptation in their respective archives for publication in the BULLETIN brought remarkable results. After the Brussels conference in a circular letter to all radio sound archives being members of IASA I invited those too which were not represented in Brussels to add their reports. So in this issue of the PHONOGRAPHIC BULLETIN apart from the main reports from Denmark and Switzerland we publish all information the Joint Committee received as a result of this session. May this publication encourage all colleagues who plan a computer system or have problems with the EDP to contact those who already have dealt with similar problems. Help and guidance between colleagues on an international level within the field of Sound Archives so could realize one of the most important aims of IASA.

*Stuttgart, January 1983
U. SCH.*

ULF SCHARLAU, Chairman, IAML/IASA Committee on Music and Sound Archives

INTRODUCTION

Today we will be examining some aspects of the present situation of data processing adaptation in radio sound archives. I am not sure exactly how EDP has been working during the past several years in countries other than my own. In Germany, however, computer aid has been used in libraries since the mid-sixties in order to make formal registration of materials easier, as well as other aspects of administration such as circulation. Software programs which were offered by the EDP industry as long ago as 10 or 15 years, were unable to give satisfying text processing or to deliver necessary programs for qualified text research and analysis. At that time German broadcasting stations used catalog systems which, despite close cooperation, differed greatly from one another. In order to evolve a unified archival system even for conventional cataloging, it was agreed to establish rules for music sound carriers in order to document the same record or musical pieces in the same way at all radio archives. On this

occasion an EDP catalog system began to be considered which of course increased the demand for unified rules. The resulting system (*Regelwerk Musik*) became effective in 1974. For the past 10 years, however, EDP software has developed enormously in the archive field and in text processing. Demands which 10 years ago seemed to be utopian are self-evident today, for example, the improved input possibilities for text and non-formatted data.

As far as the introduction of EDP in radio archives is concerned, the German archives were in a more advantageous situation than other radio systems. By agreement with distribution companies, other departments such as licensing, which have to work with archival data, are put in a position where they have to use EDP. Besides this, demands for computerization in German radio archives was encouraged by planning within the program. Technical departments wanted to use EDP as well. Since 1978 a central cataloging system for gramophone records, *Zentrale Schallplattenkatalogisierung (ZSK)* in Frankfurt, is working for all German radio sound archives on a base for EDP (see Stössel paper in this issue).

In addition to these examples which are typical for the present situation, my own institution is building up as a pilot project a cassette automation system which is regulated and coordinated by EDP. An important precondition for all these projects and activities is data bases which store the necessary archive data for all sound carriers used for radio programs.

It is self-evident that in archives, not only in Germany, but also in other countries, the installation of EDP depends on practical and personnel problems which can be solved by the aid of the computer. One problem, common to all industrially developed countries, could be partially solved by EDP. It is the fact that everywhere financial problems prohibit an increase of personnel and at the same time force archives to introduce new technology. Therefore, more and more demands are put on archives which have to exist with an unchanged or even reduced number of personnel.

The first report which follows covers a topic which in my experience is important to anyone planning an EDP system, or who has recently begun working with a computer. It concerns the strategy of planning an EDP system not only from a practical but also from a human point of view. When human beings are brought into contact with a machine, it is important to give them the feeling that they are not having a dialog with a person but rather are dealing in a one-way communication with a machine. If we neglect this very serious aspect of technology without preparing the staff, we will eventually be confronted with problems and difficulties no matter how well planned the EDP system is. Swiss radio is planning its system at the moment and is being very careful from the point of strategy and psychology. I have asked Dr. Dürrenmatt to give us a report of his experiences and the methods that Swiss radio has been using for the preparation of its new systems. I hope this report will show you a way to anticipate the problems of the beginning phase of an EDP system and that it will encourage you to face these difficulties. In the second report you will be told about an EDP system which has been created especially for a radio archive, namely for Danish Radio Copenhagen. Certainly this system is not transferable without alteration to other institutions with different forms of organization, but it is nevertheless typical for an adaptation of EDP in a radio archive. Bibi Kjaer and Poul von Linstow have prepared this presentation.

HANS-RUDOLF DORRENMATT, Radio Bern, Switzerland

THE BEGINNING OF A NEW ERA IN SWISS RADIO SOUND ARCHIVES

The following report is divided into three parts:

- A. First I would like to describe the current position and problems of radio sound archives in Switzerland. You will notice that this introduction will be a first-class "lamento" concerning the archive and documentation policy of the Swiss Broadcasting Corporation over the last ten years.
- B. Secondly I shall show you how we plan to solve these problems, in particular by introducing electronic data processing. I also would like to present our organization "model", the three working groups and their different tasks.
- C. The third and last part of my report deals with all the practical questions which already have been solved or which we hope will be solved within the next year. You will see that my reflections contain a lot of open questions, some of them even with a touch of healthy scepticism. Therefore I have an urgent request; if you can give us any advice, practical hints or maybe a warning against pitfalls, we would be very grateful.
We have already visited the following institutions and profited greatly: the Deutschlandfunk in Cologne (Dr. D. Siebenkäs), the Deutsches Rundfunkarchiv and the Zentrale Schallplattenkatalogisierung (ZSK) in Frankfurt a. M. (Dr. H. Heckmann, W. Krust and K. Stössel) and the Süddeutscher Rundfunk in Stuttgart (Dr. U. Scharlau).

CURRENT SITUATION

Let me begin with the current situation of radio sound archives in Switzerland:

- A. Last year, a report on the archive and documentation affairs of radio and television in the German speaking part of Switzerland was compiled by Mr. Jean-Pierre Kuster. He described the situation of the sound archives in particular as very critical. This situation is caused by the following:

- 1. The large amount of sound carriers (records and tapes) can not be processed by the existing staff of the sound archive. Let me give you an example:

Last year the Bernese radio sound archive increased by

681 LP's	classical music
2140 LP's	light music
1144 singles	light music
82 LP's	Swiss folk music

To the total of 4047 records has to be added

505 magnetic tapes

total: 4552 sound carriers
=====

In the same year 1981 we were able to catalog

2486 records
358 magnetic tapes

total: 2844 sound carriers
=====

The catalog increased by 59384 cards. If you compare these figures you will note that there are 1561 records and 147 tapes left for cataloging. Since 1976 a system of pre-cataloging has been employed in the Bernese sound archive (since 1981 in Zürich, too), which consists of the archive number, the first composer or the first soloist listed on the record sleeve and the main title. This "pre-historic" system is absolutely non-professional, but in most cases permits location of the record or the tape.

There is of course no possibility of research into the field of performers's names and text authors, nor is it possible to find the different titles on one record. At the moment we have over 5000 LP's stored under those unsatisfactory conditions. The cataloging section of the Bernese sound archive employs 3.5 to 4 persons.

2. The physical dimensions of the sound archives in Bern and Zürich defy description. Two months ago our sound archive room in Bern with storage room, desks, and catalog, listening rooms, postal facilities, shelves for the preparation of two different programs and the small information library comprises a total of 174 sq.m.
3. The training of our sound archivists is by no means satisfactory. It fails to correspond to the professional qualifications needed. Special training in documentation, librarianship and in subject-matter knowledge is highly desirable.
4. The reserves of storage room for records and tapes in the Bernese archive, as well as in Zürich and Basel, will be exhausted in a few months. We may then have to establish a new sound archive with no direct physical connection to the old one. This would be a very bad solution, because we already have three separate sound collections (general sound effects, folk music and political sound documents). In practice this would necessitate a walking tour through the studios from one archive to the other to collect all the records for - let's say - one Saturday evening program. Our program producers have free access to the card catalog and to the shelves. They would also have to endure this physical training exercise each time they want to consult records from different collections.
5. A reference library containing the thematic indexes and the well-known music encyclopedias is lacking in the sound archive of Bern. To obtain such information we have to walk to the music division (5 minutes each way). Everybody working in sound archives knows perfectly well that record labels and covers contain incomplete or even wrong information. If we really want to provide better programing we must improve the quality of our catalog information.
6. It goes without saying that such sound archives are not held in very high esteem by producers and senior program personnel (some exceptions do certainly exist). For the past 15 months I have been trying to convince everybody in the hierarchy (from program director to regional staff as well as the chief assistant of the general manager) that sound archives are of essential importance:
 - for the preparation of programs
 - as a documentation and an information service
 - and as a center of historical and cultural value.

B. Now let me show you how we try to solve some of the problems and how the working groups are organized:

Notwithstanding the deplorable situation, the sound archives are now expected to cope with a new Third Program, but without any additional staff. According to estimates by the light music department we can expect an increase of 1000 LP's every year. That means that we shall have to catalog 5552 sound carriers in one year and handle 115925 cards. By doubling our permanent staff, it might be possible to avoid this state of emergency. This solution, however, is by no means realistic. The financial situation of the Swiss Broadcasting Corporation can be described in one word: "ADMINUS"; that means economy measures. The other solutions are the following:

1. The sound archives begin to pre-select the records to be acquired by introducing a so called "numerus clausus". The Bernese sound archive, for example, would limit the number of LP's to 1350 and that one of singles to 1150. But who would be responsible for this selection? And can you imagine how the private office archives for personal use would begin to flourish?
2. The other solution would be the "Deus ex Machina", the computer, the modern toy of sound archivists. The idea is that we could save time (and later on perhaps even money) by incorporating the sound archives of Basel, Bern and Zürich into one electronic data processing system, i.e. by cataloging identical records only once. This idea is really fascinating.

