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ABSTRACT

The second bulletin of the Microfilm Committee of the International Council on Archives begins with a short history of the origins of the committee. A brief discussion of the committee's 1972 Moscow meeting follows, as does the table of contents of a book on microfilming standards which is being developed by the committee to be published by UNESCO. A list of committee members and corresponding members is provided. Other articles cover: the microfilm clearinghouse of the Southeast Asian Regional Branch of the International Council on Archives; micro photography in Great Britain's Public Records Office; the microfilming of Palestine records at the London Public Records Office; microfilm terminology; microfilming of Zambian archives; the microfiche system at the Canadian archives; microbiodeterioration of microfilm; the microfilm section at the King Abdul Aziz University in Saudi Arabia; a Swedish report on microfilm; and specifications for microform viewers. Abstracts in French and Spanish for some of the articles are appended. (LS)

INTERNATIONAL COUNCIL ON ARCHIVES
MICROFILM COMMITTEE

BULLETIN

2

BUDAPEST, 1973

Please, send manuscripts to the address:

Dr. Iván BORSA
Secretary, Microfilm Committee
International Council on Archives
H–1250 BUDAPEST Pf. 3
Hungary

On demande d'envoyer les manuscrits
à l'adresse suivante:

Dr. Iván BORSA
Secrétaire du Comité du Microfilm
Conseil International des Archives
H–1250 BUDAPEST Pf. 3
Hongrie

THE COMMITTEE

REPORT OF THE MICROFILM COMMITTEE
VIITH INTERNATIONAL CONGRESS ON ARCHIVES

(Moscow, August 1972)

The present Microfilm Committee of the International Council on Archives had its origins in the meeting of the Extraordinary Congress held in Washington, D. C., in 1966. The unanimous recommendations of that Congress included a call for the strengthening of microfilm programs by extending them whenever possible to entire series of records and the formation of a working committee to investigate the most economical and rapid methods for the publication of archival sources.

A Microfilming Committee, the predecessor of the present Committee, was established by the Executive Committee of the ICA at its meeting in Munich in the fall of 1966. This special Committee ended its extensive activities with its report to the Sixth World Congress. This Committee set the stage for the present Committee by developing a firm theoretical foundation as well as practical guidelines for more extensive use of microfilm by archives for publication, preservation, and other purposes. This it did by assembling detailed information on current microfilming practices in archives throughout the world; by an analysis of the relative merits of microfilm publication and conventional publication; and, finally, by preparing a basic manual *Microphotography for Archives*. This manual has had two printings in English; a printing in Hungarian; and a large Spanish edition is now available and will be widely distributed in Latin America.

Soon after the Madrid Congress the Executive Committee approved the establishment of the present Committee which was constituted in April 1969. Without exception all members have a good working knowledge of microfilm operations. The Committee met the first time in Paris in the spring of 1970; then in London in March 1971; the third meeting is now in progress.

Despite the shortage of funds to adequately finance our activities the Microfilm Committee has been productive. Well in advance of our first meeting a circular letter was sent to both member and non-member countries of the ICA informing them of our existence, the availability of publications of the predecessor committee, and of our willingness to assist in handling problems. All archives that use microfilm were asked to designate their most knowledgeable person in this area to serve as a corresponding member. We now have 42 corresponding members; many of these have reported to us on significant developments or progress in archival microphotography in their countries. Corresponding members are always invited to participate in our sessions and in our work.

The Committee has, under the able editorship of Dr. Borsa, our Secretary, issued the first number of our Bulletin which the Hungarian National Archives has printed and paidfor. Nearly half the articles for our second number have been prepared.

We have been of assistance to numerous archives desiring to extend or improve their microfilming operations. This aid has ranged from helping a developing archives in Africa obtain a microfilm reader to supplying data to Archives to enable them to produce film that will meet archival standards. Other needs that have been met are supplying information on adequate microfilm cameras, readers, book holders, counters, storage, and other equipment. Some requests have been for information on the merits and costs of filming specific types of records; on the legal status of microfilm; on bibliographical controls for microfilm; on the feasibility of using microfiche or ultrafiche for micropublication; and for data on how to develop a micropublication program. The Committee has had an impact upon equipment manufacturers. Our efforts have resulted in the development of guidelines for archival readers and we have brought about significant design changes in several of them. One of the results of the Committee's Paris meeting in 1970 was a series of recommendations concerning microfilming for a Unesco-Archives consultative group. One recommendation is now being implemented by the study our Committee is preparing for UNESCO on standards and equipment needs for reprographic laboratories for developing countries.

But much more remains to be done. We would like to finish work on a report on how microfilm should be preserved in tropical countries; we still need to establish much closer relations with national and international standards and reprographic organizations; there is still an urgent need for an ICA glossary of microfilm terminology; and many archives still require assistance.

Our Committee has been deeply concerned that the ICA has not lived up to its financial commitments. Members' attendance at our meetings has been financed primarily by their respective archival administrations.

We are also especially concerned about the lack of adequate liaison with the ICA Executive Committee. We unanimously propose, that in the interest of more effective operations that this General Assembly express the wish that each Committee be represented by either its Chairman or Secretary in either an observer or ex officio capacity at the meetings of the Executive Committee.

MEMORANDUM

ON THE MOSCOW MEETING OF THE MICROFILM COMMITTEE INTERNATIONAL COUNCIL ON ARCHIVES

August 21st and 24th, 1972

The Committee held its Moscow meeting at the time of the VIIth International Congress on Archives.

Considerable difficulty was encountered in scheduling Committee meetings. As early as July 1971 the Chairman had requested the Organizing Committee to permit our Committee to meet before the Congress began its sessions. This request was denied. Instead meeting dates of August 21 and 22 were assigned.

The first session on August 21 was held as scheduled but participation was limited because of the absence of simultaneous translation or interpreters. The second session scheduled for August 22 was cancelled as it was scheduled to take place at the same time that the Chairman was to report to the General Assembly. Arrangements, however, were made with Mr. Popov of the Organizing Committee for the Microfilm Committee to meet on August 24 for a session in which we would have the benefits of simultaneous translation. It should be pointed out that the session of August 24, although well attended, was not as well attended as it might have been because it was not always possible to inform potential participants of the changes in time and place of the session.

The sessions of the Microfilm Committee were attended by the following regular members:

Mr. Albert H. Leisinger, Jr., Chairman (U.S.A.)
Dr. Ivan Borsa, Secretary (Hungary)
Señorita Crespo Nogueira (Spain)
Miss Daphne H. Gifford (United Kingdom)
Dr. W. Kohte (Federal Republic of Germany)

Dr. Elio Califano (Italy) and M. de Ferry (France) did not attend because of illness or personal reasons. Although the Soviet Union has not, as yet, nominated a member of the Committee, Mr. O. N. Tiagunov participated. Corresponding members and individuals from at least 15 other countries participated in the sessions and in the discussions.

The Committee believes that its sessions were productive.

They opened with a brief report by the Chairman. The manual „Microphotography for Archives" has just been published in a Spanish edition which follows the two English and a Hungarian edition. The Spanish edition, printed by the National Archives of Spain, will be distributed widely to archives and libraries in Latin America by the Organization of American States which paid a good share of the printing costs. During its sessions substantial progress, also, was reported on a French edition to be published by the Archives of the City of Paris.

The Committee now has 42 Corresponding Members. Each one has been invited to attend meetings of the Committee and to report significant developments in microphotography in their own countries. They have, also, been asked to communicate with us concerning problems that we can help them with. A number have done so.

The Committee will continue its efforts to expand the number of Corresponding Members as well as to strengthen ties with them.

Under the Editorship of its Secretary, Dr. Ivan Borsa, the Committee has issued its first *Bulletin* which will be circulated to archives throughout the world. The expenses of this *Bulletin* have been paid for by the Hungarian National Archives. During its sessions the Editor of the *Bulletin*, the Secretary of the Committee, reported that approximately half the number of articles for the second number of the *Bulletin* had been received.

The major area in which the Committee can be useful to the ICA and to archives throughout the world is in supplying assistance on microfilm problems. This has been done in many instances. One of the major tasks that the Committee is now engaged in is the preparation for UNESCO of a study involving the development of basic standards for the equipment of reprographic laboratories. Special emphasis is to be placed on the needs of developing countries. This study was discussed. Members called to the attention of the Chairman, who is preparing the study, of the need for including in the study data on film retakes and film storage problems. The Chairman called attention to the fact that not all members had supplied him with the required data on the equipment and supplies available in their own countries and that this information was needed promptly.

Mr. Hart of Holland raised the question of the wider application of microfiche. He agreed that microfiche apparatus should not be included as part of basic equipment for a developing country.

The delegates of two African countries, Mr. Fejokwu of Nigeria and Mr. Kukubo of Kenya, discussed some of the problems encountered by tropical countries in microfilming records. A common problem was adequate microfilm storage facilities. In Kenya, also, the emulsion layers of negative microfilm have been deteriorating. Mr. Leisinger suggested that if several rolls of the film were sent to him he would have them examined by experts to determine the cause of this deterioration. He pointed out that the problem could be faulty processing and, if so, it would be desirable to have commercial facilities process the film in accord with archival standards.

The Committee was quite concerned when Mr. Fejokwu of Nigeria and Mr. Kukubo of Kenya stated that their countries had attempted to obtain advice concerning their microfilming problems from the ICA and UNESCO but without result. The Committee made known its willingness to assist in every way possible. Countries with similar or other problems were invited to correspond directly with the Committee.

Mr. Quetin of France stated that orthochromatic films are becoming scarce in Western Europe and that archivists and librarians should see that their manufacture is continued. Undoubtedly this problem will be raised at the conference to be held in Mainz in November of this year.

Mr. Nicolai Michailovitch Vinogradov of the Soviet Union delivered a short paper on problems of terminology. The paper was of special interest as work on standard

terminology has been going on in the International Reprographic Congress for ten years without the participation of a worker in the Russian language. As a result of his work a glossary has been published in two editions.

Mr. Michael Andreievitch Popov of the Soviet Union delivered a paper on the technology of microfilm processing in Soviet archives with special regard to the Mikrat isopanchromatic film, a Soviet product.

The Committee discussed, in the detail, the contents of the second issue of the *Bulletin.* Several of those present agreed to prepare articles. These articles should be in the hands of the Editor by November 1972.

The Committee voiced its dissatisfaction with the lack of communication with and support from ICA. The attendance of committee members at its meetings, for example, has been made possible by the financial support of their own archival administrations. But a few of our members have found it difficult to obtain financial support from their administrations. The failure of the Secretariat or the Executive Committee to provide us with guidance, to respond to our requests for comments on our activities, and to refer problems within our competence that have been brought to it by member countries has been apparent. With these points in mind the Microfilm Committee unanimously resolved that the General Assembly express the wish that each committee of the ICA be represented by either its Chairman or its Secretary as an observer at the meetings of the Executive Committee of the ICA. The General Assembly at its session of August 25 adopted this motion. The Microfilm Committee would like to inform the Executive Committee that it considers representation at its next meeting necessary. May the Committee remind the Executive Committee that one of their recent meetings was attended by three members of the editorial board of *Archivum.* This Committee does not ask the ICA to cover the travel expenses of a member to Executive Committee meetings; this we hope we can handle. We ask only that we be allowed to be represented.

The Committee has accepted with thanks the invitation of the Italian Direction General of Archives to hold its 1973 meeting in Rome, possibly as early as May.

A STUDY OF THE BASIC STANDARDS FOR EQUIPPING, MAINTAINING, AND OPERATING A REPROGRAPHIC LABORATORY IN ARCHIVES OF DEVELOPING COUNTRIES

This study, prepared by Mr. Albert H. Leisinger, Jr., Chairman of the Microfilm Committee of the International Council on Archives with the assistance of several members of the Committee, will be published by Unesco in 1974. The study will provide archives in developing countries with basic information to enable them to install or improve reprographic or microfilming facilities in an effective and economical manner. The table of contents of the study, which follows, will give an indication of its scope.

