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Proposal for the Development and Operation of a TOBACCO INFORMATION CENTER

Submitted to

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BIOGRAPHIES

MR. GERALD L. BRODSKY, Project Director
DR. ROBERT R. BLANKEN, Technical Director
DR. HENRY ALTSCHULER, Technical Staff
DR. ELEANOR W. ASHKENAZ, Technical Staff
DR. DAVID L. DIPIETRO, Technical Staff
MRS. BARBARA ENGSTROM, Technical Staff
MR. RALPH GARNER, Consultant
MRS. WILTRUD GOLDSCHMIDT, Technical Staff
MR. CONSTANTINE KLEIN, Technical Staff
MRS. JOAN S. LAVAN, Technical Staff
DR. ALFRED S. C. LING, Technical Staff
DR. ALFRED G. LISI, Technical Staff
DR. GIOVANNA R. MAZZANTI, Technical Staff
DR. LOLITA D. MOORE, Technical Staff
DR. ROBERT POLLACK, Technical Staff
MRS. VESNA RES, Technical Staff
MRS. LINDA STAROSCIK, Technical Staff
MISS HILDA VILKOMERSON, Technical Staff
MR. EUGENE WALL, Consultant
MRS. EVA B. WINTER, Technical Staff
MR. JOHN S. SAYER, Consultant
SYSTEMS SCIENCE CORPORATION, Corporate Capability
TELECOMPUTATIONS, INCORPORATED, Corporate Capability
MR. R. C. COOK
MR. ROBERT P. SHUMATE
MR. JAMES M. WINER

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SECTION I. INTRODUCTION AND GENERAL DESCRIPTION OF PROPOSED PROJECT

1.1 Introduction

The Tobacco Institute has a requirement to develop a comprehensive and automated Tobacco Information Center that will fill immediate needs of the Tobacco Industry.

In fulfillment of the above requirement the following is proposed:

- 3i will collect, screen, and evaluate literature of interest to the Tobacco Industry. This literature will be from published as well as unpublished sources from around the world. 3i will scan over 3,000 journal titles per month on a daily basis for pertinent literature.

- 3i will abstract and index, in depth, all literature accepted into the Center. This literature will be current literature selected by 3i and certain retrospective materials from the Council for Tobacco Research and other sources. The abstracts will be "user oriented" and will be prepared by experienced abstractors, all of whom have a minimum of a master's degree in one of the biomedical sciences.

- An automated information storage and retrieval system will store all materials accepted into the system and will enable complex and highly specific questions to be answered. The information retrieved in answer to a question will be qualifying information and will enable the user to make a decision as to the pertinence of the original document.

- A "current awareness" bulletin will be distributed weekly and will include all new materials accepted into the system. The time lag between receipt of original literature and the appearance as an abstract in the bulletin will be no more than two weeks. Highly important literature will be forwarded to the Tobacco Institute Project Officer the same day it is received at 3i.

- Original material, keyed to the retrieval system, will be delivered weekly to all user locations. Each of these locations will have a complete set of all documents in the system.

The existence of the Tobacco Information Center (TIC) will enable the Tobacco Institute to:

- Be one step ahead of critical groups, particularly the government, and more specifically the National Clearinghouse for Smoking and Health (NCSH).

- Store scientific as well as non-scientific and critical materials in a form that will be retrievable within less than one hour, no matter how complex or specific the problem.

- Procure and store unpublished information as well as pre-published materials.

- Have withdrawal of information from TIC as near as any telephone or TWX Monday thru Saturday 8 AM to 12 midnight, and on Sunday with 24 hours prior notice.

- Distribute a weekly bulletin, arranged by categories, that would include all information entered into the system during the preceding week. This "current awareness" bulletin would be valuable to research personnel in the industry and would be extremely valuable as an alerting tool for the legal and public relations people.

1.2 General Description of Overall System for Tobacco Information Center

1.2.1 Materials to be stored in the Center

- Retrospective material now at the Council for Tobacco Research (CTR).

- Retrospective materials not at CTR but in the government's National Clearinghouse for Smoking and Health (NCSH).

  This material will be gathered by searching specific indexes that were utilized by NCSH. 3i is completely knowledgeable of these indexes as well as the terms that were used to search. The NCSH search yielded 4,000 documents of which 50% were of foreign origin.