On behalf of the Swiss Broadcasting Corporation general management a preliminary study was prepared by Mr. Kuster with the assistance of the sound archivists. This study contains ideas for a solution of the cataloging problem, for the project organization and some rough estimates of the cost:

hardware	Sfr. 750,000.-
software	300,000.-
additional expenditure for employees	320,000.-
	<hr/>
total of non-recurring cost:	Sfr.1,370,000.-
	=====
periodical cost:	Sfr. 396,000,-
	=====

In accordance with this study the SBC general management's steering committee decided on April 2nd, 1982 to begin with a second study (a draft outline), covering the French- and Italian-speaking part of Switzerland as well as the German-speaking part.

And now let me close with the third part of my report, with the practical questions to be solved and with some positive results.

C. The following questions have been clarified:

1. Co-ordination between the three regions has been established. The responsible persons are in close contact with each other.
2. Regarding the cataloging rules we examined the list of data elements from the Zentrale Schallplattenkatalogisierung (ZSK, Central Catalog System of Gramophone Records) in

Frankfurt a. M. and tried to create a new and comprehensive list, valid not only for light music but also for the classical music.

3. Thanks to the generosity of the ZSK we received lists with the title entries of new records. In order to assess the percentage of identical records in our sound archives we compared the lists of ZSK with the new records archived. We found that an average of 30 to 35 percent of the ZSK records were identical in the Bernese sound archive. A similar comparison in Lausanne showed that only 10 percent were identical. The SBC general management will have to examine a link-up between the ZSK and the Swiss radio sound archives. Personally I think that it would be of advantage to the German speaking part of Switzerland.
4. Proceeding from the excellent cataloging guidelines of the ARD (1972) and from the ZSK directives (1982) edited by W. Krust, we are going to establish our own cataloging regulations whereby we have to consider the idiomatic expressions of the Italian, French and German languages. I think with a lot of goodwill we should be able to overcome these language barriers.
5. To satisfy the needs of our three language regions the data bank will be structured as follows:
 - a. National information (independent of language), e.g., label code, order number, duration, soloists' names, names of composers, numbers of thematic indexes.
 - b. Information concerning the different regions: at Lugano the "Magic Flute" is called "Il Flauto Magico", at Lausanne you will find it under "La Flûte Enchantée", at Bern, Basel and Zürich you will find the same work under "Die Zauberflöte". The performers will have different entries, e.g. choeur de femmes = coro femminile = Frauenchor. Because of the different languages in Switzerland we even have to differentiate between the keys: c sharp minor is equal to ut dièze mineure = do sostenuto minore = cis moll.
 - c. The local information includes the archive number or special indications such as "broadcast on March 16th, 1965".

We could solve these language problems by coding, but we are quite sure that our program producers would then be discouraged from using the data bank.

6. We know perfectly well that introducing electronic data processing in a household of the Middle Ages (or even more clearly expressed) the Stone Age without any preparation would have caused nervous breakdowns. It might be the same now for the employees in the sound archives, as well as for the users, if everything has to be changed at the same time.

How can we prevent this fear of technology without engaging a sound archive psychiatrist? I think the effects of the changeover process can be relieved by permanent and regular information about EDP techniques and by the participation of the archive employees in establishing new cataloging rules.

In January 1982 the heads of the sound archives and their assistants were given the

opportunity of attending a training course at Zürich. In his outstanding report Mr. Ulf Scharlau was able to convince even the most sceptical archivists of the reasonable and practical use of EDP. Two weeks ago a lady working in a Swiss sound archive told me that Mr. Scharlau's report had inspired her with new courage. This is a nice example of how people can be influenced positively by a good-looking and experienced gentleman. Moreover we have already drawn up projects for training courses with our staff members in 1983 and we hope that SBC's desperate financial situation will not influence this training program.

- 7. As we want to avoid the impression that we would introduce EDP only for our own purposes, we also have to inform the users on the program side. A first meeting with program producers has already taken place at Zürich, and we will have to work together very closely. We need this co-operation with the program producer, whose points of view may be different from ours.
- 8. In the following months we also have to find a way of
 - including the remuneration of authors' rights (managed in Switzerland by SUIISA)
 - dealing with statistical data and
 - controlling the circulation of sound carriers within the radio station.

And finally the project study must answer the crucial question: How much does the new technical system cost? Approximate estimates for the national

hardware amount to Sfr. 500,000,- / 750,000,-
 software amount to Sfr. 200,000,- / 400,000,-

The provisional cost concerning the depreciation of the hardware, operation and maintenance amount to

1984/85	Sfr. 350,000,-	
1986	" 350,000,-	for only the German
1987/88	" 350,000,-	speaking part of Switzerland
1989	" 200,000,-	

The additional expenditure for staff members amount to

1984/85	Sfr. 150,000,-
1986	" 100,000,-

- 9. A delicate and critical problem has to be solved regarding the traditional card catalog and the new EDP catalog. The question is at what time we can forget the old cards and rely completely upon the EDP system, backed up by the microfiche cards? The computer experts are very confident that we could start at once without a double catalog.

Ladies and gentlemen, perhaps you know the tale of the fisherman and his wife who was never satisfied and expressed one wish after another until she finally found herself back again in her poor, small cottage. The sound archivists in Switzerland are not going to push their demands too far. But neither are they willing to stagnate without a change. We would be quite satisfied if a test project for the next year could show some positive results.

BIBI KJAER AND POUL VON LINSTOW, Radio Danmark, Copenhagen

THE EDP SYSTEM OF THE ARCHIVES OF DANMARK'S RADIO

A film was used to demonstrate the use of EDP in the commercial sound archive (the Diskotek) and the non-commercial sound archive (the Radio Archive) of Danmark's Radio.

THE DISKOTEK

When channel 3 (the light music program) was introduced in the beginning of the 60's, the lack of space and staff was a consequence of the enormous increase in records. In 1970 the problems became so serious that we had to find more rational and space-saving working methods. Therefore, an EDP systems was the goal we aimed at. We believe we have succeeded beyond our expectations.

From 1970 to 1975 we had an extremely beneficial co-operation with the other Nordic radio sound archives which struggled with the same kind of archive problems as we did. From 1975 we continued our work individually and in 1977 we started on the DISTEK system. During the years 1975 to 1977 a special group elaborated on this system. The group included people from the data department, the diskotek and the program departments. We agreed that the system should have at least as many possibilities of information as the manual index-card system, i.e. accession, title, artist, composer/author, label/no. and genre. We have not only succeeded in this, we have even increased the possibilities of searching and we can continue improving and extending the system.

For instance I would like to mention the subject and language searching which is useful to our producers. If, for example, someone is making a program on drugs or unemployment, it is useful to be able to find records referring to these subjects. As a special curiosity I can mention that within the language searching you can, among many other languages, find:

English: Australian, Birmingham, Cockney, French accent, Irish, Lancashire, Leeds dialect, Northumbrian, Pidgin, Scottish, Tyneside dialect.

German: Berlin dialect, Frisian, Cologne dialect, Low German (Plattdeutsch), Swiss and Vienna dialect.

As previously mentioned the EDP system was started in 1977. Up until 1980 the output was data produced index-cards. Later came the on-line system. When we finally started the on-line system in 1980, we already had 3 years' records in the system (approximately 30,000 records).

Today we feel very fortunate to be able to conclude that we have had no serious problems connected with the establishment of our EDP system. These are some of the reasons:

- 1) The planning and preparation of the system took place at a time when DR could afford to finance the project.
- 2) Exceptionally good co-operation between the data department and the Diskotek.
- 3) All parties involved in the project were regularly informed and consulted during the whole period of preparation, the very few sceptics were listened to and, fortunately, convinced. This was also true of the trade unions.

Some of the most important advantages we have obtained are:

- 1) The solution of space-problems regarding the index-cards.
- 2) Staff reduction. No dismissals, but we were able to spare 3 persons to convert the

records from before 1977. We had calculated that this operation would take 3 persons approximately 10 years. In case of any resignations we shall have to reconsider the staff situation.

- 3) Better service to local radio stations.
- 4) We have been able to offer the PRS institutions access to our on-line system.
- 5) We have been able to offer the Norwegian Radio access to our on-line system.

If I should mention one disadvantage I am sorry to say that we have had problems finding an emergency back-up system. We have been offered machine facilities by a big shipping company, but it was found to be too expensive. We have also considered microfiche but find it too difficult to work with. However, since these investigations took place, our data department has procured machine capacity effective enough to eliminate any serious problems. Another disadvantage is the fact that we shall have to continue working with two systems. However, with the index-cards and the screen-terminals placed on the same premises, this problem is not so serious.

Finally I should like to mention that it is impossible to describe the system in detail by showing a short film and giving a short oral explanation. Therefore I should like to say to all my colleagues that they are welcome to visit us in DR's archives to see the system working. Colleagues interested in having a copy of the film (duration 12 min.), should write to:
Mr. Finn Rowold, TV-byen, Mørkhøjvej 170, 2860 Søborg.

B. K.

THE RADIO ARKIVET

The archive for spoken word and non-commercial music has other needs than the Diskotek, for example we need the possibility for handling large proportions of text. We created, therefore, another EDP system. Its foundation is two advanced IBM-systems, a text-management system called ATMS and a free-text search system called STAIRS. The data department of Radio Denmark has made a usable combination of the two systems, in part by using a special elaborated link between the two systems created by the Danish Central Office for Pension Funds. We have ourselves worked with the systems to adapt them for archival use, and we have elicited secrets from the systems, which even IBM did not know about.