CONTENTS

INTERNATIONAL COUNCIL ON ARCHIVES
MICROFILM COMMITTEE

CHAIRMAN: Mr. Albert H. LEISINGER, Jr.
Chairman, Microfilm Committee ICA
The National Archives
WASHINGTON, D. C.
U.S.A. 20408

SECRETARY: Dr. Iván BORSA
Secretary, Microfilm Committee ICA
1250 *BUDAPEST* Pf. 3
Bécsi kapu tér 4
Hungary

MEMBERS: Prof. Elio CALIFANO
Consiglio Superiore degli Archivi
Piazza Bologna 2
ROMA
Italy

Señorita Carmen CRESPO NOGUEIRA
Directora del Servicio Nacional de Microfilm
Serrano 115
MADRID – 6
Spain

M. A. Ferréol DE FERRY
Conservateur en chef
aux Archives Nationales
75003 *PARIS*
60, rue des Francs-Bourgeois
France

Miss Daphne H. GIFFORD
Principal Assistant Keeper
Public Record Office
LONDON WC2A 1LR
Chancery Lane

Dr. Wolfgang KOHTE
Ltd. Archivdirektor am Bundesarchiv A.D.
54 KOBLENZ–IMMENDORF
Auf Derbitz 8
BRD -- NSZK

T. V.M. LAIKO
director Centralnogo gosudarstvennogo
arhiva zvukozapisei S.S.S.R.
MOSCOW 119–435
B. Pirogowskaia 17

CORRESPONDING MEMBERS

(May 1, 1973)

ARGENTINA -- Señor Rodolfo A. MORRONE
Jefe de la Div. Archivo Audiovisual del Archivo General de la Nación Leandro N. Alem 250 – BUENOS AIRES

AUSTRALIA – Dr. K. PENNY
Chief Archivist -- c/ -- Commonwealth Archives Office - CANBERRA A.C.T. 2600

AUSTRIA – Herr Dr. Richard BLAAS
Wirkl. Hofrat – Direktor des Haus-, Hof- und Staatsarchivs - A--1010 WIEN Minoritenplatz 1

BARBADOS – Mr. M.J. CHANDLER
Archivist – Department of Archives - Lazaretto Building, Black Rock -- ST. MICHAEL.

BELGIUM – M^lle Andrée SCUFFLAIRE
chef de section aux Archives Générales du Royaume -- 2, rue de Ruysbroeck 1000 BRUXELLES

BULGARIA -- Nadezda Gerova KAMBUROVA
glaven specialist - Archivno Upravlenie – ul. Zdanov N... 5 -- SOFIA

CANADA - Mr. William WHEELER
Senior Advisor, Office of Technological Studies - Public Archives of Canada – 395 Wellington Street OTTAWA 4, Ontario

CEYLON -- see SRI LANKA

CHILE – Señorita Estela Iturriaga DONOSO
Archivero Jefe – Archivo Nacional – SANTIAGO

CUBA – Dr. Mario AVERHOFF
Director del Archivo Nacional – Compostella y San Isidoro – LA HABANA

CZECHOSLOVAKIA (BOHEMIA) – Mr. Karel JISKRA
Archivní správa – PRAHA 6 – Třida Obránců miru 133

DENMARK – Dr. Sune DALGÅRD
chief archivist – Rigsarkivet – 1218 KØBENHAVN K. – Rigsdagsgården

EL SALVADOR – Señor Bachiller Victor René MARROQUÍN
Biblioteca Nacional – 8a.C. Oriente y Calle Delgado – SAN SALVADOR

FIJI – Mr. Setareki TUINACEVA
Archivist – National Archives of Fiji – SUVA – Fiji – P.O.Box 2025

FINLAND – Mr. Martti FAVORIN
Archivist – National Archives – HELSINKI 17 – Rauhankatu 17

GHANA – Mr. D.A. KUMI
Archivist – National Archives – P.O.Box 3056 – ACCRA

GREAT BRITAIN (SCOTLAND) – Mr. R.G. BONNINGTON
Assistant Keeper – Repository and Technical Section – Scottish Record Office – P.O.Box 36, HM General Register House – EDINBURGH EH1 3YY

GREECE – Miss Maria HERETI
General State Archives – ATHENS

INDIA – Mr. R.C. GUPTA
Deputy Director – National Archives – Janpath – NEW DELHI

IRELAND – Mr. Breandán MAC GIOLLA CHOILLE
Keeper of State Papers – DUBLIN – Castle

JAMAICA – Mr. Clinton V. BLACK
Government Archivist – The Jamaica Archives – SPANISH TOWN

KENYA – Mr. N.W. FEDHA
Chief Archivist – The Kenya National Archives – Jagoo House – P.O.Box 30520 – NAIROBI

LUXEMBURG – M. Paul SPANG
Directeur des Archives de l'Etat -- LUXEMBOURG – Plateau du Saint-Esprit

MALAWI – Mr. J.D.C. DREW
Director – National Archives of Malawi – P.O.Box 62 – ZOMBA

MALAYSIA -- Mr. John DAVIES
Head, Repository and Technical Services -- National Archives of Malaysia – JALAN SULTAN, PETALING JAYA

MEXICO – Sr. Carlos BRIZUELA
Head of the department of microfilm – Archivo General de la Nacion – Palacio Nacional, Patio de Honor -- MEXICO 1, D.F.

THE NETHERLANDS -- Dr. B.J. SLOT
Assistant Director – The Dutch State Archives (Algemeen Rijksarchief) -- 'S-GRAVENHAGE – Bleijenburg 7

NIGERIA – Mr. J.O. NWAOBI
Senior Archivist – National Archives Headquarters -- Private Mail Bag No. 4, - University of Ibadan Post Office – IBADAN

NORWAY - Mr. Thorsten EKEN
Principal Assistant Keeper – Riksarkivet – Bankplassen 3 – OSLO 1

PANAMA -- Señor Mario Herrera ACOSTA
Director General del Archivo Nacional – Panama 5 – Apartado 6618 – PANAMA

REPUBLIC OF THE PHILIPPINES – Dr. Domingo ABELLA
Director -- Bureau of Records Management – MANILA

POLAND -- Dr. Henryk BARCZAK
General Direction of Polish State Archives – WARSZAWA.1 – u. Miodowa 10

PORTUGAL -- Dr. Fernando Bandeira FERREIRA
Inspector of Libraries and Archives -- Ministério de Educação Nacional – Campo dos Mártires de Pátria) LISBON

ROMANIA – Mr. Vladimir PANCU
engineer -- head of the Technical Service -- General Direction of State Archives – B-dul Gheorghe Gheorghiu-Dej nr. 29 – BUCUREŞTI VI.

SRI LANKA – Mr. G.P.S.H. DE SILVA
Assistant Director, National Archives – National Archives Department – No. 7, Reid Avenue – COLOMBO 7

SUDAN – Mr. Mubarak SIRRY OMER
Central Records Office – P.O.Box 1914 – KHARTOUM

SWEDEN – Mr. Sven HAVERLING
deputy Keeper of the Royal Military Archives – Riksarkivet – Fack 100 26 – STOCKHOLM 34

TANZANIA – Mr. Joseph M. KARUGILA
Assistant Archivist – National Archives – P.O.Box 2006 – DAR ES SALAAM

TRINIDAD AND TOBAGO – Mr. Enos SEWIAL
Government Archivist – National Archives – Whitehall – PORT–OF–SPAIN

TURKEY – Mr. Turgut IŞIKSAL
Director of Conservation, General Directorate, Prirne Ministerial Archives – Arşiv Genel Müdürlüğü – ISTANBUL

UNO – Mr. Giuseppe S. MARTINI
Chief – Documentation Division – United Nations Library – Office of Conference Services – United Nations – NEW YORK, N Y

YUGOSLAVIA – M. Todor TALESKI
directeur adjoint des Archives de Macedonie – Poštanski fah 496 – SKOPJE

ZAMBIA – Mr. P.M. MUKULA
National Archives of Zambia – P.O.Box RW. 10 – Ridgeway – LUSAKA

12/18

ARCHIVAL MICROFILMING

SARBICA-CONSAL REGIONAL MICROFILM CLEARING-HOUSE

Editorial Note:

Mrs. P. Lim Pui Huen's report on the SARBICA-CONSAL Regional Microfilm Clearing House is reprinted with her permission from Southeast Asian Archives, Vol. 5, July 1972. It is the hope of the Microfilm Committee that other regional archival organizations will follow SARBICA-CONSAL's example.

SARBICA is the Southeast Asian Regional Branch of the International Council on Archives. The Journal, Southeast Asian Archives, is the organ of SARBICA. CONSAL is the abbreviation for the Conference of Southeast Asian Librarians, a regional group which aims to encourage cooperation among the libraries in the area.

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During the First General Conference of SARBICA held in Manila from 24th-28th May, 1971, one session was devoted to regional microfilm problems. The paper presented by Mrs P. Lim Pui Huen, Librarian of the Institute of Southeast Asian Studies (Singapore) formed the basis of discussion.

There has been much activity and discussion on regional and international co-operation in microfilm programmes since the Conference on Southeast Asian Research Materials held in Puntjak (Indonesia) in April 1969. Following this conference Southeast Asia Microforms (SEAM), an international group external to Southeast Asia, has been set up based in the Center for Research Libraries (CRL) with Professor John [illegible]ge of Monash University as Chairman and Mr Gordon Williams, Director of CRL, as Executive Director. In Southeast Asia, a Regional Committee has been set up under the wings of SARBICA, a National Microfilm Committee has been set up in the Philippines, a joint committee in Malaysia and Singapore, and an informal committee in Indonesia. It is envisaged that these National and Regional Microfilm Committees and SEAM would form a world-wide co-operative network to co-ordinate and undertake projects for mutual benefit. This Manila meeting was therefore to some extent a follow-up of the Pountjak conference and adopted the following resolutions:

(i) that the appendix to the paper submitted by Mrs P. Lim, as amended, be adopted as guide-lines for dealing with microform matters in Southeast Asia and be recommended to the National Microfilm Committe for adoption;

(ii) that a joint SARBICA-CONSAL Clearing-house of information pertaining to microform matters be established with one person acting as its co-ordinator;

(iii) that the Conference instructs the Secretary-General to request CONSAL to participate in the establishment of the joint clearing-house of information on microform matters; and

(iv) that Mrs P. Lim Pui Huen be nominated SARBICA's candidate as co-ordinator of the SARBICA-CONSAL Clearing-house.

The Guide-lines for National and International Co-operation in Microfilm Projects referred to above are as follows:

1. National Microfilm Committees support the formation of international co-operative projects and in this context welcomes the establishment of international non-profit organizations and will urge their members to do likewise within the framework of their programmes and their members' individual needs.
2. National Microfilm Committees will act as intermediaries and clearing-houses between international organizations and their members channelling requests and requirements on both sides but negotiations will however, be conducted directly by the particular institution concerned.
3. As part of their contribution to co-operation with international organizations, National Microfilm Committees will compile:
   (a) List of negatives already filmed.
   (b) Lists of material on their lists of priorities awaiting filming.
   (c) Wants lists of material required by members but not held in their respective countries.
4. All parties should undertake not to reproduce from microfilms supplied but should refer prospective buyers back to the institution holding the negative and the copyright.
5. Microfilms will be supplied in accordance with the institution's normal charges.
6. Recommendations for Microfilm Units:
   (a) Negatives should be retained by the institution owning the original material or by any other institution in the country it entrusts with the keeping of these negatives.
   (b) Positives of negatives already made may be freely supplied at the discretion of the institution owning the original material.
   (c) Material not yet filmed may be filmed at request of the international organization if the item is on the National Microfilm Committee's list of agreed priorities.
   (d) Microfilms should be made in accordance with recognised technical standards.

P. LIM PUI HUEN
Librarian, Institute of Southeast
Asian Studies (Singapore)

MICROPHOTOGRAPHY IN GREAT BRITAIN'S PUBLIC RECORD OFFICE

Before the second World War the Public Record Office had no photocopying service of its own. The photographing or photostating of documents were handled by a private firm which had its own facilities in the P.R.O. In 1941 the Library of Congress, supported by the Rockefeller Foundation, began filming records relating to the Colonial period of American history, partly to provide the Library with research materials and partly as insurance against damage to the originals by enemy action. The agreement made by the P.R.O. with the Library provided that at the end of the project the microfilm camera used would be left with the P.R.O. When filming was finished in 1945 some 550 reels of film had been obtained by the Library of Congress and the P.R.O. not only obtained the camera but also developed the expertise necessary to do its own filming.

In 1948 provision was made for a Photographic Section in new temporary buildings, „The Huts". The American Recordak Statfile Model A carnera was moved from the main building, and joined by a second camera installed to copy records for the Australian Government. At the end of the year a third camera was borrowed from H.M. Stationery Office. By the end of 1950 another camera was producing microfilm for the Canadian National Archives. Almost half the microfilm produced went to Canada or Australia.

In 1947 departmental files were available only to varying dates in the last quarter of the nineteenth century. During the next three years the date was extended to 1902, and in 1959, with the implementation of the Public Record Act, a 50 year rule was adopted. Since then the period has been shortened; in 1966 to 1922 by a 30 year rule in 1968, and in 1972 to the records of the second World War. The last 25 years have also seen the opening of the records of three decennial censuses. This liberalization of access stimulated a considerable increase in the number of readers. This in turn created an increasing demand for photocopies. The Public Record Office found itself deluged not only by academic researchers, but also by those with genealogical and other interests.