- Current materials (prospective) that will be selected from over 3,000 published journals from around the world and in over 52 languages.

  3i will procure these materials by scanning and screening the above literature DAILY. This literature will be screened by literature and language specialists that are competent and knowledgeable of TIC objectives.

- Unpublished materials (retrospective and prospective).

  3i will set up and maintain a clearinghouse for unpublished materials dealing with smoking and tobacco. Authors of published papers (names and addresses will be stored on TIC's computer) and agencies

sponsoring research or other related programs (these will also be stored and available for print-out by the computer) will be contacted on a regular basis to procure unpublished or prepublished materials.

Materials created by Tobacco Industry personnel, i.e., unpublished research reports by scientists; statistical data, etc.

This material will be entered into the system by Tobacco Industry requests.

1.2.2 Method by which Material will enter the System for Storage

First, each document will be received by TIC and accessioned (given a unique number) and categorized into one or more areas, i.e., carcinogenesis, government documents, news items, psychology, etc.

The system is designed to handle 255 categories although only 50+ would be used initially.

The next step will be to index and abstract the document (although CTR abstracts will be utilized for existing documents whenever feasible). Each article will be assigned index terms. The system is designed to handle an unlimited number of terms for each document.

These terms are the keys to retrieval of documents, and can also be used, with an appropriate search strategy, to prevent withdrawal of previously known documents; e.g., one could ask the system to retrieve all documents dealing with arsenic and cigarettes but not written by a particular author.

Since these keys or index terms can be any word or number, they will include:

names of authors
companies and institutions
dates
descriptive information about the document
subject entries indicative of its contents

Index terms are not categories. There will be thousands of index terms, but only a maximum of 255 categories.

The files of Tobacco Institute personnel, at present, are arranged by "problem" or "question", e.g., "What is the proper role of government with regard to smoking". This particular file would be broken down and indexed using many terms, but could be completely rebuilt simply by using the terms "government role" and "smoking" in a query to the TIC.

The categories, index terms, and abstract will be typed on paper-tape typewriters after the index terms are checked for consistency and after the abstract is edited for technical content and grammar.

The paper-tape produced by the typewriters will be fed into a card-punch unit that will automatically produce punched cards which will then be fed into a large IBM 360 model 40 computer for storage.

The paper-tape producing the punched cards will not contain the complete abstract, but will contain an annotation or "abstract of the abstract" that will be designed to alert the user quickly to the contents of the document.

1.2.3 Storage of Original Documents

Each complete document in microfilm form, as well as its complete abstract, will be stored on "aperture cards", and will be filed by accession number at each user's location for instant viewing and/or print-out on a "Reader-Printer". These "aperture cards" are handy, easy to mail, and take very little storage space. All materials used in this activity will be products of 3M Company.

1.2.4 Method of Making Requests to the System

Various methods will be used to ask questions of the system i.e., telephone, TWX, mail, etc. Questions can be directed to the Project Officer of the Tobacco Institute or to the computer center directly. Training and orientation seminars for all Tobacco Institute personnel will be given prior to March 1, 1967. These seminars will average one day in length and will insure successful operation of the system. In addition, user manuals will be provided to all personnel using the system.

Although it is preferred that the seminars take place prior to initiation of the system, it will be possible to make requests earlier, or at any time, by having 3i personnel formulate the questions after discussion with the user. 3i will, of course, work with the users to refine the queries.

1.2.4.1 The general format of an answer to a query follows:

To:	(person making request)
Category:	(000 to 255; to search all categories one would use 000. The category number refers to a list of categories, e.g., 005 might be news items)
Title:	(Document title; if none available, one will be created)
Author(s):	(Senior author followed by a slash(/) and then junior authors)
Corporate Author(s):	(Name(s) or organizations supporting work, i.e. Roswell Park Memorial Institute)
Source:	(If published, journal name; if unpublished, actual source of the document)
Accession:	(unique number to be used as locator for original document; will also indicate when document was accessioned)
Descriptors:	(terms used by the user to search for this document; the weekly bulletin will include all terms used to index this document)
Annotation:	(50 words or less used to describe this document)

It should be noted here that there is reserve space under Annotation. This section is programmed to store approximately 100 words, and it is anticipated that only 50 words will be used in this section. Therefore, important notes added by the user can be inserted for future retrieval.