In short the system works so that the so-called listener's reports, which are written descriptions of the broadcasts, normally 15-20 lines, are transmitted to the database via the ATMS-system. The searching uses the STAIRS-system. I think the STAIRS-system is the most interesting from our point of view. It is a free-text search-system, but one can select any proportion of the listener's report so that the search is confined to only this proportion. The selected fields can be, for instance, the date of recording, the title, the producer's name, etc. - One can as well make a search using the listener's report as a whole. The user types the search-word on the screen and pushes the so-called "ENTER-button". The relevant reports can then be read on the screen or printed as hard copies if wanted. One of the advantages is the creative possibilities in combining several search-words, for instance "Ronald Reagan", "NATO" and "Poland", and get very quick answers. Another advantage is the on-line system, which means that anyone interested in searching the database can have a screen if he has a telephone line.

Of course, a short paper such as this allows me to give you only a faint impression of the working of these systems. I will finish this short demonstration by saying that if you are interested in studying the practical operation of the computer systems in the Radio Arkivet,

then you are welcome to visit.

P. v. L.

KLAUS STÜSSEL, Deutsches Rundfunkarchiv, Frankfurt a. M.

DRAFT FOR AN EDP SUPPORTED MUSIC INFORMATION SYSTEM IN THE DEUTSCHES RUNDFUNKARCHIV, FRANKFURT A. M.

The Deutsches Rundfunkarchiv (DRA) (German Broadcasting Archives) as an organisation of the Arbeitsgemeinschaft der Rundfunkanstalten in der Bundesrepublik Deutschland (ARD) (Association of Public Law Broadcasting Corporations of the Federal Republic of Germany). The DRA is collecting and documenting

- evidence of contemporary history in the shape of sound and vision carriers, primarily out of the broadcasting domain;
- written documents concerning the history of broadcasting to the present day.

In order to accomplish its statues as a central documentary organisation, the DRA maintains an extensive catalog, subdivided into the separate domains of radio and television; moreover the radio catalog is composed of the two branches of music and spoken word. To each partial catalog belongs a nominal as well as a subject catalog, which are kept as vertical index cards.

The documentary material, which falls under the domain of broadcasting, is at the disposal of every interested person within the broadcasting organisation. Besides, it is available to persons and institutions that are engaged in education, research and teaching. It consists of domestic and foreign, or extraneous material. Sound documents (music and word) are collected in an extensive record library; they are the formative part of the domestic material and can be traced back to the beginning of sound recordings. By extraneous material we mean in-house productions of broadcasting corporations which are "worthy of being documented", and which are in possession of the respective broadcasting corporation. Generally, the DRA is informed about these productions through the corresponding filing material. The documentary experts evaluate the documents within a close range of established criteria. Formal unity is guaranteed by filing directions, so called "adjustment-instructions". A great deal of time is devoted to maintaining the card index. This involves the completion of the card, the information being taken from a particular recording, the filing of the card in the card file, and constant preventive maintenance.

Further characteristics of the conventional card index are the considerable in-house requirements, because information about every recording must be found in several places, for example, under the name of the composer or performer, in the subject catalog, in order to be able to answer the most varied inquiries of the users. It may take some weeks to generate filing cards for new recordings. As a consequence, inquiries may be incompletely answered.

Besides the traditional method of documentation, the DRA started on behalf of ARD and ZDF (German TV II) in the summer 1978, after several years of preparation, the central registration of commercially manufactured sound tracks outside the range of light-music and keeping in mind their decentralized use in broadcasting corporations. From the very beginning this project was conceived and realized making use of electronic data processing. All data collected by the Zentrale Schallplattenkatalogisierung ARD/ZDF (ZSK) (Central Catalog of Gramophone Records) is administrated by the EDP, preserved with the help of EDP methods and transmitted

by machine-sensible data media to the broadcasting corporations. For the staff in the ZSK an on-line retrieval system is available. It allows access to controlled data under optimum and varied conditions. The reason for this is the quantity of material, at present approximately 40,000 recoding titles annually; the needs of the broadcasting corporations for high topicality of the data collected by the ZSK; and the small editorial staff. The broadcasting corporation began with the development of its own electronically supported information system at the same time as the ZSK. On the one hand, it was implemented in order to be able to handle the data for the ZSK in a rational manner and on the other hand because the broadcasting corporation also demands a constantly rising level of efficiency for obtaining information and documentation without adding more personnel. As a consequence of the documentary functions of the DRA, the index cards that are the primary source of information will be abolished in the course of the next few years.

These are the basic preconditions for the draft of an EDP supported music information system for the DRA, described as follows:

Although EDP has answers for all ranges of documentation for the future, it is planned to construct a music information system first, because the DRA can refer to those experiences made by the ZSK.

For its realization the following basic conditions have been elaborated:

1. The archives exploit, administer, and keep ready the sound documents for the user. In the first place the editor needs the data of these documents for the creation of his transmission. The concept of a modern information system has to take these characteristics into consideration.
2. In order to intensify the actuality of the information, it should also be possible to utilize the data during the documentary process.
3. When realizing EDP, the in-house software and producer software should have priority over new developments in order to reduce the time and cost necessary for implementation. Software should be constructed so that the same programs can operate different information systems for different categories of users.

The advantages of such a procedure are the lower preventive maintenance of the operating system, and the fact that affiliated systems, as for example the ZSK, have the possibility to participate in side programs. The application shall be implemented gradually. The definition of positive interfaces shall allow, without problems, an extension and adaption of the system to the desires of the holder. Moreover, it will be possible to transfer the whole or parts of the operating system to third parties, for example, to other institutions of the ARD. The draft of the music information system takes these requirements into consideration.

The experiences of the editorial staff and the user of the ZSK reveal the different demands on such an information system:

- The editorial staff of the ZSK is systematically outlining certain objects and data, and is responsible for the accuracy of the dates. Therefore, appropriate facilities are necessary to correct the dates.

- When creating a program, the music editors search for composer, worktitles, performer, records with a special cast, etc., by following special criteria. They rely on the correctness of the data given by the system and must have the possibility to choose data that correspond with special criteria.
- Archives also know these characteristics, but attach different importance to them in order to accept dates, to register and administrate sound carriers, and to answer inquiries from the users.

The optimal solutions that exist today have been designed with regard to the ZSK. For the requirements of the music section in the DRA, more multifarious functions of retrieval are desirable, whereas the ZSK can work without up-date functions after having finished the registration. The two required profiles are equivalent, they depend on each other. But they comprise partially contrary claims in their realization.

An alternative can be found by additionally applying a further retrieval system, that will be implemented along with the up-date data base system of the ZSK. This is possible if the standard software STAIRS (Storage and Information Retrieval System) is used under the operating system CMS (Conversational Monitor System) of the firm IBM for the planned installation. The standard software STAIRS is also installed as the data base software DL/1 (Data Language /1) in the Hessischer Rundfunk (HR - Hessian Broadcasting Corporation). The EDP installation of HR is used jointly by the DRA.

This solution has the following advantages:

- The system that was realized for the ZSK on the data base of DL/1 with the possibilities of up-date and retrieval can also be maintained as a catalog system.
- A STAIRS data base, that corresponds with the need for information of the program editors, has already proved a success.
- Cost will be comparatively low.

The music information system of the DRA will consist of three parts:

1. A registration system based on the access method VSAM (Virtual Storage Access Method) with the possibility of having data collection that can be corrected on-line afterwards. This system, already realized for the ZSK, turned out to be very useful when considering the registration of the archives' own material. Because the filing procedure often lasts long in practice, it is planned to load the recorded data in short intervals in a DL/1 data base for using it as a transition storage.
2. The DL/1 data base is conceived as a transition storage. It should allow easy access to recording titles, which are not yet fixed, but which have been acquired by the DRA.

On the other hand the catalog productions of the broadcasting corporations, transmitted to the DRA on machine-sensible data supports, shall be stored and traced in this data base pending final evaluation. This transition storage is replacing "suspense filing", which registers all in-house productions of the broadcasting corporations separately for a period of five years before they are finally evaluated.

For this data base, retrieval programs are already available. They allow searching for authors, members of the cast and titles, as well as for subject criteria. Therefore it is not yet determined how long data will be stored. After the index cards are cataloged, and the in-house productions of the broadcasting corporations are evaluated, the DL/1 data base shall be transferred to that of STAIRS.

3. The STAIRS data base is planned as a permanent storage. In this data base the "ready" data shall be stored continuously. The high capacity of the system's retrieval functions allow the user an access to the data without any restrictions, and a combination at will. The results can also be given on the hardcopy printer immediately after the searching question has been settled.

In order to exploit the data stock in publications of the DRA (for example, catalogs, or regularly published "Recommendation Services" for editors, etc.), special implementation programs are about to be developed.

WOLFGANG ADLER, Head, Sound Archives of Sender Freies Berlin (SFB)

EDP AND THE SFB

In co-operation with RIAS (Berlin) and Südwestfunk Baden Baden (SWF), the Sender Freies Berlin (SFB) has built up a music information system for "light music". Whereas SWF in Baden Baden has installed its own data bank, the two radio stations in Berlin have decided to build and use a joint data bank in order to reduce costs. The central unit is housed in the SFB; users at RIAS and SFB have terminals linked to the memory core. ZSK (Central Catalog of Gramophone Records) data is input weekly. The type of recording medium used is stated in the data input and is clearly separated into the RIAS and SFB collections. The music catalog processors can feed in corrections and additions by using a password known only to them.