Measures were taken to purchase equipment and to provide adequate staff and space. The camera room provided in 'The Huts' in 1948 soon became inadequate. A microfilm camera was stationed in the outer repository at Ashridge Park in 1953, and two years later accommodation for the cameras in Chancery Lane was provided. Other photographic services were grouped in a range of rooms in the basement. And still the Section grew; another room was taken over for cameras, quick copy machines, and an Ordering Section. In 1968 the entire Section moved into dismantled strongrooms in the basement which provided space for the 18 microfilm cameras then in use, a new processor and printer, readers and rewind benches, a machine for electrostatic printing from film and photostat equipment.

Inevitably there has been a time lapse between planning new quarters and their occupation. In the interum fresh needs arose. Again the Section was on the move and an additional camera room was opened in the Land Registry building in Lincoln's Inn Fields. The greater part of this building was taken over by the Public Record Office between 1968 and 1970. It also provided rooms for the Conservation Section, and three additional searchrooms for some 150 students.

One result of creating more searchroom space, was a drop in 1969 in the demand for Xerox copies. This was followed in 1970 by a rapid increase. The two Xerox machines had to be supplemented by another. The fall in demand in 1969 was related to the fact that additonal seating and quicker production of records encouraged students to copy more material by hand. By 1970 the searchrooms were filling up again, and the demand for photocopies increased. Each time space has been created for additional equipment the area has been quickly filled. In the 1950's the number of microfilm cameras operating never rose above eight, but great strides were made in improving the efficiency of the service in other areas.

A milestone was the introduction in 1954 of a machine for the continuous and automatic processing of microfilm. The machine, of a type not readily obtainable in England, was designed and constructed by the Public Record Office's Chief Photoprinter and Principal Photographer, and was in constant use in the Public Record Office for nearly ten years. Later in the same year an automatic film printer was introduced.

The next notable advance was in 1963 when a Lawley Junior processor was installed along with seven additional Recordak cameras. Equipment for checking and editing film was also added. At this time also the Public Record Office acquired a Microbox camera, built to the Office's specification, for the filming of Memoranda Rolls. A second processor was added two years later, and an additional camera in 1966. When new accommodations became available in 1968, a large Photomec processor and a new automatic film printer were installed. Additional rewind benches, splicers and readers were added. Within five years 14 additional cameras and another film printer were added.

In 1972 twenty-five 35 mm planetary cameras were operating. With one exception these were Kodak models, including 2 Model D cameras, an S 30 introduced for filming large documents, and 8 MRD 2LE cameras. The MRD 2LE, designed for the British Museum, in invaluable for filming heavy, thick volumes. The split platen moves not only vertically but also horizontally, and each half of a volume can be adjusted as filming proceeds. In consequence there is less strain on the operator, and less risk of damage to volumes.

The only camera which is not a Kodak is a German Microbox (MBO ET/70 Special) installed to film Memoranda Rolls. These Rolls, in a series beginning in the thirteenth century, consist of parchment membranes approximately 10" in width, and a metre in length, sewn together at the head. Each membrane can be filmed in one exposure at a reduction ratio more suited to the nature of the document than is possible with an ordinary 35 mm camera, where the choice is between filming the membrane in two halves, or filming a complete membrane at less satisfactory and greater reduction resulting in a partially filled frame. In short the endproduct is a copy of each membrane approximating a 35 mm film frame in width and a 7 mm film frame in length.

The processor is a British Photomec built to Public Record Office specification It can handle 1,000 feet of film in 35 minutes. This machine, which can take 16 mm as well as 35 mm film, has been running at capacity for nearly two years, and has been virtually trouble free.

To complement the processor are two American De Pue automatic printers, each capable of handling 35 mm and 16 mm film at a rate of 1,000 feet in 40 minutes. The first printer, in use since 1968, not only replaced the Taylor printer, but also provided printing capacity to keep pace with the Photomec processor. In less than a year another printer was required.

Equipment for editing and checking now consists of 12 rewind benches, two of which are motorized, and 15 Premier automatic splicers, all manufactured by Robert Rigby Ltd. Two other splicers, the Prestoseal Thermo Fusion splicer, supplied by Mike Fraser Ltd., have been acquired in the last two years, and have greatly speeded the work of copying orders from master negative in the Film Library. The Public Record Office has one of each model available, the Miracle and the Hercules, the second acquired for splicing diazo film. A third is on order.

Film readers number 16, and with one exception are Recordak Archival Readers. The sixteenth is a Microgen portable model which has been found useful in various areas because it is readily transportable. No adequate replacement for the Archival Reader, which is no longer manufactured, has been found.

Until 1972, with one exception, the Public Record Office has had little 16 mm equipment. Learned institutions, which are the Public Record Office's largest customers, have expressed no desire for a change from 35 mm in spite of increasing costs.

On the other hand the Public Record Office has been aware of advances in the quality and versatility of 16 mm equipment. The opening of the records of the second World War, brought to a head the need for a solution to the problem of filming modern departmental records.

Modern files have posed copying problems. It has become increasingly obvious that the Public Record Office would have to adopt a policy that would allow for more extract filming. At one time aperture cards seemed a possible answer to the problem, but a more satisfactory solution is to be found in microfiche produced from 16 mm microfilm.

A great deal of thought has been given to the problem. The Public Record Office had used an Eastman Kodak Rex 1,16 mm flow camera in 1962 to film the 1861 Census Returns. Filming was completed in 1969, but the film produced has not proved entirely satisfactory, and many retakes were necessary. Present equipment for microfiche consists of four 16 mm Kodak Starfile cameras with a Prostar processor; a Bell and Howell jacket filler using Ozalid ultra-thin jackets; an Atlantic fiche duplicator and an Atlantic fiche developer for making diazo copies.

The Public Record Office is at present engaged in planning the equipment needed for 1976 when the Office will be split between a new Repository at Kew to house the modern departmental records, and the old Repository in Chancery Lane. The microfilm service at Kew will use both 35 mm and 16 mm cameras, but the emphasis will be placed on production of microfiche. 16 mm cameras will number 24 against 15 35 mm cameras. A small unit will remain in Chancery Lane.

The Photomec processor and the De Pue printer have proved so satisfactory that these models will be used. Hard copy from film will be produced by the Xerox 1824 for 35 mm film, and the diazo copier for microfiche.

During its existence the Public Record Office has been host to microfilm cameras of other bodies. At the present time three cameras are filming genealogical materials for the Church of the Latter Day Saints, and this has proved of mutual benefit. Another camera has been employed since 1969 in copying Palestinian material for a joint programme initiated by the Isreal State Archives, the Central Zionist Archives, and the Weizmann Archives. The master negative of these is retained by the Public Record Office.

Many research students, used to consulting original documents, still prefer exact size copies. When cheap and permanent direct copies became available they were immediately popular, and from an initial 30,000 prints produced in 1963 on one machine, the Public Record Office now operates six Xerox 720 machines, which produced over 509,000 prints in 1971. The latter figure includes also electrostatic copies from film made on a Caps Electrostatic Copies 35E. One of the earliest machines of this type was acquired by the Public Record Office in 1968, and this was supplemented in 1971 by a Xerox 1824.

The introduction of equipment has had a number of results. Extract filming was discontinued at the end of 1967, and thereafter only complete volumes were copied. This released much material to the searchrooms, and in turn stimulated further demands for copies. Photostat production continued to decline steadily to such an extent that it has now been discontinued. The reason for preserving this facility for so long in the face of the high cost of copies has been the Public Record Office's refusal to subject large and specially valuable documents to the almost certain risk of damage on a Xerox 720. In is now possible to film such material, and make an enlarged print from the film. A result is that the Film Library is demonstrating its value in saving filming time, as well as reducing the risk of damage to documents.

A film Library of master negatives is a comparatively recent innovation. Although the Public Record Office possessed the capacity from 1955 on of making positive copies of film there was no consistent policy of preservation of filming. Much of the work undertaken was extract filming for individual orders. In 1963, however, the Public Record Office began to create a Film Library of master negatives, and by 1972 this Library contained more than three million feet of film representing a capital asset of over $600,000. The discontinuance of extract filming in 1967 initiated a period of rapid growth of holdings. Orders from large institutions for copies of entire series of records have resulted in the retention by the P.R.O. of a considerable quantity of negative film relating to the United States, Greece, Malaysia, Denmark, China, Turkey, South America, and many former Colonial possessions in Africa and the West Indies.

This collection is very largely a by-product of public demand. Since the war-time American copying project finished in 1945 comparatively little filming has been for security purposes. Although the Public Record Office approves security filming, customer's orders fully absorb out camera capacity. It is becoming increasingly obvious, however, that film is needed to replace documents in the searchrooms, and a programme

of coping will have to be begun. At present readers use microfilm in place of the originals of the Census Returns, as well as certain Foreign Office classes. Popular Cabinet Office classes are produced in hard copy made on a Xerox Copyflo machine from film.

Daphne H. GIFFORD
Principal Assistant Keeper
Public Record Office
London (United Kingdom)

THE MICROFILMING OF PALESTINE RECORDS AT THE PUBLIC RECORD OFFICE, LONDON

The files of the Palestine Government left behind in 1948 upon the establishment of the State of Israel and British withdrawal after 30 years of rule, are kept in the Israel State Archives. However, this documentation is incomplete. Only a few files survive from the early period of the Military Administration, until the San Remo Conference in 1920. A small amount of material remains from the period of High Commissioner Herbert Samuel's administration (1920–1925), but practically no files were left from the offices of the other High Commissioners until 1931. In 1931 a new centralized filing system was established for the office of the Chief Secretary of the Government and this remained in use until the end of the Mandate in 1948. Many records of the Palestine Government for this period are today in the custody of the Israel State Archives, but most of them dealing with political matters and all secret files were apparently removed or destroyed before the termination of the British Mandate, so as „not to implicate H. M. Government."

The main sources of information on the political history of Palestine from 1917 until 1948 will be found in British archives, and especially in the files of the War Office, the Foreign Office, and the Colonial Office. In 1921, when Winston Churchill was Secretary of State for the Colonies, the responsibility for the Palestine Administration was transferred from the Foreign to the Colonial Office and it remained so until the end of the British Mandate, though the influence of the Foreign Office was predominate during some periods of political crisis. Each of these record groups contain inter alia a large series under the heading „Palestine". Moreover, there are among other record groups, for example the Cabinet Office, some documents of primary importance for the History of Palestine.

When in 1968 the P.R.O. implemented the provisions of the Public Records Act of 1967 (c.44), and the 50 years rule for the inspection of records became a 30 years rule, the archives in Israel decided jointly on a project for microfilming the relevant records at the P.R.O. Besides the Israel State Archives the most interested institutions were the Central Zionist Archives and the Weizmann Archives. The Weizmann Archives are engaged in a comprehensive publication project of all Weizmann letters. The editorial staff of the Weizmann Archives thought it necessary to base its publication on a thorough study of the files in the P.R.O. and it was clear that they were interested only in the large series on Palestine but also in selected files and documents dealing with Jewish affairs and Zionism. Moreover, the original finding-aids at the P.R.O. were reasonably supposed to be of uneven quality and it had to be assumed that a certain number of files would need some new description. It was therefore decided by the three participating institutions that a qualified representative of the Weizmann Archives would conduct

the selection and description of the material in London. Moreover, he would present the joint microfilm project of the three institutions to the P.R.O.

It was agreed that only complete files of the large series of Palestine papers in each of the record groups would be filmed. Single folders or documents of interest would be Xeroxed.

The copying of the Palestine records would be paid for by the State Archives and be deposited with them, while the papers on Jewish and Zionist affairs would be paid for by the Central Zionist Archives. Both Archives agreed to place the microfilm at the disposal of researchers, particularly those from the Weizmann Archives.

One microfilm camera, which was bought by the Weizmann Archives, was installed at the Public Record Office and is operating under the supervision of the P.R.O. The negative film is kept by the P.R.O. and a positive copy is sent to Israel.

The project started early in 1969. Because of technical problems only 200 reels of microfilm were produced during the first two years. With the opening of additional records the program has been extended to cover the war years and additional records has to be searched to locate records pertaining to Palestine. In February 1973 the project was terminated with the microfilming of CO 733 files up to 1945 and FO 371 files to 1941 will be produced on microfiche as a P.R.O. project. Copies of the relevant files when released by the P.R.O. will be purchased.

P.A. ALSBERG
State Archivist
Jerusalem (Israel)

MICROFILM TERMINOLOGY

The rapid progress of science and engineering, an increase in the flow of information, an unabated growth in the volume of archival materials, all put the active use of microfilms in the forefront. Extensive use of microfilm in the sphere of production, the employment of microfilm to build up a reserve stock of records, the exchange of microfilm on an international scale, all necessitate a coordination of basic microfilm terminology. The problem of developing a unified microfilm terminology is linked with the improvement of the quality of microfilm and with more effective microfilming systems.

Terminology is an integral part of each field of knowledge, every branch of science and engineering. The task of unifying basic definitions is being solved to a considerable extent by national standards organizations. The ISO recommendations also serve the same purpose. The regulation of existing terms and the introduction of new terms and definitions into the sphere of microfilming should be conducted on a scientific basis, i.e., estimating the terminological system both from the point of view of its content, (whether it reflects the present state of the art) as well as its linguistics as the terminology is formed by means of the common literary language.