1.3 Continual Operation of the Tobacco Information Center

The entire TIC system is designed so that all rules and regulations for abstracting, scanning, searching, indexing, etc., are written and therefore the operation is not

dependent upon any person or even a company. Operation of the entire system can be continued by other companies, or even by the Tobacco Institute if it is so desired.

1.4 General Examples of Typical Questions that could be asked by the User

> "Give me all articles written by P. Q. Smith only when he was the senior author, and when he wrote about paper filters and lung cancer."

In the example above the keys to the articles are underlined. All information for documents that were indexed using all of these terms would be retrieved.

If the number of articles retrieved was too great to handle, further specificity could be achieved by specifying, e.g., "since 1963" or a specific type of paper filter or cancer.

> "What was the death rate for emphysema in 1964?"

This is a request for a specific piece of numerical information. Although the system is a document retrieval system (one that tells you where you can find the answer) rather than a data retrieval system, it is relatively easy to locate the document that has the answer in it. Using the underlined words above, you would be referred to a document, or a page of a document, and the death rate could be easily obtained from the microfilm reader.

1.4.1 Example of the Processing of a Multi-part Document such as a Book or the Published Proceedings of a Meeting

Cigarette Labeling and Advertising: Hearings before the Committee on Commerce, United States Senate, Eighty-Ninth Congress, First Session on S. 559 and S.547, bills to regulate labeling of cigarettes and for other purposes. Part I: March 22, 23, 25, 29, 30, April 1 and 2, 1965.

For purposes of accessioning, indexing, annotating, and eventual retrieval, this 1028-page book would be broken up into the various contributions, many but not all of which are listed in the Table of Contents, of which it is composed. These separate documents which would be accessioned would include the texts of the two bills, the address by Luther Terry from the Congressional Record, the comments by Senator

Bennett and Senator Moss, the Agency comments referred to in the Table of Contents, the 48 statements listed, with the discussion following each, the 30 submitted statements, and the various letters, wires, and resolutions which are printed in the last section of the book.

Samples of other questions and answers are attached as an Exhibit.

1.5 Why the Machine Search System has been Selected over the Manual Method

Machine searchable coordinate indexes are necessary when any or a combination of the following characteristics is required: deep indexing (an average of 10 terms or more is considered "deep"; 25 term average indexing for the Tobacco Institute is proposed), relatively large collections (over 25,000 items; this number will be exceeded after the first year of operation of the Tobacco Information Center), logical capability (the ability to perform logical unions, intersections, negations, differences, of descriptors, etc.; from past conversations with DeHart, etc., these are all prime requirements of the system), fast retrieval, and high degree of completeness.

To correlate the above to the proposed project, there would be over 250,000 terms or cards by March 1, 1967, and over one million after two years of operation. One cannot think realistically of manually searching this system. Not only would it take an enormous amount of time and money, but the reliability would not be high.

It is, of course, possible to start the system manually, but in only a few months it would be impossible to handle without some mechanization. In addition, the cost would be greater in the long run, for conversion.

SECTION II. ADMINISTRATION, QUALIFICATIONS, AND PERSONNEL

2.1 Administration

In order to establish full focus and to concentrate responsibility for accomplishment, an administrative Project Officer and a technical Project Officer will be assigned to the project. The Administrative Project Officer will perform the duties of liaison with the Tobacco Institute, and will provide administrative guidance for all personnel assigned to the project. It will be the duty of this Project Officer to make optimum use of the combined skills of the literature, information, and systems specialists who will be required for performance of the work. The Technical Project Officer will provide technical guidance as well as quality control in the overall project. Mr. Gerald L. Brodsky will act as Administrative Project Officer. Dr. Robert R. Blanken will serve as Technical Project Officer.

The senior staff members of 3i possess a unique combination of skills and experience in the biomedical information publication area. The various specialists discussed and specified for the design and operational activities have had previous experience in such efforts. The literature specialists to be utilized in the production activity present a total capability covering 52 languages and advanced degrees in scientific fields such as immunology, physiology, biochemistry, pharmacology, and medicine. Many of these literature specialists have received their education in the foreign countries whose languages they will cover and are thoroughly familiar with the foreign technologies. Attached are biographies of a representative group of the members of the technical staff who would be employed in the successful design and operation of the proposed activity.