Users can access the data bank using the following concepts:

Composer, librettist, arranger, title (any kind), performers (soloists, choirs, groups, orchestras, conductors), language, musical genres, arrangements, descriptors (keywords and phrases). For precise interrogation, several different concepts can be used at the same time. For the majority of the concepts, the complete text can be analyzed. For simple questions the reply time is approximately 2 seconds, complicated questions take longer (combinations, full text analysis). A higher demand on the system results in time delays.

The text is printed in upper and lower case with the most common diacritic and special signs. Working with the terminal is not difficult and needs no long introductory period (as far as the user is concerned). Shortcomings of the EDP systems are:

The system goes down about twice a week. During this time no information can be received. With the system introduced into the ARD (centralized catalog, decentralized delivery of gramophone records to the different radiostations) there is no exact correlation between stock and catalog information. But without the installation of EDP we would not be in a position to catalog the records and we could certainly not make them accessible from so many viewpoints.

The music information system is capable of expansion.

DIETRICH LOTICHIUS, Head, Sound Archives, Norddeutscher Rundfunk (NDR), Hamburg

ELECTRONIC DATA PROCESSING IN THE SOUND ARCHIVES OF THE NORDDEUTSCHER RUNDFUNK; FUNKHAUS; HAMBURG

Several reasons, not least the uncertainty about the future position of the institution, have led to considerable delay in the planning of EDP. Its aim is to provide for different applications of the music archive data in program production and transmission. Connected with this is the ancillary organization of the take-up of the data, which is in charge of the project "Central Gramophone Records Cataloging" (ZSK).

After the implementation of the regional programs, in the revised structure of the institution, we must give the newly appointed producers access to the Sound Archives Information Index. This must be done either at the place of work or at least near to it. The idea of multiple copies of the present central index on paper is impracticable for economic and organizational reasons. Added to that is the fact that the growth in the production of programs devoted to the current repertoire of light music increases the so-called "doubling" problem. If several producers put the same recordings of "hot" numbers into their programs on the same transmission day, when there is only one copy of each of these recordings available, this copy must be transferred several times within one channel or from one channel to another for playing. A multiplication of such instances considerably increases the work load of the staff of Sound Archives Broadcast Preparation Unit. The state of affairs cannot be helped so long as a producer has no information as to when his colleagues have reserved a given title for transmission and thus whether a title selected by him is still "free".

Only computerization of the data of the Music Archives can ensure access to the indexes on viewing apparatus and broadcasting dates and channels for titles already chosen for the program and thus avoid "doubling". The data for new record titles processed by the ZSK can be added without alteration. Data for old stock has to be reprocessed (this is currently being done). As soon as a big enough data bank is available, the broadcasting timetable can also be automatically compiled.

ULF SCHARLAU, Head, Central Department of Archives and Documentation, Süddeutscher Rundfunk (SDR), Stuttgart

EDP IN THE SDR ARCHIVES

In the SDR archives there are several electronic data banks either already in operation or being tested. The software is based on the IBM retrieval program STAIRS (Storage and Information Retrieval System). From this the SDR commissioned the development of a retrieval and information program GEPARD (General Purpose Archives Retrieval and Documentation Program). Input and retrieval programs are planned so that archive personnel can work on their own without the need for a lengthy training period. Internal preparatory programs are automatically developed by the computer overnight.

SOUND ARCHIVES

Since summer 1980 all light music discs have been processed and stored in a data bank. At the moment there are about 8,000 discs with 90,000 separate titles. At the same time the computer

is printing index cards which can be filed in a conventional catalog. From 1983 this paper output is stopped and superceded by display on a VDU. Online retrieval in the archives is already possible. It gives access (with cross-references) among other things to: name, title, disc number, disc mark, SDR archive number, keyword to title or content, playing time, language, genre, and character of the music.

In the classical music section all new acquisitions (discs, tapes) have been included since November 1981 in an EDP short entry. Retrieval by VDU display can be made immediately after input (composer, performer, title of work, setting, descriptors). A computer-printed acquisitions list informs the music department about all new acquisitions.

In the word documentation section all speech tapes coming into the Archives are input (from March 1982), (authors, production date, title, broadcasting series, speaker, etc.). Abstracts of contents are entered later after the tape has been heard. The existence of manuscripts is noted, and thus a manuscript documentation file is gradually being built up, in which manuscripts, whose tapes have already been wiped, are included. At the end of 1982 we had 6,000 spoken word documents in the data bank.

The start of data take-up for the Film Archive is set for autumn 1982. In association with the documentation department of a neighbouring radio station (Südwestfunk Baden Baden) the Press Archive is working on an EDP preview of events which will alert editors to forthcoming memorial days and events which could be of interest to program production.

In the Light Music Section of the Sound Archives there are plans for the introduction of a computer controlled automatic cassette system. A test run is expected at the end of 1982.

System configuration (at January 1983)

Hardware: Computer complex IBM 4331/4341
2 discs IBM 3770 (with 570 mill. bytes each)
8 terminals IBM 3278 (more planned)
2 printers IBM 3287 (line printer)
1 printer IBM 3203 (index cards)

Software: VM; CMS-DMS; IOS-Lib.; PL1; Assembler
Retrieval: STAIRS (Retrieval),
GEPARD (Input and Information)

JEANNOT HEINEN, Head, Radio Archive, Südwestfunk Baden Baden

EDP AND THE SWF

The cataloging of sound records by data-processing in the SWF has been made offline since 1970. During the first ten years this was done by storage of 22 data elements per document, e.g., composer/author, arranger, text-writer, title, licence information, codes for music-classification, administration data and the codes for the GEMA/GVL-report.

In 1976, the radio sound archive began together with EDP and representatives of the programs "light music" and "serious music" a project for further development of the data-input and data-processing for sound records and the possibility of EDP application for music programs (online-system).

In 1978, the project group started (together with the SFB) to develop a system both of input and information for sound records, taking into account the adaptation to the ZSK. This system is called MUSIS (Music Information System), but with the SWF it also includes data on spoken word documents. MUSIS was introduced in February 1980 after the data of the obsolete offline stock (about 480,000 titles) had been automatically converted into the MUSIS data structure.

Present data stock which is at disposal for retrieval:

- about 105,000 titles of serious music on tapes
- " 357,000 titles of light music on tapes
- " 100,000 titles of spoken word on tape
- " 164,000 titles (mostly light music) on records.

This also includes the documents of the three regional studios Mainz, Freiburg and Tübingen.

Immediately after the input, the data material is available for retrieval of 23 data elements, such as composers/authors, arrangers, text-writers, titles, performing artists/speakers and classification, etc. In addition there exists the possibility of combination with other data elements, e.g., duration, language, classification data.

After the storage of data from the ZSK magnetic tapes in the EDP, each entry is given a registration number, referring to the first take of the record. All the other takes are automatically related to the first entry. Likewise, the re-recording can be registered, it being only necessary to change some dates.

MUSIS has the following functions:

- retrieval in the sound archive and the program resorts;
- registration of SWF-records, industrial records and re-records;
- catalogs in hardcopy;
- printing of file-cards by EDP;
- adaptation to Central Record Cataloging System (ZSK).

Apart from that, batch programs exist for GEMA/GVL-reports, radio program statistics and administration affairs. In the future an improved version of MUSIS, allowing better opportunities for retrieval is planned.

KARL LUKE, Head, Sound Archives, Westdeutscher Rundfunk, Cologne

EDP APPLICATION IN THE SOUND ARCHIVES

At the present time in the sound archives of the Westdeutscher Rundfunk, EDP is used for cataloging music titles only.

Chronology and work schedule of this music data bank:

From 1. August 1977

Build up of the music data bank using a Siemens installation with four type 8152 terminals from Siemens. Compilation of all new acquisitions by music titles (excl.: jazz, folk music records) at the terminals, printing of index cards, multiple reproduction and transcription onto tape by EDP, input of the data into the music data bank.

From 1. January 1978

Completion of the compilation and input of the archival (old) stock of conventionally cataloged music titles, which are being (re)introduced into the radio broadcasting program (aiming for a retrospective compilation); in addition, partial qualitative improvements of the documented data by bringing it into line with the cataloging rules for music.

This RESUS I (Production and Sound Archive Support System) called Project 1 enables

- computer-assisted GEMA-GVL (German Distribution Companies for Musical Rights) control for all broadcast and archive music titles;
- the WDR link-up to the ARD central evaluation file of broadcast music titles, created by ARD employees;
- EDP printing of index cards (taking place at the moment once a day).

Up to May 1980

- Computerized cataloging to include folk music and jazz.

End of 1980

Conclusion of the build-up phase of the music data bank = RESUS I giving way to RESUS II with the following expansions:

- Computer support for research in the production and sound archive fields;
- Computer support in writing the broadcasting timetable by means of EDP in the production field.

Substitution of the existing type 8152 terminals with type 8160.

Meanwhile

The conventional index cards produced in parallel for the continuing archive catalog were reduced for U-music titles to a minimum of 2-3 index cards per title (title, composer, number catalogs) and for E-music to a minimum of 3-5 index cards.

In the meantime, the automated broadcasting timetable for radio programs in all of the three house radio programs is coming into operation.

MAGDALENA CSÉVE, Documentation Department, Hungarian Radio, Budapest

EDP AT HUNGARIAN RADIO

An electronic data processing system at the Hungarian Radio has only recently been installed. This report is preliminary and the full effect of the program will not be known for at least one year.

Our EDP system must encompass three principle areas:

1. The Radio must account for tapes from the wholesale outlet to the fully produced state. Formerly, this task accounted for a great deal of manual and administrative effort. We must, from time to time, submit reports on the tape use of a production, of a producer, or of a specific department. In addition, we may be called upon to report on tape consumption over a period of time.