In view of this we should like to discuss the following three concepts of microfilming.

1. *Microfilming* - Микрофилмирование

There are two views of microfilming, and therefore there are two definitions:

The first definition: microfilming is a method of making reduced size copies of records by photographic means.

The second definition: microfilming involves the process as well as the means of making and using microfilm.

A study of these definitions shows that while the first definition is restricted to the process of making, the second also includes their use. Practically, this means, that microfilming covers the processes of using the microfilms for the reenlargement of microimages. And this is inconsistent with the meaning of the Greek word „mikros" as well as with the photographic nature of microfilm making. Whether the microfilming can embrace electrographic processes is disputable.

2. *Microphotocopy* - Микрофотокопия

The most universally employed definition characterises a microphotocopy as a diminished copy of a record which is made by a photographic method and which can be read only with the aid of optical devices.

The principle of classifying photographic copies based upon the size of the

images of record text elements is undoubtedly a correct one as the classification of photoimages is relative and hardly precise.

However, this definition lacks substantial clarity. First, it does not discriminate between a microphotocopy and an ultra-microphotocopy. In microfilming this boundary is determined within the range of 1:28 to 1:100, depending on the scale of reduction of the original copy. We suppose that the boundary between an ultramicrophotocopy and a microphotocopy may be a microphotocopy, whose image is smaller than the image size of symbols of the upper line on the ISO test object diminished to the scale of 1:40. Second, even though the definition does draw a boundary line between a microphotocopy and a photocopy depending on the eye contrast sensitivity limit, nontheless it would be desirable to specify a particular image size of the text elements.

3. *Duping process* - Контратипирование

This term has appeared in motion-picture production where several dupes are made which yield 1000 and more release prints. In cinematography the concept of „duping of negatives" is defined as a process of making a dupe negative from the original negative.

In microfilming the processes of making copies – dupe negatives and dupe positives – are equal in significance, aims and distribution. Therefore it is advisable to speak here about the duping of negatives and positives. Our terminological system of microfilming defines the term „duping" as a process of making a negative copy of a microfilm from the negative or a positive copy from the positive.

In the terminological system of microfilming presently developed in this country the terms and definitions are arranged in a certain order considering their interrelations and subsequent transition from generic to specific concepts. The classification of concepts is a result of bringing the basic concepts of microfilming into a system.

N.M. VINOGRADOV
of the All-Union Research Institute
of Records and Archives Management
Moscow (U.S.S.R.)

MICROPHOTOGRAPHY IN THE NATIONAL ARCHIVES OF ZAMBIA

Microphotography as we all know is expensive. The National Archives of Zambia usually microfilms only when there is an order from a researcher. About 180 films of 30 metres each have been produced. Negatives are retained by us and positives are sold to researchers.

Microphotography is also a slow process. About one reel of film of 30 metres is produced per week. This is due to our lack of sufficient equipment. We only have one microfilm camera. We depend upon the University of Zambia Library to process our films. Sometimes we send our films to Kodak Ltd. in Ndola about 200 miles away. At least seven days or more elapse before the films are returned to us. Besides microfilming to order we have microfilmed District Notebooks, early documents of the B.S.A. Company and some newspapers. As we are confronted with a lack of storage space for records we plan to microfilm some of these in order to create more room for other records received from various government departments.

Records so microfilmed will not be available for sale because they are restricted. But when records in the open period are microfilmed they are made available for sale in positive from The copyright to all records filmed is ours.

A descriptive list for all records microfilmed is in preparation. The lack of space for storing films and the cost of producing films retards our progress in this field. We are, however, doing our best to maintain adequate standards despite the inadequacy of photographic facilities.

P.M. MUKULA
Director
National Archives
Lusaka (Zambia)

TECHNIQUE

MICROFICHE SYSTEM AT THE PUBLIC ARCHIVES OF CANADA

SUMMARY

In October of 1967 the Micrographic Advisory Section of Public Archives of Canada (MASPAC) was faced with a number of decisions:

1. Was a microfiche production system needed in the government at that time?
2. Was there enough work to warrant the setting up of this service?
3. Should expensive 105 mm equipment be purchased? (e.g. Step & Repeat Camera, 105 mm processing etc.)
4. Would a 16 mm strip-up method be suitable?
5. Would the 16 mm system be up to the set standards?
6. Last but not least, what standards should be followed? (e.g., COSATI, NMA, commercial or IBM).

The answers to these questions did not come easily. After several months of investigation, however, MASPAC was in a position to make the required recommendations. At this point it was decided to introduce a microfiche production service available to all government departments using the 16 mm strip-up system and adopt the COSATI standards.

The following information is a detailed description, with illustrations, of the system and equipment in operation.

THE SYSTEM

The Micrographic Advisory Section of Public Archives (MASPAC) decided in the latter half of 1967 that a microfiche production services should be made available to Canadian Government departments. Facilities were arranged to produce microfiche according to U.S. Federal Standard PB 167-630, and were subsequently broadened to include facilities for various formats of microfiche in 105 mm x 148 mm or 83 mm x 187 mm sizes.

The Central Microfilm Unit of Public Archives has a variety of microfilm machines in daily use, including a number of Kodak MRD planetary cameras. Three of these MRD cameras have been modified to use in producing film for microfiche.

The modifications of the MRD camera consisted of installing a 16 mm conversion kit, and changes to the spacing mechanism to control take-up of film. Film spacing is controlled by using a film drive ratchet with notches evenly spaced around its circumference, and a film drive roller ground to proper diameter.

The cost of equipment to produce microfiche in this manner is a fraction of the cost of a step-and-repeat camera. Regular 16 mm film processing equipment will suffice, with no need to purchase additional 105 mm processing facilities.

The film after processing is strip-mounted onto plastic tapes along with a title row, producing a microfiche master which can be re-produced in silver, kalvar or diazo copies.

The master thus produced has no adhesive in the image area, and can be printed emulison-to-emulsion with no intervening plastic to reduce contrast ratio or interfere with resolution.

MICROFICHE PROGRESS INDICATOR

When preparing microfiche masters, it is necessary to employ some means of keeping a record of progress made toward completing each master. Also when producing microfilm to be mounted as strips on microfiche masters, blank spaces are required at proper intervals on the film. A Microfiche Progress Indicator (MPI) was developed to carry out these functions automatically when electrically connected to camera. It indicates at all times the progress made toward filling the grid pattern with micro-images, and at the same time provides blank spaces automatically at the correct positions required for later mounting of the film strips A shutter operated by a rotary solenoid electrically connected to the MPI was installed in front of the lens to produce blank spaces when required.

The MPI consists of a panel of small lights arranged in a pattern to simulate the microfiche grid formats. These lights are turned on in sequence as the micro-images are recorded on the film, thus indicating which spaces have been used. As each row is completed, blank spaces are run off automatically and the indicator light steps down to the next row until the entire fiche is completed, and then returns to the start position ready for the next fiche.

Should an error be made while photographing, the „Row Return" button is provided to return to the start of that row to rephotograph the items, at the same time leaving a blank space on film.

The MPI is connected to the MRD camera by means of a wire cable and six-prong Jones plug.

At the time of writing (April 1973) the design plans of the MPI are with the Canadian Patents and Development Limited, 275 Slater St., Ottawa, Canada, where enquiries should be directed.

FILM MOUNTING BOARD

The mounting board for 72 image fiche was made from 7" long slats 16 mm wide with 0,5 mm plastic dividers raised above the slats approximately the thickness of film, and extending over a 148 mm middle area of the board. In use, plastic tapes with adhesive are butted against the raised plastic guides at each side of the board, to be

used in securing the film strips laid out between the guides. The adhesive tapes are held temporarily by a double sided scotch tape. When title row and five film strips have been mounted on the tapes, the master microfiche is ready to lift from the mounting board. The plastic tapes at sides of the master provide a guide to correctly position the sheets of sensitized material for printing duplicates.

LIST OF EQUIPMENT

Camera – MRD-2 (modified by MASPAC)
Progress Indicator – MASPAC design
Mounting Board – MASPAC design
Duplicator – 404 diazo NB jackets
Printer – 404 NB jackets.

Charles H. POOLE
Public Archives of Canada
Ottawa

Editor's note:

The Central Microfilm Service of the Public Archives of Canada provides microfilm services for all departments of the Canadian Government. The work performed by this service is primarily intended to serve current operating needs and is rarely of an archival character. For those unfamiliar with Canadian and American microfilm terminology and standards the following definitions, abbreviations, and explanations should be of value.

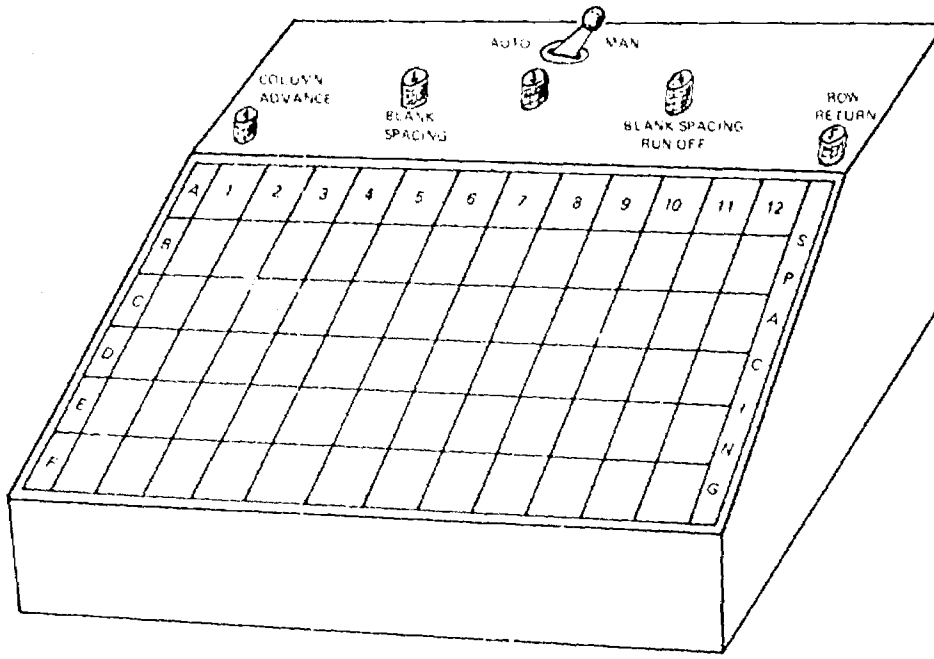
COSATI	The Committee on Scientific and Technical Information of the United States Federal Council for Science and Technology.
IBM	The International Business Machine Company, Inc.
MASPAC	The Microphotographic Advisory Section of the Public Archives of Canada.
NMA	The National Microfilm Association. Copies of this standard may be purchased by writing the NMA, 8728 Colesville Road, Silver Spring, MD 20910, U.S.A.

PROGRESS INDICATOR

NOTE REGARDING OPERATION:

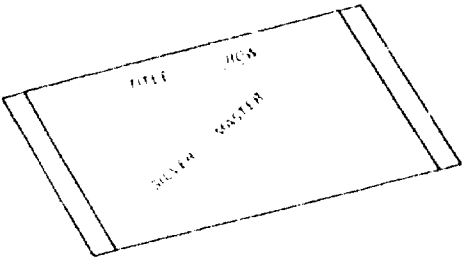
WHEN LEAVING SINGLE BLANK SPACES BUTTONS NO. 2 & 3 MUST BE USED SIMULTANEOUSLY, AND NO. 3 & 4 SIMULTANEOUSLY WHEN USING THE BLANK SPACING RUN OFF CONTROL.

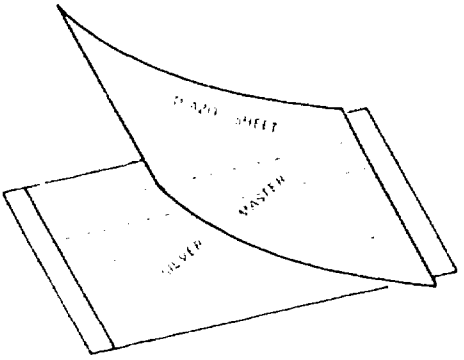
THIS METHOD ASSURES AGAINST ACCIDENTAL BLANK FRAMING.



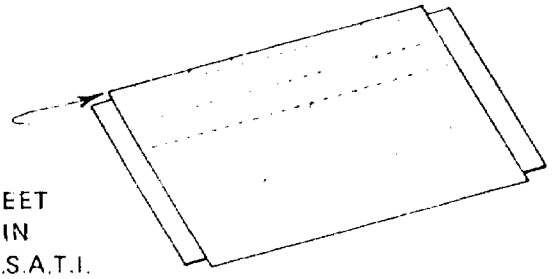
DIAZO DUPLICATION

ORIGINAL SILVER MASTER CONSISTING OF A TITLE & 5 ROWS OF 16 MM. FILM, HELD IN POSITION AT BOTH END BY PLASTIC MOUNTING TAPE.