3i has the capability to provide the accelerated delivery schedule set forth in the Implementation Chart.

2.2 Qualifications

3i specializes in the development, design, implementation, and publication of specialized abstract journals. It serves commercial, industrial, and government organizations in the solution of scientific literature problems. By virtue of its specialization

and experience, and especially the experience of a number of its staff members, the company is exceptionally well-qualified to undertake and operate satisfactorily the proposed activity.

In addition to 3i's recognized leadership in effective formulation of information requirements, senior staff members of 3i have participated in several areas of special significance to the conduct of the proposed activity. These are:

- Development of scientist's information needs in the biomedical research area.
- Design of some of the largest government and industrial scientific and technical information systems now in operation.
- Directions and contributions to the technical and administrative system design for the NASA Technical Information Facility under the direction of the Office of Scientific and Technical Information.
- Concept, design, startup, and operation of internal information systems in the fields of chemistry and chemical engineering.
- Conception, design, operation, publication of biomedical abstract journals, and a current-awareness publication in the field of pharmacology.

2.2.1 Current Customers of 3i are listed below:

Geigy Pharmaceuticals
Lederle Laboratories
Hoffmann-LaRoche
Ethicon Laboratories
Boeing Aircraft Research
Reed and Carnick Pharmaceuticals
Warner-Lambert Research Institute
Cabot Corporation
Pitman Moore Division of Dow Chemical
Walter Reed Institute of Research
Aerospace Technology Division, Library of Congress
National Aeronautics and Space Administration
U.S. Naval Oceanographic Service
U.S. Army Edgewood Arsenal
U.S. Dept. of Agriculture
Defense Supply Service - Pentagon
Marbon Chemical
Batelle Memorial Institute

The above does not include subscribers to 3i publications.

2.2.2 Current Publications Produced by 3i

Cardiovascular Compendium
CLUE (Clinical Literature Untoward Effects)
Chemotherapy Research Bulletin

These abstract journals are presented as exhibits.

2.3 Facilities

There are 23 full-time people on the 3i staff including 16 professionals. 3i utilizes part-time personnel in the normal course of business and at present, 60 literature and language specialists are employed on this basis. All part-time personnel to be employed in the proposed project will perform services on 3i's premises. This method will be employed to insure consistency as well as confidentiality.

3i has its main headquarters in Philadelphia and maintains a permanent staff at 1104 Spring Street in Silver Spring, Maryland as well as facilities in London, England.

3i holds an institutional membership and, under special arrangement with the College of Physician's Library, has unlimited use of their facilities.

If awarded the proposed contract, 3i will acquire additional space already under option, and operate the Tobacco Information Center as a separate unit for both cost and quality control purposes.

SECTION III. TECHNICAL PROPOSAL

3.1 Introduction

This proposal is prepared and submitted in response to the requirement to assist the Tobacco Institute (TI) in its mission to establish a Tobacco Information Center (TIC). International Information Incorporated (3i) is pleased to offer its unique capabilities, experience, and personnel to assist in the design and operation of the proposed Information Center.

Through earlier discussions with personnel of TI, 3i has become familiar with both the long- and short-range objectives of the Information Center. The sources of the information store will include both published and unpublished literature and raw data collected by 3i from around the world. The Tobacco Information Center must establish a means of collecting, processing, storing, and retrieving information on a large scale.

3i is in full agreement with TI personnel in regards to its plans to take a designed, evolutionary approach in fulfilling this mission over a realistic time period. Each phase of the program (service, capability, or information segment) will be carefully constructed to be an integral part of the ultimate Information Center and will provide a unique and complete capability to service the user. As each phase is designed and implemented, new knowledge will be gained which will be used to adjust the existing capabilities and to further refine the design and utility of ensuing phases. Even with the benefit of extensive study and design prior to implementation, with its delays in offering any service to the users, full implementation of all aspects of a complete information center at one time creates many unnecessary hardships. With this type of implementation scheme, services are often of poor quality and late delivery due to lack of training time, and there is little chance for modification and improvement due to the requirement of continued operation and the expense involved in change of masses of interrelated data.