A computer system has been developed by the Hungarian Radio and installed to deal with

these concerns. The system is designed to coordinate with the accounting department. We are now in the trial period.

2. Our second computer conception was to simplify the loaning service in the Record Library. Our daily traffic is about 3,000 tapes and discs. To follow their route from the Record Library to the program producers and to program continuity was also a great task to solve. A system has been developed by engineers of the Hungarian Radio and will be fully functional in January 1983.
3. The third computer system is for the storage and retrieval of the spoken word recordings. The name of this system is ISIS (Information Storage and Retrieval System). The original system was developed in Dortmund for library purposes. The whole system was adapted in Budapest in the International Computer Education Center for Radio Purposes.

At the beginning of this year we made a master database. We put in 2,000 documentation units. As the experiment was successful we got the permission of the President of the Radio to continue the work in this way. So from 1st January all the newly produced and all the rebroadcasted recordings will be archived by the computer. Retrieval will be effected online by terminals. Our previously archived stock will be handled manually on existing catalogs. Perhaps in some years, as our financial conditions allow, we shall be able to enter all the Archive holdings.

The greatest problem inherent in our situation is that we have had to develop three separate solutions. How these solutions can be coordinated will become clear in the near future.

MARK JONES, BBC, London

COMPUTER APPLICATIONS IN BBC RECORDING SERVICES

ARCHIVIST

ARCHIVIST is the name of a computer system designed and developed by the BBC to produce two indexes:

- Sound Archives
- Sound Effects

It is a "batch" system producing both COM (Computer Output on Microfilm) fiche and paper books which use a specially designed typesetting program. At present a "batch" system is more cost effective than an "on line" system for these particular areas. However, ARCHIVIST is formatted in a manner suitable for use by later, as yet unspecified, BBC developments. Cataloging data for each new item and notes are entered on worksheets, keyed to magnetic tape by the BBC's Data Preparation Unit and run on the BBC's ICL 2900 mainframe computer.

The indexes contain two types of information: index entries relating to a cataloged library item and notes relating to an index term itself. Each cataloged item has one or more index term ascribed to it, each of which generate an index entry filing in alphabetical order of index term. Index terms are also ascribed a role, to distinguish between conceptual subjects, place names, program titles and the various roles of persons in the recording. A set of filing rules has been enumerated to ensure correct interfiling of index entries and notes.

There are facilities for deletion/replacement of notes and of all cataloged items. The system generates error reports for invalid data and a proof listing on COM fiche for all new index entries.

Advantages:

1. Cataloging time has been reduced.
2. A large cataloging backlog has been erased.
3. Ten years of the Sound Archives index (approx. 105,000 entries) and the whole of the Sound Effects catalog is now available to all of the BBC's Radio, Television, External Services and all outlying stations such as:
Local Radio (e.g., Radio Jersey)
Regional Offices (e.g., Manchester, Belfast).

ENCORE

ENCORE is the name of a computer system designed and developed by the BBC to produce catalogs of "Radioplay Music" (a collection of recordings made available to the BBC by overseas broadcasters and other sources such as music publishers).

It is a "batch" system designed specifically for the production of sound recordings. The computer system holds details of recordings at two levels: details about individual recordings (e.g., title, duration) and details about the album which contains it (e.g., album title, library section). Each level of information is cataloged on separate types of input sheets, transferred to magnetic tape by the BBC's Data Preparation Unit and run on the BBC's 2900 mainframe computer.

This highly flexible computer system is capable of selecting titles from the computer file and printing selected details in any desired sequences (e.g., by title, performing artists, or composer). Thus the details of the recordings are entered once, but a wide variety of continually updated catalogs can be output as desired, either onto paper (for use as printing masters) or COM fiche.

Facilities exist for cross referencing and adding descriptive notes and comments. Full deletion and amendment facilities are available. The validation rules are written as separate modules so that the ENCORE package may be used for catalogs other than Radioplay Music.

Advantages:

1. The recordings have been cataloged for the first time.
2. The catalogs have a wide BBC distribution, resulting in more use of the recordings.
3. The system provides total flexibility should there be a change in the way Radioplay Music is requested.

GEORGES MANAL, Chef des Services de Documentation, Radio France

RADIO FRANCE: INFORMATISATION DE LA DISCOTHEQUE CENTRALE

Commencée en septembre 1979 dans sa phase d'initialisation des documents, la gestion automatisée des prêts a réellement débuté en février 1982.

1. OBJECTIF DE LA GESTION AUTOMATIQUE DES PRETS.

Permettre un suivi des stocks, gérer les 33 tours, les 45 tours, les bandes sonores, les livrets; faire des statistiques pour rationaliser les achats; relancer les emprunteurs.

Extension actuellement en cours pour les 78 tours, mais avec des procédures réduites à: une saisie du stock (le stock est figé) et à une recherche documentaire.

2. STRUCTURE DANS LAQUELLE CETTE ORGANISATION A ETE EFFECTUEE.

L'étude informatique a été prise en charge par le GIRATEV, organisme fonctionnel commun aux Sociétés de Radio et de Télévision, en collaboration avec les utilisateurs de la Discothèque.

3. FLUX

Achats: environ 10,000 titres par an = environ 55,000 exemplaires + 15,000 services de presse.

Prêts: environ 450 à 500 disques par jour.

Nombre d'emprunteurs: 1,200

4. IMPORTANCE DES FICHIERS ARTICLES.

Tous les stocks regroupés: environ 260,000 titres. En moyenne chaque titre est détenu en 6 exemplaires.

5. RANGEMENT DES DISQUES.

Avant l'informatisation, les disques étaient classés par marques et par numéro commercial à l'intérieur des marques. Pour l'initialisation des disques de l'ancien fond, ce classement a été maintenu, mais ces disques ont été saisis par numéro interne croissant. Les acquisitions récentes sont classées dans un autre secteur et par numéro interne chronologique, toutes marques confondues. Ceci a amené une incidence sur la qualification des rangeurs. N'importe qui peut, sans expérience, retrouver un disque depuis son numéro interne informatique.

6. LA SAISIE DES DOCUMENTS.

La saisie des documents n'a pas été faite dans le but d'une recherche documentaire, mais simplement pour permettre d'identifier succinctement le document et d'apposer sur le disque une étiquette Code à barres à lecture optique. Cette étiquette porte le numéro interne en code à barres, sa traduction en chiffres, le numéro d'exemplaire du disque, le stock auquel il appartient, le numéro commercial et un titre succinct d'identification.

7. PROCEDURES INFORMATIQUES DES PRETS.

Des cartes d'accréditation sont éditées par l'ordinateur. Avant remise des disques, la carte d'utilisateur est présentée, puis vérifiée par l'ordinateur après saisie du code à barres par un crayon lecteur. La demande de renouvellement des accréditations est for-

mulée par les accréditeurs qui reçoivent 3 mois avant la date limite un avertissement. Les mises à jour prennent un caractère à date fixe pour les usagers accrédités pour une période annuelle.

Consultation.

Les disothécaires consultent à la fois le fichier manuel et leur terminal pour connaître le numéro interne de classement et le nombre d'exemplaires disponibles dans chaque stock. Au fur et à mesure de la gestion des prêts, ils peuvent même rechercher sur leur écran les emprunteurs des divers exemplaires.

Consignation.

L'agent de consignation saisit la carte de l'utilisateur avec le crayon lecteur. Il indique la date du prêt, sa date limite, le nom de l'émission. Il saisit les références des disques à consigner en effleurant l'étiquette collée au dos du disque avec le stylo lecteur. Il lance une édition du bon de consignation en 2 exemplaires.

Déconsignation.

L'emprunteur lui-même ou l'un de ses assistants présente les disques à déconsigner. Il n'est pas nécessaire de présenter la carte puisque l'ordinateur conserve en mémoire le nom de l'emprunteur associé au numéro interne du disque. L'ordinateur met à jour le compte de l'emprunteur. Il suffit donc pour l'agent de la déconsignation de passer le stylo lecteur sur l'étiquette code barres et l'ordinateur déduit automatiquement l'exemplaire en question du compte. Un bon de déconsignation est imprimé en 2 exemplaires et remis au client.

Autres procédures.

Relances automatiques les 1er et 15 du mois des prêts non soldés. Prolongation des prêts possible. Interdiction automatique: après 2 relances infructueuses. Equivaut à une perte (provisoire) d'accréditation.

L'informatisation et l'archivage de toutes ces données permettent d'éditer des statistiques de mouvements par emprunteur, par Société, de calcul statique de stocks

Si cette informatisation a apporté un léger surcroît de travail administratif pour les disothécaires, elle a permis une meilleure connaissance des stocks ancien et nouveau, un allègement et une accélération des opérations de consignation et de déconsignation.

C'est le secteur le plus bénéficiaire de l'opération, et par là même une amélioration du service rendu aux clients.

LASSEE VIHONEN and RIITTA-LIISA LAMPELA, Oy. Yleisradio Ab., Helsinki

FINNISH BROADCASTING AND THE COMPUTER

At the beginning of 1982 The Finnish Broadcasting Company installed a new computer (IBM 4341). This enabled the archives to consider computerized online applications as the most probable working method in the near future. However, as the different projects are still lacking definite outlines, the following plans should be taken with slight reservations.