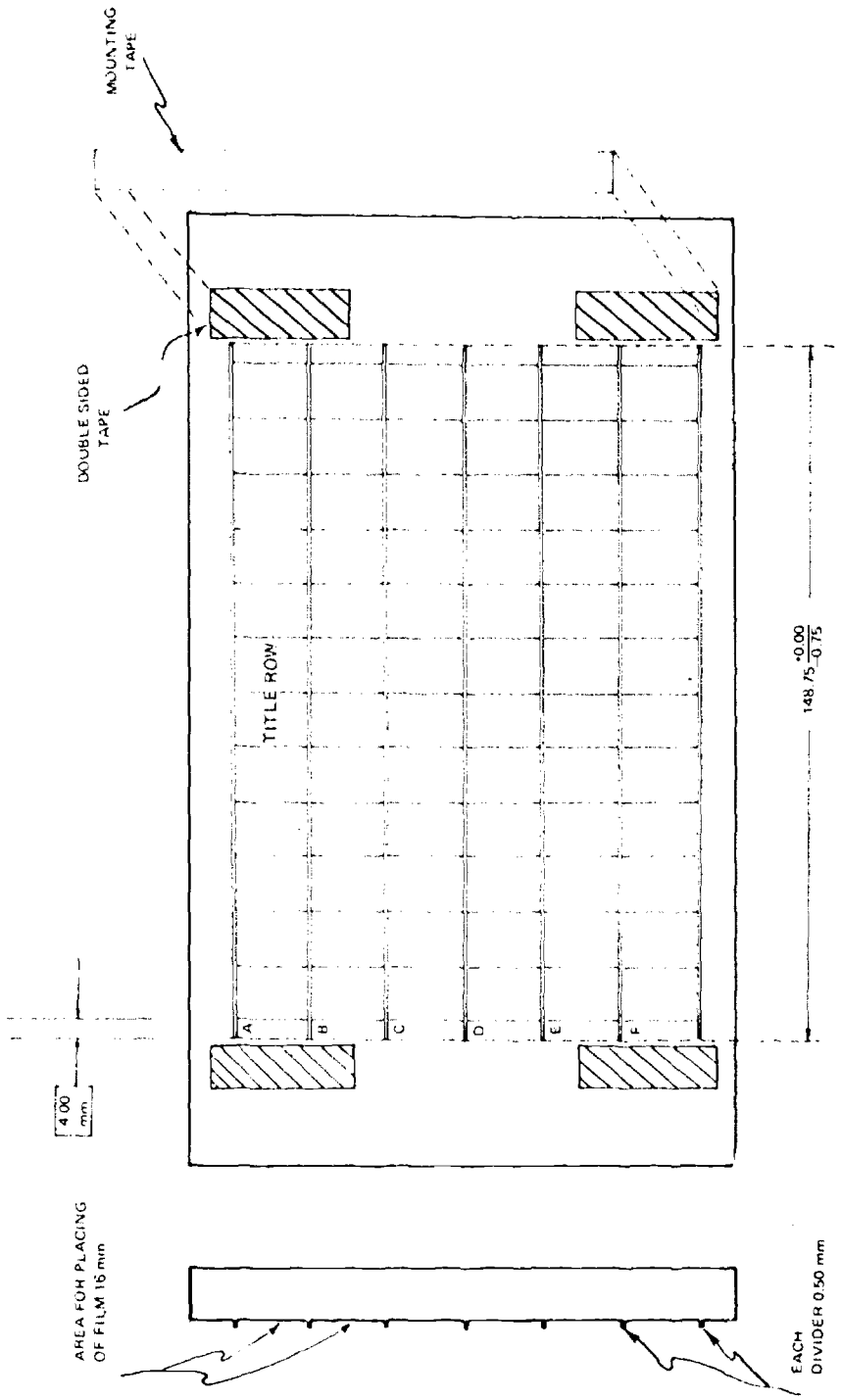


EDGE OF DIAZO SHEET, BUTTED TO MOUNTING TAPE, THIS INSURES PROPER ALIGNMENT.



4.00mm OVERHANG OF DIAZO SHEET BOTTOM INSURES PROPER MARGIN WHICH CONFORMS WITH THE C.O.S.A.T.I. STANDARD.

MOUNTING BOARD



MICROBIODETERIORATION OF MICROFILM

Microbial deterioration of microfilm is a recognized problem. Treatment of microfilm with fungicides and bactericides however cannot be recommended because the solvent as well as biocide may damage or effect the legibility of the text. Therefore it seems that incorporation of biocide at the time of manufacture of microfilms may be more beneficial.

The tests carried out from 1965 onwards are concerned with the following problems:

1. Examination of microbial resistance of cellulose acetate foil, microfilms, and film emulsions.
2. Isolation of micro-organisms that destroy films and film emulsions and hydrolize gelatin, the basic component of emulsion.
3. Protection of microfilms against microbial agents.

On the basis of examination of microbial resistance of cellulose acetate foil according to Polish Standard Method PN–69/C–89080 it was found that this polymer is microbio-resistant, but acetate microfilms and particularly film emulsions are not bioresistant.

From acetate microfilms the following species or strains of fungi were isolated: Chaetomium sp., Chaetomium globosum Kunze, a few members of Aspergillus and among others Aspergillus niger van Tieghem, Penicillium sp., Paecilomyces varioti Bainier, Alternaria sp., Gliocladium sp., and some fungi not identified.

From film emulsions: some species of Stemphylium and Alternaria, Scopulariopsis brevicaulis Bainier, Aspergillus sp., Penicillium sp., and Penicillium vermiculatum Dangeard, Cladosporium acremonium Corda, probably Pullularia pullulans/de Bary and Low/Berkhout, Humicola grisea Traaen, Monotospora sp., several fungi not identified and a few bacteria, among others Pseudomonas aeruginosa Migula were isolated.

Taking into consideration biochemical activity of these microorganisms, attention was paid to hydrolysis of gelatin, the basic constituent of film emulsions. Excluding one strain of Penicillium sp. the gelatin was the best by fungi of the genus Chaetomium and slightly by Penicillium and Cephalosporium decomposed. Energy of gelatin hydrolysis was not dependent on the intensity of growth and fructification of the species or genus. For instance Chaetomium sp., and Alternaria sp., which grow slowly on gelatin and without fructification, liquefy it however intensely in contrast to Paecilomyces sp., and Penicillium sp., which although growing and fructifying excellently do not liquefy gelatin.

A search of protective materials indicated that sodium salt of p-chloro-m-cresol incorporated in film emulsions may be an efficient microbiocide. This biocide added

to the film emulsion to the amount of 0,005%; 0,05 %; 0,01 %; 0,1 and 0,2 per cent of the weight of emulsion was infected with air contaminants.

The cultures were maintained for two months at the temperature 26–28°C and a relative humidity 80–85 per cent.

It was found that p-chloro-m-cresol of the amount of 0,1 per cent of the weight of the emulsion inhibit completely the growth of microflora; emulison with incorporated microbiocide and inoculated or air contaminated was not affected even after two months, whereas emulsion without biocide was decomposed rapidly within druing 48 hours after inoculation with microflora, while air contaminated emulsion decomposed after 10 days.

mgr. Irena SADURSKA
Central Laboratory of Record
Conservation, Warsaw (Poland)

prof. mgr. Romuald KOWALIK
Institute of Industrial Organi
Chemistry, Warsaw (Poland)

ESTABLISHMENT OF A MICROFILM SECTION AT THE KING ABDUL AZIZ UNIVERSITY, JEDDAH

(Saudi Arabia)

Report of Mr S.M. Aziz UNDP/UNESCO consultant

Serial No. 2898/RMO/RD/DBA

INTRODUCTION

In 1968, the Government of Saudi Arabia submitted a request to UNDP, for assistant in establishing a microfilm section in the King Abdul Aziz University, Jeddah. In response to this request, a UNDP/Unesco project was approved for a two-month consultant mission.

I arrived in Saudi Arabia on this short-term mission on 22 December 1972, for the purpose of studying the problem and preparing a plan, indicating needs in staff, equipment and space for the proposed microfilm section. I commenced my mission by meeting some of the key officials of the University: Dr. Mohamed Abduh Yamani, Vice-Rector, Dr. Umar Zubair, Secretary-General and Mr. Adil Usmani, Librarian. Mr. Usmani took a keen interest in the project and was closely associated with my work during my stay in Saudi Arabia.

The University made arrangements for me to visit the following libraries: in Mecca, Maktab-At-Al-Haram (Library of the Holy Mosque), Maktaba-Mecca-Al-Mukarrammah (Public Library, Mecca). This Library has a special significance – it is at the birthplace of the Holy Prophet Mohammed. At Medina, Sheikul Islam Arif Hikmat Library, Al Mahmoodia Library, the Public Library and the Prophet's Mosque Library. At Taif, Abdullah Bin-Al-Abbas Library. All these libraries contain holdings of priceless, sacred collections of manuscripts and printed volumes.

The Ministry of Haj and Auquaf is the custodian of these libraries, except for the library of the Holy Mosque, Mecca, which is under the custody of Al-Riyasa-Al-Ammah-Lil-Ashrof-Al Dini (Headquarters for Religious Supervision in Holy Mosque, Mecca).

The objective of the University is to microfilm the records preserved in these libraries, in collaboration with the Ministry of Haj and Auquaf, and Headquarters for Religious Supervision in Holy Mosque, Mecca. It was for this purpose that the University requested external aid from UNDP/Unesco.

In view of these holdings, the benefit which is expected to be gained by microfilming will be twofold:

(a) preservation of the collections,

(b) their dissemination and publication, internal and external, by means of microfilm.

I. General scheme of the Project

I recommend that a complete microfilm section be established in the King Abdul Aziz University, comprising the following functions: filming, processing, duplicating, printing and editing, together with a microfilm repository. A centralized unit of this form has these advantages:

(a) it offers permanent facilities for on-the-spot training of staff;

(b) it assures central supervision and effective control of the work which is important for a new venture of this type.

While the project is being set up at the University, training of staff should be launched. On completion of the training, two operators and the camera used for training should be moved to Maktab-At-Al-Haram (library of the Holy Mosque) to film its collection, which is the largest one in Mecca.

A second camera and two operators should be installed in the Public Library, Medina, to film the collections of its own and the other three libraries, i.e. Sheikul Islam Arif Hikmat Library, Al Mahmoodia library and the Prophet's Mosque Library. On completion of the project in Medina, action should be launched for filming the records in the Abdullah-Bin-Al Abbas Library in Taif, which has only a small collection of records.

The functions of the proposed Microfilm Section will be the following:

1. Filming the collections of the libraries in Mecca, Medina and Taif for security and research purposes;

2. Training of staff;

3. Extending its services to other libraries and institutions in the Kingdom.

It is important that the filming be undertaken in a systematic manner. Thus, a clear programme has to be prepared, indicating the record groups that should receive priority for filming, taking into consideration the physical condition of the material.

II. Premises – layout and distribution of space

The two rooms in the library are suitable for housing the entire microfilm complex. Some modification is needed, such as partitioning, installing a sink, etc., which will not involve heavy expenditure. The two rooms, after the partitioning, will be divided into four units in accordance with the functions of the Section:

Section A – Filming
Section B -- Processing and duplicating
Section C – Editing and printing
Section D -- Film repository

Section A – Filming

This room, which will have to be equipped with adequate air conditioning and fluorescent lighting (daylight type), will accommodate the camera.

Section B – Darkroom

The darkroom should be made lightproof, windows being heavily curtained with opaque material. Fluorescent lighting (daylight type) and adequate air conditioning is recommended. A big sink and good water supply are other requirements.

Section C – Editing and Printing Room

To be equipped with fluorescent lighting (daylight type) and adequate air conditioning.

Section D – Film Repository

The room should be air conditioned at a temperature of 21°C and relative humidity between 50--60%. The processed microfilms should be stored in this conditioned atmosphere to provide maximum permanence. Microfilm rolls are best stored on plastic reels, placed in cardboard boxes and kept in steel filing cabinets.

For the layout of the Microfilm Section, see Plan, Appendix B.

III. Staff Qualifications and Duties

Staff Cadre:

Technical Officer	1
Microfilm Camera Operator	4
Processor and Printer	1

1. The *Technical Officer* should hold a General Secondary School Certificate with Physics, Chemistry and English as subjects. Experience in photography should be considered as an additional qualification. The incumbent will be in charge of the microfilm centre in the University. He will also supervise the filming centres established outside the central project.

2. The *Microfilm Camera Operator* should be mechanically inclined. Knowledge of photography should be considered as an additional qualification. The incumbent will operate the microfilm camera.