We believe that establishing a literature store and attendant general user service will contribute the most immediate, basic, and least costly service which will provide the most information to the user community and the future activities of the Tobacco Information Center. This portion of the basic knowledge store and service of the Information Center is

an absolute requirement of the total system and may be implemented quickly. More elaborate or specifically tailored individual user services should be deferred until a base of knowledge about the information store and the users is more specifically defined through operating experience with generalized services. The design, control, and operational capability for processing and reporting test data is many times more complex and requires extensive study and test before it can be implemented.

Data considered to be of interest must be rigidly defined in terms of measurement, reporting and criteria, and all differences resolved and standardized before any program to receive, process, and report can be put into operation. This phase of the Information Center should be considered as the last phase of implementation.

The ensuing proposal has been prepared in logical sections to afford a basis for proper presentation and discussion of consideration and techniques.

3.2 Methodology

3i has devoted considerable effort to the considerations of the combination of the mission of the Tobacco Information Center and to the utility and feasibility of implementation of the objectives. We are therefore prepared to make specific and concrete recommendations on the methods of implementation which will be required to fulfill these objectives. Due to the nature of information systems and the interrelationships of many processing activities, the steps or elements of implementation do not follow or cannot be classed by objective. We shall therefore present the steps in their sequence of operation and time.

3.2.1 Literature Selection and Acquisition

The acquisition function associated with a scientific or technical Information Center is perhaps the singular, most important function in the system. It is at this point that thorough steps must be taken to ensure that adequate literature coverage is developed and that only pertinent subject materials are selected. The quality of the content of the store is a very critical matter. Competence and services in further processing operations are immaterial if the product of the Information Center is incomplete or irrelevant. This will lead to a lack of confidence by the user and will completely void the efforts of the Information Center.

There are two basic classes or sources of information which must be considered. These are open source or published literature and unpublished literature. The unpublished literature is made up primarily of government or private company or individual reports which have not been given mass distribution through inclusion in a primary journal or publication.

In considering the scope of open source journal literature, 3i has drawn upon its experience in other scientific areas. The subject of tobacco and smoking as they affect the health of man provides a very broad scope of literature, including many scientific discipline and literature sources.

To ensure complete coverage of the literature, 3i has made an extensive survey of biomedical journals and reference sources available in the Philadelphia area. It has been concluded from this survey that the literature available at 3i, the Library of the College of Physicians, the Philadelphia College of Pharmacy Library, and the Temple Medical School Library will provide adequate coverage of the subject. Total biomedical journal coverage through the above-mentioned libraries is in excess of 3,800 journal titles. Journals frequently containing pertinent articles will be received directly by 3i to ensure rapid processing and dissemination of information. Journals of importance not received by these libraries in the Philadelphia area will be scanned at the National Library of Medicine in Bethesda, Maryland.

As a control check for the entire acquisitions function and literature coverage, secondary publications, including Index Medicus, Excerpta Medica, Referativniy Zhurnal, and Chemical Abstracts, will be scanned for additional references beginning two months after the startup of the acquisitions function.

3.2.2 Scanning and Evaluation

Guidelines for the scope of coverage will be developed with the Project Officer of the Tobacco Institute.

An extensive review of past editions of CTR's Current Digest will be made to establish past practices of literature selection. These practices will be reviewed with the Project Officer for incorporation into the guidelines for coverage.

Qualified scanners will be trained to adhere to the mutually-agreed-upon guidelines at all times. Consultants will be available for evaluation and decision-making in special

situations. Literature will be scanned on a controlled basis as the material becomes available. Journals will be scanned "article by article," rather than by titles only, to ensure comprehensive and efficient coverage. Flagged articles will be evaluated immediately and descriptive cataloging entries will be created. The catalog information will flow along with the document and will include the full citation, classification for publication abstract section, and an indication to the abstractor as to the type and general length of abstract required.

The citation for each document will include:

- The abstract number.
- The title of the document (translated into English when necessary).
- The language indication.
- The author(s). The senior author will be followed by institution or address.
- Journal title followed by:

  Volume
  Issue
  Pages
  Month of Publication
  Year

- Book title followed by:

  Publisher
  Address
  Pagination
  Year of Publication

Because of the importance of the scanning and evaluation procedure and its quality control and uniformity significance, 3i will utilize highly-qualified professional personnel. These personnel are all scientific literature and language specialists who possess advanced degrees in at least one biomedical scientific discipline, representing 3i's access to innumerable fields of scientific activity and their interpretation in many languages.