- The Library of Current Tapes, which has been using a manually operated card system, will most likely have an online solution designed by the company's EDP-personnel.
- The Sound Archive has been producing its catalogs also in card form, but starts in the fall to study different existing online retrieval programs - first of all the software package STAIRS (Storage and Information Retrieval System) by IBM.
- The Record Library has processed its new catalog information through COM (Computer Output on Microfiches) since 1974. The preliminary tests tend to imply that STAIRS could also offer sufficient facilities for data-base searching as well as its creation and maintenance.

In 1969 The Record Library's loaning control began to utilize EDP - the application was a rather unsophisticated batch system with daily renewed paper lists, but during this summer the loaning, returning and reserving of records will be switched to online with the help of two terminals and optical pens.

CLAES CNATTINGIUS, Grammofonarkivet, Sveriges Riksradio Ab., Stockholm

THE GRAMOPHONE DEPARTMENT OF THE SWEDISH RADIO COMPANY: EDP ADAPTATIONS

CATALOGING

In 1974 a computerized cataloging system was introduced, which has since been somewhat modified. Today input takes place via terminals, while output is still effected by means of (COM-) micro-cards. It is hoped that an online information retrieval system can be introduced within the next 2-3 years.

The system now contains some 2 million entries, and is updated weekly. New catalogs are issued every month, and at present nearly 100 copies of all catalogs are distributed, not only centrally in Broadcasting House but also to regional stations, etc.

INVENTORY

Since June 1981 all sound recordings in our collection have been registered by means of a new data-based system named A 23. It now contains more than 520,000 items.

Every individual item, whether it be a gramophone record, tape or cylinder, has been marked with a so-called bar code label indicating the complete acquisition number plus the number of the copy, i.e.:

33-101.201 09 03

will read: a 33 rpm LP with acquisition number 101.201, check digit 09 and copy number 3.

All sound recordings are registered by means of a light pen which "reads" the bar-code, and all new acquisitions are registered in the same manner. When a record is withdrawn from the system (due to damage or loss), this transaction takes place via the keyboard of the light pen terminal.

The register can be viewed on the terminal screen supplying complete information as to the number of copies bought of a specific recording, together with the date of acquisition. When integrated with the loan system, the register provides readily available and valuable informa-

tion especially for the staff dealing with requests from customers. Thus they can immediately see not only the number of copies which have been bought of a certain recording, but also how many are still on the shelves, without their needing to make an on-the-spot investigation, but simply by using a specific "picture" on the terminal. Each new item added to the collection is immediately updated and placed in the system.

LOANS

The loan system involves some 1,600 transactions daily, or well over 200,000 per year. There are some 1,600 "customers" throughout the country working with the Swedish Radio, all of them holding personal loan cards marked with their employment number in bar code.

All transactions (loans and returns) are effected by means of light pens via terminals, and are transferred to the main computer. The terminals have a memory capacity of approximately two days' transactions, as a safeguard against a breakdown in communications with the main computer. This main computer has a data base covering all sound recordings (the inventory system mentioned above), and another one covering all customers (including name, internal address and telephone number etc.).

When a gramophone record is borrowed by a customer, his loan card and the bar-code with the acquisition number of the record are read by the light pen, and are immediately registered in the system. Thus the transaction can be simultaneously viewed on the terminal. There is also a small printer connected to the light pen terminal which can print a receipt of the transaction. A similar procedure is used when a record is returned, though no loan card is required.

The light pen terminals also hold registers of records which have been registered (e.g., for re-cataloging) and of customers' cards which have been blocked, for instance when they have been reported lost. If such a card is used a buzzing tone informs the operator that the card is blocked.

The system comprises several registers shown on the terminals:

- the inventory
- a list of customers
- all records borrowed by each customer
- all loans of a certain record
- label register
- statistics covering all transactions within the system.

ANNA MARIA FOYER, Radioarkivet, Sveriges Riskradio Ab., Stockholm

CATALOGING RADIO PROGRAMS

THE CURRENT SITUATION

The Program Archives of the Swedish Radio Company contain programs from the Swedish Educational Radio Company and Radio Sweden International, as well as from the Swedish Radio Company. At present, approximately 90,000 programs are stored. Every year the archives receive around 5,500 new programs and features. With the planned increase in broadcasting time and with an

unchanged policy of archiving 16% of all programs, the number of new programs stored in the archives should reach (1985/86) more than 6,000 a year.

In order to expedite access to desired programs in these extensive archives, the programs have been cataloged. Searches are currently made in a card catalog and all work is carried out manually. After listening to the program tapes, the catalog information is written up, either as a rough draft or directly onto stencils. The cards are printed and provided with keywords (subjects, names, etc.). The cards are then sorted and filed in the card catalog. Checks are carried out between each step.

The catalog of the Program Archives contains the following sections:

1. Alphabetical Catalog: program titles, names of authors, names of composers.
2. Participant Catalog: names of individuals involved.
3. Systematic Catalog: ordered by subject following the classification system used by Swedish libraries (letter and number combinations, such as: Occ.065)
4. Number Catalog: production numbers of programs.
5. Chronological Catalog: broadcast date and/or recording date.

Within each catalog identical keywords are sorted chronologically with regard to broadcasting date.

PLANNED DEVELOPMENT

In order to reduce the time-consuming manual routines, we are planning the following development of the catalog:

1. Input (cataloging) via a mini-computer and displayed on a monitor screen.
2. Storage on diskette (or cassette).
3. "Transfer" from diskette (or cassette):
 - a. for printing catalog cards in the number indicated when cataloged and with the cataloged keywords.
 - b. for storage on disc (or tape) for future database processing.

Working routines for librarians (L) and library assistants (LA):

<u>present routines</u>	<u>tasks</u>	<u>planned routines</u>
L	listening to tapes	L
L	rough draft	- (?)
-	terminal	L
LA	typing of stencil	-
L	inspection of stencil	-
head of cataloging Radio Company	systematic inspection card printing	head of cataloging outside Radio Company
LA	typing of keywords	-
L	inspection of keywords	-
LA	sorting/filing of cards	LA
L	inspection of filing (during off hours)	L

SPECIFIC REQUIREMENTS

1. Input

Inputting via the computer monitor screen should be as simple and untechnical as possible. Forms with pre-printed field notations can simplify cataloging. The following field notations are necessary: PRODUCTION NUMBER

TITLE
BROADCASTING DATE
SUBJECT
PARTICIPANTS

Further field notations can be made by the librarian.

Certain information, as for example summaries of program content, which are not to be accessible by keyword, ought to be programmed so that they are not keyed. Words in an ongoing text (summaries, etc.) can sometimes be keywords. These can be marked with a special character during cataloging. For example:

"Volvo and Saab protest to the government over demands for lead-free petrol..."

If a program has more than one title or has other double information, then the field notation sequence can be changed. Control programs are desirable for permitted classification subjects. Perhaps this would demand too much space, in which case we can forgo it.

The cataloging ends by indicating the number of cards, for example 20 + 1. An extra card is printed for possible correction later in the database.

The head of cataloging must check that all classification subjects are correct before the material goes to be printed. It should be possible to "read" or "scan" the records before we surrender the diskettes (or cassettes). Alternatively, the records can be printed.

2. Storage

The input equipment must be furnished with diskettes or cassettes. The medium we choose depends on how many characters each holds. A "fully-written" catalog card holds about 1,100 characters. With present routines about 100 programs are cataloged each week. "Transfer" should be carried out every week, or alternatively, every fourteen days.

3. Transfer

The printing of the catalog cards should probably be done outside the company. The field notations shall determine the placement of the text on the cards. A computer program must be constructed. The assigned keywords are to be printed uppermost on the cards. When printed, the cards are complete and ready for filing. Some of the information in the catalog entries are placed so that the keywords do not have to be printed one more time (uppermost part of the cards). This should be controlled during the inputting.

The input that is temporarily stored on diskettes (or cassettes) will, for future needs, be permanently stored on a disc or transferred to tape. The storage is to be made at the company's ADP department.

4. Labelling

Every carton for program tapes is provided with a label. The labels shall also be printed.

JIM SULLIVAN, Chief Archivist, New Zealand Radio Sound Archives

SOME BACKGROUND TO THE USE OF A WORD PROCESSOR TO ASSIST IN THE PRODUCTION OF "SOUND HISTORICAL"

ARCHIVES CATALOG: USE OF WORD PROCESSING

The production of RNZ's Archives Catalog was begun late last year utilizing the benefits of the IBM System 6 Word Processing equipment in HO Typing Services.

The word, or Information Processor is a machine which contains a microprocessor that controls a memory and storage unit, specifically designed to alleviate the time consuming and boring repetitive work of typing staff. The IBM System 6 Information Processor (or FANG to her intimates, short for Fandangled Contraption), based in HO Typing Services, Wellington, provided an advanced approach to information storage, handling and future retrieval. For use not only in the printing of an up-to-date catalog, but also as an easy access to the information stored.

After consultations with operators, archivists, and the IBM Advisor, a "File Layout" covering all the information required in the catalog was devised and agreed upon. A File (one of the tasks or job options in the Processor) is the method of storing information so it can be processed and rearranged to suit individual requirements. It is made up of "Records" which are one complete group of information stored together. Within these Records are "fields" of information under appropriate headings. Because of the way the information is keyed into the file, using separate fields for separate items of related information, we can produce selected items of information, numerically or alphabetically, to suit individual requirements.