3 The *Processor and Printer* should be mechanically inclined. Knowledge of photography should be considered as an additional qualification. The incumbent will be occupied with processing, duplicating, printing and editing of microfilm.

4. *General*

The entire staff will have to be trained in the following aspects of microfilm work.

1. Filming
2. Processing
3. Duplicating
4. Printing
5. Editing

Additional training has to be given to the Technical Officer in laboratory work, i.e. testing of films, chemical solutions, use of measuring instruments, and film storage. I am of the opinion that an expert should be obtained, for a period of six months.

IV. Equipment and Material

(a) *Type of microfilm:*

The manuscripts are in various sizes, different shades of colour and contrast, many of them being illuminated. Therefore, the film to be used must satisfy the following conditions:

1. Covering a maximum image area;
2. Recording all colour nuances.

In consideration of these requirements, Recordak Micro-File Film unperforated, panchromatic, is recommended.

(b) In selecting the *equipment for microfilming*, I was not guided by the popular make of any item. I took into consideration such factors as reliability, easy handling, maintenance and most important of all, after-sales service of the equipment. See List – Appendix A.

V. Further International Aid

In order to supervise the setting up of the proposed Microfilm Section and to provide in-service training to the technical staff, the services of a consultant for six months will be required. They might be financed within a supplementary UNDP/Unesco project, to be requested from UNDP, or under a Funds-in-Trust agreement with Unesco. (The approximate expenditure under a Funds-in-Trust agreement with Unesco would be $2850 per month.)

Acknowledgement

I wish to place on record my deep appreciation and gratitude to Mr. Adil Usmani, Librarian, King Abdul Aziz University, Jeddah, whose co-operation and assistance was freely available to me, amidst his numerous duties. I would also like to express my thanks to Dr. Quasmi, Librarian, King Abdul Aziz University, Mecca, Mr. Motiurehman Assistant Librarian, King Abdul Aziz University, Jeddah, Mr. Hassan Hashim Hetemish, Mr. Mahmoud Abbas Qari and Mr. Abdul-Jalil-A-Tashkendy for their invaluable assistance.

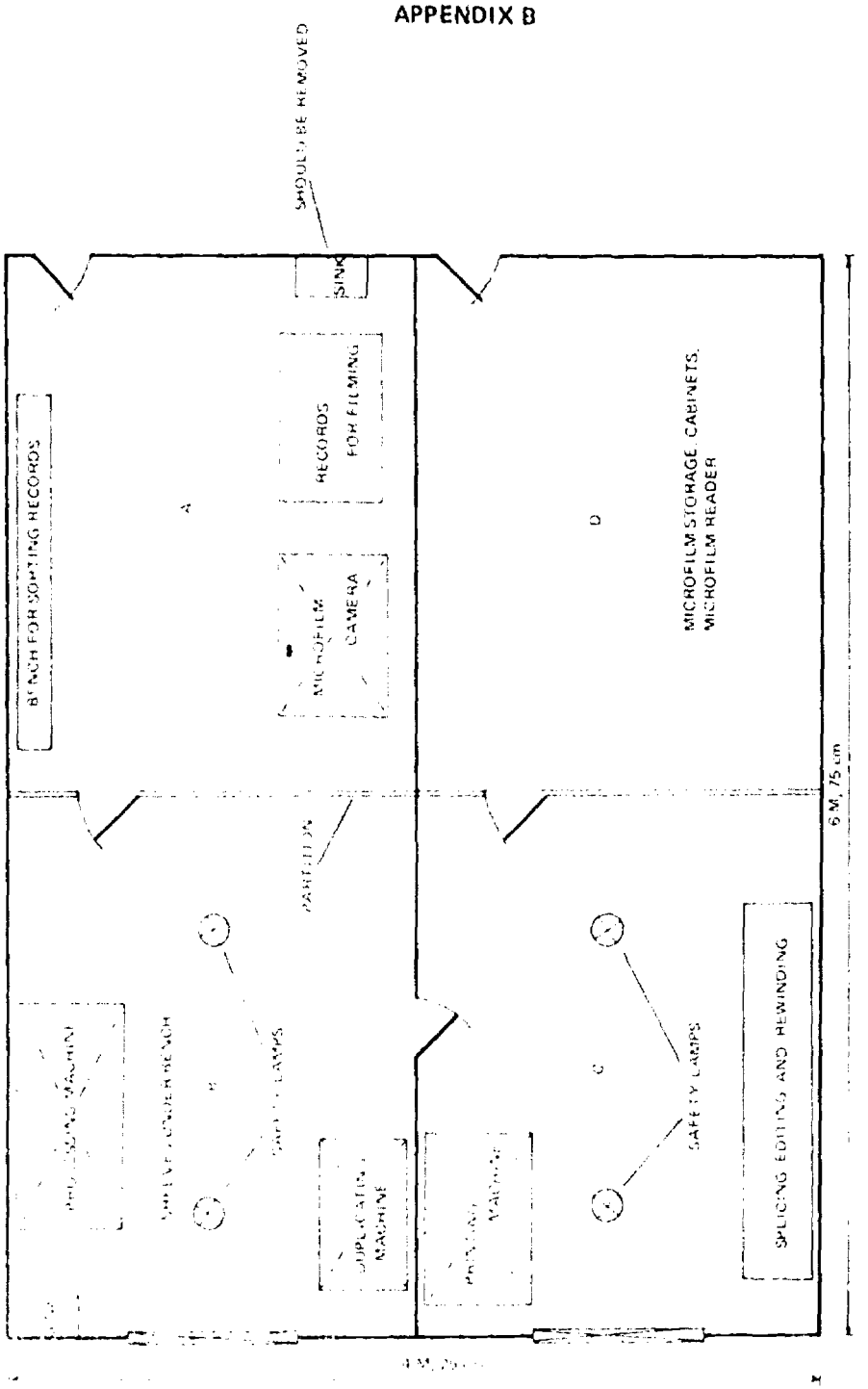
S.M. AZIZ
Technical Assistant, Department
of National Archives, Colombo
(Sri Lanka – Ceylon)

APPENDIX A

Microfilm Equipment List

	Agent	*Cost* (Commercial prices)
Recordak Camera MRD 2	Kodak Agent Jeddah	$ 5800
3 M Microfilm Processor	3 M Agent Jeddah	$ 3000
Extek Film Duplicator with Sequential Density Programmer and Control Pannel with Automatic Counter	Extek Microsystems Inc. 15424 Cabrito Road Van Nuys, Californai 91406 U.S.A.	$ 3000
Recordak Motomatic Reader	Kodak Agent Jeddah	$ 1000
Microfilm Inspection Table (35 mm) Complete with Viewing Panel and Manually Operated Rewinder	Robert Rigby Ltd. Premier Works Northington St. London W.C. 1	$ 300
Mirofilm Joiner (35 mm) with Automatic Film Scraper	Robert Rigby Ltd. Premier Works Northington St. London W.C. 1	$ 125
Baldwin Transmission Density Unit and Photometer type MND with Constant Voltage Transformer	Nuclear Enterprises Ltd. Sighthill, Edinburgh 11, Scotland	$ 750
3 M 400 B Reader Printer	3 M Agent Jeddah	$ 1475
Recordak Microfilm Cabinet	Kodak Agent Jeddah	$ 300

APPENDIX B



PLAN MICROFILM SECTION

NOT TO SCALE

A SWEDISH REPORT ON MICROFILM

A committee was appointed by the Swedish government to consider whether microfilm is acceptable as an archival medium. A cardinal problem is the question of permanence.

The committee – datarkiveringskommitten (DAK) in 1969 ordered the National Swedish Institute for Materials Testing (SP) to study the archival qualities of microfilm, to take cognizance of international literature covering the subject, and to make necessary tests. In August 1972 SP terminated its research and sent DAK a recommendation concerning the preservation of microfilm. The National Archives has published a summary of the report.

The results of SP's investigation will be considered by DAK. The committee will analyse the costs of building and fitting out archival storage areas of varying sizes. The relative humidity of the air, temperature, and the cleaning of the air will be considered. Alternative solutions and costs of these necessary control measures will also be taken into consideration. The intent is to assess their optimal application.

Some figures on the growth of records in Sweden are of interest. As in other countries the paper flow in Sweden has increased at an alarming rate. In 1900 the yearly growth of archives in the central administration was about 500 shelf metres, in 1938 about 5000 metres, and in 1970 approximately 20 000 metres. The growth of provincial hospital archives, for example, has been estimated to total about 24 000 metres yearly. To manage this explosive growth the National Archives, the Military Archives, and the provincial archives carry on a vigorous disposal policy. It is necessary to balance the economic costs against future research needs. In this situation it is logical to ask if microfilm is an acceptable storage medium.

When paper is not permanent, microfilm promises to preserve records. Microfilm, moreover, is a completely acceptable medium for records which need not be kept longer than ten years, provided it is carefully produced and kept in a normal office milieu.

The archival characteristics of microfilm should be investigated before it is accepted as an equivalent of archival paper. Computer output microfilm (COM) has emphasized the necessity of such an investigation.

SP discusses the common species of microfilm (acetate, nitrate, diazo, and vesicular). Its report to DAK deals with silver halide roll film on an acetate base.

A detailed account of damage that can occur to microfilm is given with attention to redox blemishes. The term *„redox blemish"* indicates that this damage is caused by a sequence of reduction and oxidation. The existence of redox blemishes on silver halide film was observed at the beginning of the 1960's. They consist of yellowish brown spots with a diameter of 10–15 microns. They are usually found in outer layers and in scratches on the emulsion of the film. More blemishes have been found on negative than on positive film. The opinion in some quarters that redox spots do not grow during long term preservation is not unrefuted. Investigation at the National Archives in Washington has

shown that the magnitude of the blemishes increases by 50% during a period of five years.

Blemishes may occur when microfilm is exposed to gaseous contamination from industrial plants. Stationary air has an unfavourable influence on microfilm. The intensity of blemishes on the leader of film kept in stagnant air is eight times greater than on film kept in an air-conditioned room. When microfilm is kept in cardboard boxes, redox spots occur twelve times more than when film is kept in metal boxes. Preservation in humid air and at high temperatures promotes the formation of redox blemishes. In areas where the relative humidity (RH) is 51–60% there are eleven times more blemishes than by preservation at 20–50% RH. Film with a leader is far less receptive to redox blemishes than film which has no leader. American investigations have shown that on roll film 90% of the blemishes are concentrated on the leader.

The higher frequency of damage when film is preserved in cardboard boxes seems to be caused by peroxide formed when paper is ageing. Cardboard and paper, moreover, contain resin which is detrimental to film. Further, when hydrogen peroxide is present existing silver reacts with hydrogen sulphide and sulphur dioxide. The longer the film is stored and the higher the temperature and relative humidity is, the more peroxides increase. The formation of peroxides can be defined by means of a spectrophotometer. The peroxide disintegrates on contact with the silver of the film which is partly protected by gelatine. Hydroxyl radicals, which are formed by the reaction between silver and hydrogen peroxide, in their turn react with gelatine. In order to diminish its propensity to react the gelatine should be hardened. The stability of the silver is said to be increased by the addition of iodide and thiosulphate. Laboratory experiments have shown that film containing 10 μg thiosulphate per sq. con is more resistant to attacks from peroxides than film containing only 0–3 μg thiosulphate per sq. con. Nevertheless various scientists have reached somewhat contradictory results regarding these additions of iodide and thiosulphate.

Chlorides can have a damaging effect on microfilm silver. Thus the formation of spots increases with small traces of silver chloride. On the other hand larger quantities of silver chloride can counteract the formation of redox blemishes. If the film is exposed to formic acid, formed with paper is ageing, it will lose its power of resistance against redox blemishes.

In the report to DAK the testing institute stresses the importance of a satisfactory *fixing procedure*. The institute has carried out experiments in order to find out to what extent the appearance of damage on film is the consequence of the use of old and partly used up fixing baths. At the experiments Kodak AHU microfilm 5460 was developed in a Kodak D 11-developing machine. In the stop bath 20 milliliter (ml) acetic acid was used per liter of fluid. The fixing, which took fifteen minutes, was done in a room the temperature of which was 23°C. In every fixing bath 4–6 strips of film about 2 dm long were fixed. After the fixing the film was rinsed in running water (23°C) for 30 minutes and then dried. The following fixing baths were used:

Fixing bath 1 New solution of 227 g sodium thiosulphate in 852 ml water

Fixing bath 2 New solution of 190 g sodium thiosulphate and 27 g potassium metabisulphate in water to 800 ml

Fixing bath 3 New solution of 240 g sodium thiosulphate, 15 g sodium sulphide, 15 g aluminium-potassium sulphate and 12,6 ml acetic acid in water to 1000 ml

Fixing bath 4 Fixing bath 1 aired during 10 calendar days and then preserved in a sealed bottle for 125 days

Fixing bath 5 Fixing bath 1 in addition to 0,25 g potassium iodide per litre aired for 10 days and then preserved in a sealed bottle for 125 days

Fixing bath 6 Fixing bath 1 in addition to 0,25 g potassium iodide per litre and 3,0 g silver chloride per litre aired for 10 days and then preserved in a sealed bottle for 125 days

Fixing bath 7 Fixing bath 2 aired for 10 days and then preserved in a sealed bottle for 125 days

Fixing bath 8 Fixing bath 2 in addition to 0,25 g potassium iodide per litre aired for 10 days and then preserved in a sealed bottle for 125 days

Fixing bath 9 Fixing bath 2 in addition to 0,25 g potassium iodide per litre and 3,0 g silver chloride per litre aired for 10 days and preserved in a sealed bottle for 125 days

Fixing bath 10 Fixing bath 3 aired for 10 days and then preserved in a sealed bottle for 125 days

Fixing bath 11 Fixing bath 3 in addition to 0,25 g potassium iodide per litre aired for 10 days and then preserved in a sealed bottle for 125 days

Fixing bath 12 Fixing bath 3 in addition to 0,25 g potassium iodide per litre and 3,0 g silver chloride per litre aired for 10 days and then preserved in a sealed bottle for 125 days.

With the aim in view of investigating the receptability of the film to such damage as is set forth above, the film was kept, after it had been rinsed and dried, in a sealed desicator over a saturated solution of sodium chloride in water with an additive of hydrogen peroxide (10 ml 30% solution of hydrogen peroxide per litre saturated solution). The relative humidity of the air above, which was made to circulate, was 75%.

After 10 days redox blemishes appeared on the films, which had been fixed in the fixing baths 4, 7, and 10, that is the aged fixing baths without additives. After 20 days redox spots also appeared on films, fixed in aged fixing baths with additives. Still undamaged, however, was film that had been fixed in fresh baths. From 5 to 10 days later spots started appearing also on this film. The quality of the fixing bath in other words has an important bearing on the permanence of the microfilm.

Laboratory experiments have shown that the resistance of microfilm increases after gold processing. *Gold was applied* to the film during 28 seconds on one hand in a „Recordak prostar processor", on the other during periods from 30 to 150 seconds in a processor of SP. At the experiments 16 mm and 35 mm microfilm was used. The fold processing was done in a solution consisting of 0,5 g gold chloride, 1,0 g tartaric acid, 5,0 g thiourea and 15,0 sodium sulphate in 1000 ml water. The content of gold of the processed microfilm was defined, after dissolving the remaining silver of the micro-graph, by a densitometer assessing the optic density of the micrograph.

In order to develop redox blemishes on the gold processed film it was exposed to

air containing hydrogen peroxide. Film processed in the prostar processor showed damage after 10 days but film processed at SP after storing for 20 days was still undamaged. Film not gold processed showed blemishes after one day.

According to observations from American investigations there is a close linear relation between the optical density and the content of gold of a film. From the schedule below the optical density after a certain time and with a certain content of gold can be seen. The schedule demonstrates that with gold processing the ratio of gold magnifies protection against redox blemishes.

Film processed in a prostar processor

Time (seconds)	Optical density of remaining gold micrograph	Content of gold mg/sq.dm
28	0,20	1,0

Film processed at SP

Time (seconds)	Optical density of remaining gold micrograph	Content of gold mg/sq.dm
30	0,25	1,3
60	0,30–0,35	1,4–1,6
90	0,45–0,50	2,0–2,2
120	0,70–0,80	> 2,2
150	0,70–0,80	> 2,2

With reference to *copying procedures* SP says in its report to DAK that copying may take place in „resting archives" provided that the copying equipment does not influence the climate causing the development of ozone or other harmful gases or the changing of temperature. No reconditioning of the master film is then needed. By the term „resting archives" SP denotes rooms, where master film is kept. This film is never lent but is used to produce „utility copies". So the opposite to „resting archives" is „active archives", where the utility copies are kept.

If a special room is used for copying the temperature should be 20°C and the relative humidity 50%. In all other respects the requirements are the same as for resting archives. It is also necessary to recondition the master film when taking it out from or taking it back to the resting archives.

According to SP the *air* in microfilm archives must be *cleaned* as it is often contaminated. The public health committee of Stockholm has measured at a number of stations in Stockholm and its surroundings the amount of pollution in the air. It appears that the maximum extablished by the Nature Conservatory Board; 10 parts sulphur dioxide per one hundred millionth part (pphm) of air, has been exceeded only at two

of the measuring stations during a calendar day. In comparison are figures from a two months period during the winter 1962--63. In the left column the average reading per day during two months is given in pphm and in the right column the highest average reading per day during two months given in pphm.

London	30	117
Sheffield	17	47
Chicago	29	71
Oslo	23	61
Philadelphia	6	25
Washington D.C.	9	17
Göteborg	8	32
Skövde	7	13
Stockholm	10	21

American experiments have shown that the mass of airborn pollution which has caused damage to microfilm is less than 10^{-7} to 10^{-9} mol. per litre. This pollution is too small to be measured even by a mass-spectrograph. The concentration of sulphur dioxide and other substances of about the same molecular magnitude must not exceed 1 pphm. A comparison with the schedule above indicates how necessary it is to see that the air in microfilm archives is purified.

The *stock* of microfilm archives must be *tested* regularly. SP proposes that test squares composed and designed by scientists of Agfa-Gevaert, be placed in the archives and inspected every month. SP is also of the opinion that a certain number of film rolls should be tested every year. If the test squares exhibit damage, the testing of the rolls should be extended. The text squares are covered by a colloid silver lager in a permeable lacquer coating. They are sensitive to oxidizing gases and can disclose the existence of less pure air. The test squares have been found to react about ten times faster than microfilm.

SP has experimented with film in *tin cans*. Two newly developed film rolls were enclosed in plastic bags of polythene. These two rolls, two newly developed film rolls, and an older roll were then hermetically packed in cans (volume 1 litre) containing carbon dioxide. Four of the cans were exposed to temperature changes between $-20^{\circ}C$ and $+20^{\circ}C$ with the interval of 1--3 calendar days. The fifth can containing a newly developed film without a plastic cover was kept constantly at $-20^{\circ}C$. After three months three of the four cans, which had been exposed to temperature changes were opened. The temperature in the cans at the time when they were opened, was the same as the temperature of the room. No damage could be seen on the films. SP stresses the limited scope of the investigation but finds the result positive.

The *recommendation* of the National Swedish Institute for Materials Testing (SP) concerning the management and preservation of microfilm.

On August 30, 1972, SP sent DAK a recommendation for the preservation of microfilm. In this recommendation the importance of a satisfactory fixing and a careful rinsing in running water are emphasized. The recommendation concerns roll film (silver halide film on an acetate base).

According to SP the climate of resting archives should be so conditioned, that the temperature is kept constant between 10–15°C with a tolerance of ± 1°C at a chosen temperature. The relative humidity of the air shall be between 20–30%. The air should be free from sulphur dioxide, or sulphurated hydrogen, and other pollutants.

Preservation in tightly sealed wrappings such as polypropene is recommended. The wrappings should be put into aluminum cans that are sealed. The enclosed air must be pure and the relative humidity must not exceed 30%.

Any requirements concerning relative humidity and purity are hot necessary if microfilm in resting archives is kept in he matically sealed cans containing an atmosphere unharmful to film (e.g. nitrogen). Increased archival permanence is, however, obtained by cold storage. An absolute condition for keeping a silver micrograph permanent is to have the fixing done in a satisfactory way and to ascertain that the film is made free from fixing salt and excess silver which is brought about by careful rinsing in flowing water. Fixing annihilators containing hydrogen peroxide must not be used. It is of highest importance that microfilm after processing be removed from the photolaboratory and transferred to a room with a more suitable climate.

The utmost cleanliness must be ensured when handling microfilm intended for preservation in resting archives. Textile gloves should be used. One way to improve resistance against chemical attacks is to process the film with gold.

When microfilm kept in resting archives is to be copied it must be reconditioned before copying in order to put it into equilibrium with the milieu of the copying-room. If microfilm is kept in cold storage in hermetically sealed tins, these must, before being opened, be brought to the temperature of the copying room. A suitable atmosphere is 20°C and 50% RH. The same requirements of constant conditions and of pure air must be made for this room as for resting archives. Before a film can be returned to the resting archives reconditioning to the air of the storage room is necessary. When packed in hermetically sealed tins there is no need of reconditioning the film, because in this packing it is surrounded by an inert gas. In order to avoid periodical control of film to a great extent, SP proposes that test squares be put in the archives. They should be regularly inspected (e.g. once a month). A certain number of film rolls should also be tested every year. If the test squares show that there is risk of damage an intensified control should be undertaken.

The temperature of active archives should be between 16 and 20°C and the relative humidity between 30 and 50%. Cardboard boxes for silver-nitrate microfilm, should be covered on the inside with polyethene, polypropene or similar material. Published investigations about vesicular film and ageing experiments on such film made at SP indicate that it has an archival permanence which is sufficient for keeping in active archives.

It should be repeated that the purpose of SP's investigations are to find out what requirements should be put on microfilm management and on such microfilm in public archives which is to be kept for the future. It is a question of permanent film in relation to permanent paper. There naturally is no need of such hard requirements if the purpose is short-time keeping, for instance ten years, a common business time limit.

And further, the conclusions and recommendation that DAK will make will be stated in a final report of the committee and should not be considered as having been anticipated by this informative paper.

Sven–G. HAVERLING
Secretary of DAK
Deputy keeper of the
military archives
Stockholm (Sweden)

MICROFORM READER SPECIFICATIONS

As a result of concern on the part of the American National Standards Institute (ANSI) that the needs of consumers should be given sufficient weight in the development of technical standards a listing, from the consumers point of view, of desirable specifications for microform readers, has recently been developed in the United States. In December 1970, the ANSI Sectional (PH 5) Committee which deals with photographic media established an Ad Hoc Committee on Consumer Aspects of Photographic Media and Equipment.

At its first meeting in May 1971, the Committee agreed that if its work was to be meaningful it must consider consumer standards from the viewpoint of institutional users such as Government agencies, research libraries, or industrial corporations. The Committee also agreed:

1. There is likely a valid requirement for consumer (user) oriented specifications to be included in most ANSI PH 5 standards.

2. Such standards should not consist primarily of detailed engineering specifications for manufacturers.

3. The consumer input to PH 5 standards ought to pertain to common-use areas rather than to specialized types of users. For example, standards for a microfilm reader should be valid for many different types of users, not just librarians or archivists.

4. The consumer input to ANSI standards should be broad gauge in most aspects, but might be relatively specific in such areas as safety.

5. For those PH 5 standards for which consumer input is needed, the consumer specifications should be developed by a separate working group working relatively independent of the subcommittee responsible for the standards involved.

6. It is worthwhile for the Ad Hoc Committee to undertake as a pilot project the drafting of consumer oriented specifications for inclusion in one of the PH 5 Committee standards now being revised.

At this meeting Mr. Harold Fromm, PH 5 Sectional Chairman, proposed, as a pilot project, the development of Consumer oriented standards to accompany the PH 5.1 standard for „Microfilm Readers for 16 mm and 35 mm „Film on Reels..." which was then in process of revision. This was agreed to.

By December 6, 1971, the Committee gave its unanimous approval of a third and final draft. This was presented and favorably received at a full meeting of the PH 5 Sectional Committee on December 8. It is now in the hands of the PH 5 subcommittee still considering the PH 5.1 technical standard for specifications for Microfilm roll readers. It is expected that the Ad Hoc Committee's work will probably emerge, with some changes, as an Appendix to this PH 5.1 technical standard. In the meantime, permission to publish the Ad Hoc Committee's work has been received by Albert H.

Leisinger, Jr., Chairman of the PH 5 Ad Hoc Committee to publish these consumer oriented desiderata. These follow:

CONSUMER NEEDS

1. A reader should be sturdily constructed and capable of withstanding hard usage.

2. Its base should be stable.

3 It should operate on standard 120 volts AC, 60 cycles U.S. requirements.

4. The lamp, preferably, should be of common design.

5. The lamp should be readily accessible so that a relatively unskilled person may change it without tools.

6. Replacement lamps should be easily obtained through most electrical supply houses. If not, the name and address of a source of supply should be provided.

7. The lamp should have a reasonably high life expectancy. The rated life expectancy should be stated in the literature accompanying each reader.

8. It would be desirable to have a dimmer control to enable the user to increase or decrease the illumination from the light source on the screen.

9. The magnification factor of the lens should bring the projected image back to the size of, or, preferably, to a larger size than the original. Preferably, also, an entire or a full image should fit onto the screen.

10. Variable magnification is desirable. When this is achieved by changing lenses the changing should be relatively simple yet the misappropriation of the lenses by casual readers should be very difficult.