Each record is given a number automatically generated by the machine. This makes it easy to call up individual records for revision purposes. Because this job was so large, (and is still continuing), one of the IBM Machines (6/420 with VDU and Disc Storage) was sent to Timaru, with an operator, so that the job could be keyed in on-the-spot, with an archivist close at hand to advice on cross-referencing the information from each card. A file was made up using information written on the card system at archives. From each card relevant information was stored in fields using the headings below:

NAME: OCCUPATION: PLACE: DATE: YEAR: DURATION: TAPE/DISC NO: GENERAL.

Several items of information could be retrieved from each card, so to avoid keying in information more than once, the job was keyed in using the Text Option, which means the information was stored as straight text initially, thereby enabling the operator to use another feature of the machine - "Block and Jump". The operator keys in some of the information on the card, and then Block and Jumps it to the next lines, only altering the odd small piece of information, i.e., tape or disc numbers, in cases where there was more than one tape on the particular person or topic on the card. After all the information was keyed in as Text (but using a file format) the versatility of FANG was utilized again. The Text Information was "read on" to a File, thereby enabling all the valuable information to be used for another task, i.e., the Catalog.

We can retrieve information as required for individual needs as well. For instance, to have a printout of all the information on Mr. Muldoon, we ask the machine to find MULDOON in the name field, and give us a printed list of every record stored in the file. The information is stored on magnetic discs (Floppy Discs), 20 in all so far. Future updating and revision of the file is made so much easier because of other options provided by word processing. We can add more information by simply adding another field, or delete any records no longer required. When all revising had been completed, another processing feature of the machine was used to change the "layout" of the file, to make it more suitable for printing as a catalog. Using "Rearrange Output" the printout was changed from standard file layout, to be placed on A4 paper, and fields were rearranged for easy reading and pleasing appearance. Finally the new layout was printed using the OS6/640 Inkjet Document Printer which produces a high quality finish.

ENTRIES IN "SOUND HISTORICAL"

Here is a typical entry:

		OCCUPATION	RECORDING DATE
NAME	ABBOTT, Harold (Bunny)	All Black	
TEXT	Talks in general about the French Test.		Recorded 1960s.
EVENT DATE	1 January 1906	2'10"	T 710
		DURATION	TAPE/DISC NUMBER

NAME: Self-explanatory and refers to person, place or event which is the main purpose of the entry.

OCCUPATION: Gives the activity which relates to the entry. The occupation fields are usually broad, so that a sheepbreeder and a grasslands researcher will both be given the occupation "AGRICULTURE". Sometimes we are more specific, as with Rugby, where a player who represented New Zealand will be listed as "All Black" while someone who did not reach that status will be listed as "Rugby".

RECORDING DATE: The date at which the recording was made. Where this is the same day on which the event occurred, no "RECORDING DATE" is listed. It is covered by the "EVENT DATE".

TEXT: A brief description of the contents of the item.

EVENT DATE: The date on which the event being talked about actually occurred. Sometimes this will be very general, as with "1880s" for someone talking about early progress in the frozen meat industry.

DURATION: The length in minutes and seconds of the item.

TAPE/DISC NO.: This simply gives the number of disc or tape on which the item is recorded in the archives library.

Although not shown in the catalog, a further heading "PLACE" has been entered on the word processing machine entries. This enables us to obtain a printout of all material relating to a specific place. Usually provincial areas like "Otago" or "Taranaki" or of an overseas country. The word processor can also print out for us a list of all the entries under any of the other fields. For example, all material we hold that happened on the 1st of January, or all material which relates to 1906, or all entries where the occupation may be "All Black".

LETTER TO THE EDITOR

Dear Editor:

The Library Board of Western Australia has actively promoted an oral history programme for the past 21 years. The Oral History Programme collection now consists of some 1,200 hours of interviews with about 550 people. Only a very small part of the collection is on standard play open reel tape. By far the larger part is on 90 minute cassettes but in view of the enhanced risk of physical damage with the thinner tapes recording is now on 60 minute cassettes.

The problems associated with cassette tape is of particular concern to this archive. There are known problems of physical damage, some suggested possibility of print-through and deterioration of replay quality presumably from age and environmental factors as well as use. However as yet there seems to be no real answer as to how long even standard play tape will survive without significant deterioration. There is certainly nothing we can find about thin cassette tape. Is there any difference? Also what standard reference point constitutes significant deterioration from the original recording? How can quality control of this sort be imposed? What equipment and technical skills are required?

We cannot find any literature giving empirical scientific data related either to the ageing process or standards of deterioration. There are plenty of 'seat-of-the-pants' suggestions based on common sense but where is the hard scientific data?

Specifically, we need to know:

- a) What are the archival qualities of tape?
- b) How are these qualities best preserved?
- c) At what level of reference is deterioration recognised as significant?
- d) What specific information is available about cassette tape? Can it be shown to be less stable than standard tape in the archival situation?

We believe these problems are of interest to all who have an intention of keeping tape for a long time. Through the courtesy of the BULLETIN may we ask members to share their knowledge and sources of information with us.

Yours sincerely

W. Michael Adams
Oral History Officer
The Library Board of Western Australia
102 Beaufort Street
Perth, W.A. 6000

REPLY

Dear Mr. Adams:

Excuse the long delay in answering your letter. In my capacity as Technical Editor of the PHONOGRAPHIC BULLETIN and Chairman of the Technical Committee of IASA, I can assure you that there is adequate literature available about the problem of tape preservation. Although this material does not address itself specifically to cassette preservation, it may be of some help to you. In addition, I will mention some problems concerning cassette tape that may prove useful.

Preservation of magnetic recordings implies the following:

- 1) directly, the stability of the magnetic fields recorded onto tape, and
- 2) indirectly, the physical, chemical and mechanical stability of the materials that carry the magnetic information.

Provided standard quality material is used, there is no indication of any signal loss if a tape is stored free of magnetic fields under stable climatic conditions. It is also important not to replay on ill-serviced equipment that could, through magnetized tape heads or tape guides, cause magnetic alteration. This will mainly result in the increase of noise. An exception concerns print-through, but this consists of an unstable signal and will not cause serious trouble provided that adequate material has been used (see Aschinger, "Report on measurements of magnetic stray fields in sound archives" and Schüller, "Archival tape test", both printed in the PHONOGRAPHIC BULLETIN NO. 27).

There is more disagreement and uncertainty about the stability of tape in a physical and, especially, chemical respect. From the experience gained so far with modern plastic materials, there is neither evidence of their long-term stability, nor of their foreseeable dissolution. Accelerated aging tests may give some indication of the rate of deterioration, but they do not allow valid forecasting. It is a commonly adopted belief that polyester standard play tape (52 µm) with low print characteristics, stored in an environment at 20° C, relative humidity 40%, is good enough to preserve magnetic recordings for a foreseeable time, at least until safer methods of archiving (perhaps digital recording) are available under more economical conditions.

Recent studies (e.g. the Bertram-Eshel study), however, suggest that the eventual hydrolysis of polyurethane binders used to fix the oxide coating, may constitute a risk vis-à-vis long time storage. This new investigation has also been cited by the Committee on the Preservation of Recordings, a new organization centered in Baltimore, Maryland, which is intensively studying all factors related to preservation of all kinds of magnetic recordings.

Most investigation of this kind that has been carried out so far, and is being planned for the future, refers to standard play tape. This medium is, for obvious reasons, the optimum for long term preservation. Sometimes long play tape may have been included in comparative tests. No systematic work has yet been undertaken on cassette tape, most probably because it is not designed for storage purposes due to its physical vulnerability. In the production of professional standard play tape, the magnetic properties (and that implies the composition of the oxide coating) remains unchanged for years, if not for a decade or longer. These properties are constantly controlled, guaranteed and published by the manufacturer. Cassette tape is always subject to experimentation in order to improve the electrical performance. This implies as well a constant change in the composition of the chemical ingredients which makes it impossible to extrapolate from experiences and data of one type of tape to another -- even of older batches to newer ones of the same type. It is my personal feeling that simply for these reasons, in-depth studies on the long term stability of cassettes are in vain because their results cannot be generalized. However, Jean-Marc Fontaine will be including cassette tapes in his forthcoming preservation study for the Phonothèque Nationale in Paris. The Phonothèque is obliged to retain cassette tape which is deposited in the framework of the *dépôt légal*.
To conclude: however optimistic or sceptical one may be regarding the stability of magnetic recordings, there is no doubt that suitable standard play tape is far safer than cassette tape.

Another question posed in your letter remains to be answered: at what stage is deterioration recognized as significant? When magnetic tapes are properly stored, magnetic properties will not fade away. Damage is nearly always caused indirectly by physical and chemical deterioration. These have a random influence on the magnetic information stored. In many cases they will cause "drop-outs" for short or long passages, or high-frequency loss due to insufficient tape-to-head contact. You as the oral historian, not the technician, will have to set the threshold. Are you willing to miss one tenth of a second, one second, or five seconds of sound? If you decide on one tenth of a second, could not even this small gap cause a significant loss of information? This question is a serious one because when drop-outs occur (i.e., oxide removal), the amount of damage is unpredictable. Therefore, you should ask for no drop-outs.

I would like to ask a question in return: why do you use cassettes? Despite their inferior quality in comparison to open reel tape produced on professional recorders, they are still expensive, considering all manpower costs in fieldwork, in the archive, and most particularly, in preservation for the future. For the Phonogrammarchiv I have calculated the overall costs of archiving and arrived at some AS 500,-- per hour per year, a figure calculated to include fieldwork and archiving of approximately two hundred hours of new material per year. From the yearly budget a maximum of only 5 percent is taken up by professional equipment (Nagras, Studers and tape), therefore, the use of cassette recorders instead of professional equipment would save us only a small amount.

It is one of the tasks of the Technical Committee to assist archivists in convincing their budget officers that sound archiving is a costly operation, but that it is essential to do it at a professional level. Your letter seems to suggest that you were looking for help in this direction. I hope that the above information has been helpful in this sense. With the best wishes I remain,

very sincerely Yours,

Dr. Dietrich Schüller
Phonogrammarchiv der Österreichischen
Akademie der Wissenschaften

LITERATURE TO TAPE PRESERVATION:

- G. A. Knight, "Factors Relating to the Long Term Storage of Magnetic Tape",
PHONOGRAPHIC BULLETIN No. 18 (1977).
- N. Bertram and A. Eshe1, Recording Media Archival Attributes (Magnetic),
Rome Air Development Center, New York 1980.
- J.-M. Fontaine, Conservation des enregistrements sonores sur bandes magnetiques,
Centre de Recherches sur la Conservation des Documents Graphiques,
Paris 1981.

Further general useful information may be obtained from:

- D. G. Lance (Editor), Sound Archives: A Guide to their Establishment and Development,
IASA Special Publication No.4 (in print).

News and Notes

INDIANA UNIVERSITY ARCHIVES OF TRADITIONAL MUSIC

The Archives has a new Director - Dr. Anthony Seeger, who until recently was employed by the National Museum of Brazil.

The University has initiated a Friends of the Archives so as help fund special projects, such as its quarterly publication Resound.

For information on Resound and the Friends write to the Archives of Traditional Music, Maxwell Hall 057, Indiana University, Bloomington, Indiana, U.S.A. 47405.

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AUSTRALIAN WAR MEMORIAL

The AWM, located in Canberra (the Washington of Australia) has upgraded the priority of audio visual documentation resulting in the creation of a number of specialist career positions to care for such documents.

It is pleasing to note that one of the positions is that of a Sound Archivist, which should go a long way to improving the AWM holding of sounds of Australia at war.

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PIANO ROLL PRESERVATION

The Sound Recording Section of the National Library of Australia has acquired the current catalogue of the Mastertouch Piano Roll Company of Petersham, N.S.W., who have been manufacturing these sound recordings since the time of the first great war.

How many publishers of piano rolls survive? If you know of any please write with details which will be published in the next bulletin. Mastertouch are still cutting new rolls of hits of the 80's!

* * * * *

DIGITAL DISC DOWN UNDER

Sony unveiled the digital disc to the Australian audio trade in mid-October. The press hailed the development with enthusiasm. Hi Fi dealers are hoping it will boost the ailing sound industry. An excellent technically orientated article on digital audio appears Australian Sound & Recording (Vol.4, No.2) (Dec '82/Jan '83). This serial (who also produce an Audio & Broadcast Yearbook) can be contacted at 420 Elizabeth Street, Sydney, N.S.W., Australia. Subscription to AS & R is \$15.00 (Aust.) for six issues. Recommended. Vol.4, No.2 also has a fine story in it about Film Australia's Sound Effects Archive, which houses 15,000 effects (of which 7,000 are indexed).

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JOHN R. T. DAVIES

The world-renowned audio archivist/technician/discographer John R. T. Davies spent three days at the National Library of Australia in January as a sound consultant.

John R. T. has spent more than a quarter of a century investigating procedures to eliminate unwanted sounds from sound recordings. His diligence and resourcefulness in locating and eliminating foreign clicks, scratches, bumps, and surface noise is legendary. His services are employed by many record companies (including Swaggie, RCA, and Fountain) in the re-mastering of vintage sounds so as to ensure the whole sound can be heard without mutilation and suppression.

At a Technical Forum attended by 20 invited technicians, record producers, and broadcasters (on January 12) John R. T. demonstrated his unique "De-cerealisier" which allows him to identify and remove unwanted sounds from magnetic tape. He also payed tribute to the pioneer sound engineers of yesteryear who put far more sound content into grooves than most modern technicians are able to retrieve.

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DON'T FORGET THE LP SLEEVE NOTES

With all the activity today on cataloguing and retrieval of sound documents spare a thought for the oft neglected LP sleeve (and/or accompanying booklet) which is often overlooked in librarian systems.

The print information which accompanies the disc or tape often comprises original writings and reference research by leading scholars which is not available through any other source.

Consequently it deserves to be treated with the same enthusiasm as the recording it protects.

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RECORD INDUSTRY ORAL HISTORY

The Editor of News and Notes would be pleased to hear from persons who conduct interviews with pioneer recording artists, sound engineers, record retailers, and other industry personnel.

This would seem to be one of the most urgent and rewarding of sound archiving undertakings. In case you think it is too late to get involved I would mention that only 2 years ago I spoke with a spritely 96 year old whose first job in 1898 had been selling Gramophone & Typewriter (later HMV) discs.

The memories and the history are there for the documenting. Let me know if you are active in this work so I can inform readers. The interviewing of older recording artists can be a most exciting project which reveals valuable data (and anecdotes) to enhance the listening enjoyment and understanding.

* * * * *

OPTICAL SOUND FILM

In the mid/late 1930's Philips/Miller marketed a sound recorder and reproducer which operated on optical film (sound only - no vision). Pre-recorded reels of film with up to 30 minutes music were sold (12/6 each). Does any institution or individual have a playback machine or films? We would like to prepare a catalogue of the music which was marketed.

* * * * *

BRAVO RUTGERS

Annual Review of Jazz Studies No. 1 (1982) produced by the Institute of Jazz Studies, Rutgers University, Newark, New Jersey, U.S.A. 07102 is a fine venture in scholarship which should be represented in all sound archives.

The Editorial Board has attracted articles from top jazz researchers, most of which have a strong discographical flavour. Jazz music has long led the way in discographical documentation (where are the orchestral music and operatic sound historians?) and this latest Rutgers effort reflects the great world-wide interest in the study of popular culture.

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SWAP AND EXCHANGE DEPARTMENT

The National Library of Australia has segregated its duplicate radio show discs so as to facilitate exchanges with institutions and individuals.

If you would like copies of Australian radio transcriptions (mainly 16") circa mid 1930's to 1950's and have interesting material to swap please write to me at the NLA.

The Aussie discs include many well-known favourites such as "Superman", "Tarzan", "Gunsmoke", "The Shadow", and such, all recorded in Sydney or Melbourne with local actors (e.g. Peter Finch, Rod Taylor), often written by top authors, such as Morris West.

The library is also keen to purchase both old and modern record catalogues from all countries. Top prices for big lots!

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JOLLY ROGER

Piracy (or anti-piracy) of sounds gains attention in the IFPI News (No. 15) in an article "Industry Rights - The threat of new technology", contributed by David Gibbins, Director, Anti-Piracy Operations.

Issue No. 15 also describes the 1982 Edison awards presented in the Netherlands in November, which is based on artistic and not commercial guidelines. Two historical record sets received awards: the Centenary Edition of Bartok Records, and the Recorded Legacy of Igor Stravinsky.

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MELBA VERSUS DAWSON

The release in 1982 of commemorative sets of Dame Nellie Melby and Peter Dawson did illustrate that reissues of glorious sounds of the past can generate a lot of income for companies prepared to enter into the field in a professional manner.

The Melba set of five discs (masterminded by William Moran) and produced by RCA Australia in collaboration with the Australian Broadcasting Commission has sold over 5,000 sets.

Its success is matched well by the "Ambassador Of Song" set of ten discs issued by EMI Records Australia and the National Library of Australia, of which more than 3,000 sets have been distributed (equal to 30,000 solo albums).

EMI and the National Library are currently preparing a four LP set so as to reissue all the Columbia English recordings of the marvellous Australian bass, Malcolm McEachern - the centenary of whose birth is remembered this year.

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NATIONAL BRANCH REPORT

The Austrian Branch report presented at the Brussels Annual Meeting, July 1982, was omitted from PHONOGRAPHIC BULLETIN NO. 34, due to postal delays.

The Association of Austrian Sound Archives in the last year continued to organize AV-media training courses for librarians. These courses have a total duration of 10 days and their main purpose is to show librarians how to catalog AV media. These cataloging exercises are based on new Austrian cataloging rules which the Association of Austrian Sound Archives helped to work out.

Recently we started -- in cooperation with the Austrian UNISIST-Committee on AV training -- to build up a program for a comprehensive professional training for AV media archivists. With such plans -- we are not certain if they will be realized in the near future -- we aim at giving AV media archivism the status of a profession of its own.

This corresponds to our discussion and preparation to enlarge the Association of Austrian Sound Archives to an association of media archives. This reorganization will be realized in autumn 1982. The Association will have to represent the institutions as well as the archivists.

As in years past we took part in various committees on AV media and also continued the publishing of our journal "Das Schallarchiv".

Rainer Hubert

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CORRECTION

P. J. Scott, Regional Director of the Australian Archives N.S.W. Regional Office, writes to say that contrary to the statement made in PHONOGRAPHIC BULLETIN, No. 34 (November 1982) that there had been no institutional members of IASA in Australia prior to the formation of the National Branch, the New South Wales Regional Office of Australian Archives has been a member in its own right since 1977, and the Central Office of the Australian Archives (formerly the Commonwealth Archives Office) has been a member since 1971.

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HELP WANTED

If you wish to make something known or wish to appeal to find something out - then please write to myself (Peter Burgis, Sound Recording Collection, National Library of Australia, Canberra, A.C.T., Australia 2618), so that I can get your request into the next issue. Your assistance will help me to expand the range of topics of News and Notes.

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