11. The film loading operation should be readily understandable after the first explanation and demonstration.

12. The screen should be, preferably, unbreakable or shatterproof. It should be non-glare and capable of minimizing the effect of artificial or natural light sources in a room.

13. Both horizontal and vertical screen readers may require a hood or other device to lessen the effect of ambient light

14. The screen should preferably be tilted or capable of being tilted at such an angle that the viewer may see the image easily and comfortably no matter what his height or the type of optical reading aid employed.

15. All controls should be readily accessible to both left and right handed users. The user should be able to use them without standing or changing his position at the reader. All of them should be labeled.

16. A reader should be simple to use and easy to clean, maintain, and repair.

17. Simple instructions and diagrams explaining the operation, loading and unloading, cleaning, and repair should accompany each reader. A loading or threading guide that is permanently affixed to the housing in plain view is desirable.

18. The reader must conform to all UL and other safety requirements. There should be no hazardous electrical current leakage. No external part of the reader should be capable of burning a user. All surfaces, corners, and edges of the reader should be free of burrs and rough spots.

19. An extra light bulb in a storage device preferably attached to the inside of the reader or to its hood as well as a dustproof cover for the reader when not in use should be supplied.

20. A one-year written warranty covering replacement of defective parts and free service for a minimum of ninety days should be provided.

21. Service facilities should be reaily available. The location of the nearest of these should be provided.

22. Readers designed for archival and research library use should have:

a) Provisions for rotating the image on the reader 360°.

b) A screen large enough to project an entire 35 mm film image.

The work done by ANSI through its Ad Hoc Committee marks the first time that consumer interests have been catered to by ANSI on such a large scale. It is imperative that consumer interests be represented when technical specifications are prepared; whether these be by ANSI or by other standard promulgators with the United States such as the National Microfilm Association, the standards committees of different countries, and by the International Standards Organization.

Albert H. LEISINGER, Jr.
National Archives
Washington, D.C. (U.S.A.)

ABSTRACTS

LE COMITÉ

MICROFILMAGE DES ARCHIVES

investigadores interesados en obtener copias de sus documentos. En 1972 se utilizaron veinticinco microfilmadoras, así como muy diverso equipo de impresión y revelado. Se da un informe de la historia de este crecimiento y se bosquejan los proyectos para continuar su expansión. De especial interés es el desarrollo de un archivo de primeros negativos de microfilm y el proyecto de utilización del microfilm de 16 mm. y la microficha para la futura difusión de pequeñas fracciones documentales.
(D.H. GIFFORD) p. 21

LA MICROFILMACIÓN DE LOS DOCUMENTOS PALESTINOS DEL PUBLIC RECORD OFFICE DE LONDRES

En 1968 los Archivos de Israel (Archivo Nacional, Archivo Central Sionista y Archivo Weizman) con la cooperación del Public Record Office, iniciaron el proyecto de microfilmar aquellos documentos existentes en el P.R.O., que complementaban los propios fondos documentales dejados en manos de su gobierno cuando los ingleses se retiraron del recién creado Estado de Israel en 1948. El proyecto se finalizó en 1973. Israel recibió más de 700 rollos, así como miles de xerocopias de documentos de los Ministerios de Asuntos Exteriores, Colonias, Ejército, Mariana, Aire y Presidencia de Gobierno.
(P.A. ALSBERG) p. 26

TERMINOLOGIE DU MICROFILM

Les progrès rapides de la science et des techniques, l'accroissement du flux des informations, l'augmentation continuelle du volume des archives, voilà les causes de l'usage de plus en plus intensif qui est fait des microfilms. L'utilisation toujours plus importante du microfilm dans le domaine de la production, l'emploi du microfilm pour constituer des réserves d'archives, l'échange de microfilms à l'échelle internationale, tout cela nécessite une coordination du vocabulaire de base concernant le microfilm. Le problème du développement d'un vocabulaire unifié du microfilm est lié à l'amélioration de la qualité du microfilm et à l'adoption de systèmes de microfilmage plus efficaces.

La vocabulaire est une part intégrale de chaque champ de connaissance, de chaque branche de la science et des techniques. La tâche d'unifier les définitions de base a été résolue en grande partie par les organismes nationaux de normalisation. Les recommandations de l'Organisation internationale de Normalisation (ISO) poursuivent également le même but. L'utilisation des termes existants et l'introduction de nouveaux termes et définitions dans le domaine du microfilmage devraient se faire sur une base scientifique, c'est-à-dire qu'il faudrait considérer le système de vocabulaire tant du point de vue

de son contenu (qui tient compte de l'état présent de la technique) qu'en fonction de son aspect linguistique puisque le vocabulaire est emprunté à la langue littéraire courante.

Dans ce but, nous voudrions discuter les trois termes suivants utilisés en matière de microfilmage.

1. Microfilmage – Микрофильмирование

Il faut distinguer deux aspects du microfilmage; il en existe donc deux définitions.

Première définition

Le microfilmage est une méthode par laquelle on produit des copies d'archives de dimensions réduites par des moyens photographiques.

Deuxieme définition

Le microfilmage comprend tant le traitement du microfilm que les moyens pour en faire et pour s'en servir.

Une étude de ces définitions montre que si la première est limitée à la production du microfilm, la seconde inclut également son utilisation. Pratiquement, cela signifie que le mot microfilmage recouvre des procédés d'utilisation du microfilm pour le réagrandissement des microimages. Ceci est incompatible avec la signification du mot grec „mikros" tout comme avec le recours à la photographie pour la fabrication du microfilm. Le microfilmage peut-il comprendre les traitements électrogaphiques? C'est contestable.

2. Microphotocopies – Микрофотокопия

La définition la plus courante d'une microphotocopie est celle d'une copie diminuée d'un document faite selon une méthode photographique et qui ne peut être lue qu'à l'aide de dispositifs optiques. Le principe du classement des copies photographiques d'après la dimension des images des éléments de textes archivés est sans doute correct puisque la classification des photoimages est relative et peu rigoureuse. Quoiqu'il en soit, cette définition manque de clarté substantielle. D'abord, elle ne fait pas de distinction entre une microphotocopie et une ultramicrophotocopie. En matière de microfilmage, cette frontière est comprise entre les limites de 1 : 28 à 1 : 100, en fonction du taux de réduction de la copie originale. Nous supposons que la limite entre une ultramicrophotocopie et une microphotocopie peut être une microphotocopie dont l'image est plus petite que le format des symboles qui figurent sur la ligne supérieure de la mire ISO diminué à l'échelle de 1 : 40. En second lieu,

même si la définition établit une frontière entre une microphotocopie et une photocopie en fonction de la limite de contraste sensible à l'oeil, il faudrait néanmoins spécifier un format particulier d'image pour les éléments les plus proches.

3. „*Duping*" – Контратипирование

Ce terme a fait son apparition dans la production cinématographique où l'on établit plusieurs copies (dupes) qui peuvent produire mille impressions supplémentaires et plus. En cinématographie, l'action de copier (duping) des négatifs se définit comme un procédé pour faire une copie négative à partir du négatif original.

En matière de microfilmage, les procédés pour faire des copies sont les mêmes à tous les points de vue, qu'il s'agisse de copies négatives ou de copies positives. Il convient donc de parler ici de la copie (duping) de négatifs et de positifs. Notre système de vocabulaire du microfilm définit le terme „duping" comme un procédé pour faire une copie négative d'un microfilm à partir du négatif ou une copie positive à partir du positif.

Dans le système de vocabulaire du microfilm actuellement en usage dans ce pays, les termes et les définitions sont rangés dans un ordre déterminé en fonction de leurs corrélations et du passage des concepts génériques aux concepts spécifiques. L'ordre des concepts résulte de l'incorporation des concepts de base du microfilmage dans un système.

(N.M. VINOGRADOV
de l'Institut de Recherches pour la
Gestion des Archives de toute l'Union) p. 28

LA MICROFOTOGRAFÍA EN EL ARCHIVO NACIONAL DE ZAMBIA

El Archivo Nacional de Zambia normalmente solo microfilma a requerimiento del investigador. Sin embargo ha realizado, también, la microfilmación de los documentos más antiguos de la Compañía B.S.A. y de algunos periódicos y proyecta, por falta de espacio, el microfilme de sustitución para algunos documentos. Se envía siempre el positivo y el Archivo conserva el copyright de todos los documentos microfilmados.

(P.M. MUKULA) p. 30

TECHNIQUE

LE SYSTÈME DE MICROFICHE DES ARCHIVES PUBLIQUES DU CANADA

Les Archives publiques du Canada se servent présentement d'un système qui leur permet de pourvoir de microfiches les ministères fédéraux, en microfilmant des documents sur une pellicule 16 mm. à l'aide d'un appareil photographique, à mécanisme planétaire MRD, amélioré. On a mis au point un dispositif de contrôle (indicateur de position de microfiche) qui ménage automatiquement des marges vierges sur la pellicule; ceci en prévision d'un découpage de précision, essentiel à la pose d'une bande de pellicule, de la dimension requise par une microfiche, sur un support conçu à cette fin. Les bandes de pellicule, y compris une bande-titre, sont déposées entre des coulisses à l'horizontale, et elles sont retenues en place par un adhésif sur les rubans à chaque extrémité. La microfiche matrice ainsi réalisée est reproduite par contact suivant un temps de pose usuel et à l'aide d'un matériel usuel. Le format des microfiches est conforme à celui prescrit par les normes COSATI.
(CH.H. POOLE) p. 33

MICROBIODÉTÉRIORATION DES MICROFILMS

Des tests effectués en Pologne depuis 1965 révèlent que le sel de sodium 4-chloro-m-crésol incorporé aux émulsions photographiques est un microbicide efficace. Pendant deux mois, on a fait une culture de ce microbicide dilué à raison de 0,1 pourcent dans une émulsion maintenue entre 26°C et 28°C et 80 à 85 pourcent d'humidité relative. L'émulsion inoculée ou contaminée par l'air et contenant le microbicide, était encore intacte, même après deux mois, alors que celles auxquelles on n'avait pas ajouté de microbicide s'étaient décomposées en moins de deux jours.
(I. SADURSKA – R. KOWALIK) p. 39

ÉTABLISSEMENT D'UNE SECTION DE MICROFILMS À L'UNIVERSITÉ NOMMÉE DU ROI ABDUL AZIZ, À JEDDAH (ARABIE SÉOUDITE)

(S.M. AZIZ) p. 41

RAPPORT SUÉDOIS SUR LE MICROFILM

Un comité (DAK) constitué en 1969 par le gouvernement suédois a recommandé expressément à l'Institut national suédois d'essai des matériaux (SP) d'étudier les qualités archivistiques des microfilms. Cette étude a plus particulièrement porté sur le problème des taches Redox, lesquelles sont dues

aux facteurs suivants: émanations gazeuses, entreposage dans des boîtes en carton ou dans des pièces où l'air est vicié, la température et l'humidité relatives trop élevées; elles peuvent provenir également d'erreurs de développement, d'émulsions mal fixées et durcies, de lavage insuffisant et de l'entreposage dans des conditions instables (grandes variations de température et d'humidité, par exemple). Les nombreuses recommandations contenues dans ce rapport faciliteront la conservation des films d'archives.
(SVEN-G HAVERLING) p. 47

ESPECIFICACIONES SOBRE APARATOS LECTORES DE MICROFORMAS

Por deferencia del „Comité ad hoc sobre las características de los medios y equipo fotográfico de cara al usuario", creado en 1970 por el Comité local (PH5) del Instituto de Standards Nacionales Americanos (ANSI), se ha concedido a nuestro Presidente Mr. Leisinger autorización para publicar, antes de la aparición del trabajo definitivo de dicho Comité, la siguiente lista de las condiciones que deberá reunir un buen aparato lector de microformas: Solidez para prolongado uso. Base estable. Lámparas de fácil reposición, recambio y razonable duración. Control de intensidad lumínica. Ampliación de imagen, hasta alcanzar una dimensión superior incluso al original y la totalidad de éste. Facilidad de cambio de lentes y carga del microfilm. Pantalla irrompible, opaca, capaz de reducir el efecto de la luz artificial o natural del cuarto, y con la necesaria inclinación para una confortable lectura. Controles fácilmente manejables y con sus correspondientes rótulos. Instrucciones sencillas y diagramas para su carga y descarga. Así mismo será fácil de limpiar, no tendrá riesgo de descargas eléctricas e irá acompañado de una garantía de un año y de buena asistencia técnica. – Los aparatos lectores destinados a archivos y bibliotecas deberán poseer un sistema de rotación de imagen de 360^{0} y una pantalla lo suficientemente grande como para proyectar la imagen completa de un filme de 35 mm.
(A.H. LEISINGER, Jr.) p. 54

TABLE OF CONTENTS

THE COMMITTEE

ARCHIVAL MICROFILMING

TECHNIQUE

ABSTRACTS

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