Reproductions of the selected articles will be made at 3i facilities. All selections will be checked against a file containing citations of previously selected articles so that duplicates will be identified and eliminated. Complete duplications will be rejected, whereas a partial duplication of information will be put into the system with a requirement for a more complete evaluation indicated in regard to type and length of abstract.

This complete evaluation will be based on specific regulations and will result in the assignment of only one of two types of procedures: abstracting or annotating.

3.2.3 Abstracting

To allow for multi-level reporting of technical materials and to develop an abstracting style which is consistent with the value of the original material, two styles of abstracts will be employed. These will consist of the citation plus one or both of the following types of abstracts:

> Annotations. An indicative statement prepared in less than 25 words will be utilized to amplify the title of the document by describing more clearly and comprehensively the information contained in the document. This is a generalized statement of contents of the article and characteristically does not contain qualitative or quantitative data. This statement has been designed to give the reader a basis for deciding whether or not he should read the original article by presenting a brief and clear identification of the subject, scope, and conclusions of the original material.
>
> Informative Abstracts. The Informative Abstract usually contains from 150-250 words and includes most of the facts that the reader may want, rather than simply making him aware of the availability of facts in the original article. This type of abstract is a direct and specific summary of the principal ideas, methods, and significant data reported in the original material. In many cases, this type of abstract may obviate the necessity of reading the original document but, in line with its role as an abstract, should not and cannot attempt to entirely replace the full text material.

Review articles or articles covering many different subjects, and those which do not represent significant technical accomplishments, will be covered by an annotation. The informative abstract will be used for those articles which are considered to be of particular value in terms of technical content.

The topical sentence will be the first portion of the informative abstract. The topical sentence is a direct statement (active voice) designed to report to the reader a clear indication of the subject, scope, and results achieved. Where the informative or indicative type of abstract is employed, the function of the indicative statement is integrated into the abstract in the form of the topical sentence. This method of presentation will replace the widely used "mystery story" abstracts in which the reader proceeds through a statement of

purpose and method before finally coming to the results and conclusions. Where practicable, the following data will be included in the remainder of the Informative Abstract:

(1) Hypothesis

(2) Population, type of subject, ages, organisms, etc.

(3) Method, technique

(4) Conclusions

3.2.4 Editing and Quality Control

There are three major areas or types of quality control that will be employed in the actual production of the abstracts:

(1) Accuracy (including vocabulary control).

(2) Style and format.

(3) Length (including informational content).

As a basic tool in establishing the rules and standards for quality and presentation, a formal guide for abstractors will be employed. In addition to this guide, all abstracts will be edited by competent technical editors who will check each abstract in terms of the three aforementioned areas. These editors will maintain a constant feedback system which will enable the abstractors to be guided or corrected on any discrepancies on a regular and continuing basis. Due to the broad coverage of the literature, including many subject disciplines and languages, a system will be employed for controlling the distribution of documents to a group of qualified editors. It is 3i's belief that the preparation of the comprehensive and informative abstract requires a thorough understanding of the scientific or technical document in order to recognize, analyze, and report the essential information. As such, it is 3i's intent to use highly trained and qualified editors, all of whom possess advanced degrees in the biomedical sciences and are well-versed in languages and the specialized fields of biomedicine.

3.2.5 Indexing

It is envisioned that most subject terms will be one-, two-, or three word terms. The depth of indexing will average 25 terms per document. The entries accompanying these index terms are described in the Information Retrieval Section.

We proposed to employ, as a terminological authority, the Medical and Health Related Sciences Thesaurus of the Public Health Service. If at all possible, all items will

be indexed by the terms appearing in this authority. However, if the authority does not contain a term which is truly required in indexing any given item, the term will nevertheless be employed. It is expected, for the specific biomedical subject field under consideration, that a substantial number of such "new" terms will be required.

3.3 Information Storage and Retrieval System

In order to provide a basis for evaluation and understanding of the proposed retrieval system, introductory material including definitions of terms follows and precedes the TIC system.

3.3.1 Introduction to Information-Retrieval

An information-retrieval system may be considered to be an organized set of procedures which are invoked to locate a specific piece of information.

Manual Systems

A card catalog is the most common information-retrieval device. The set of manual operations necessary to use a card catalog is a manual information-retrieval system. Other manual information-retrieval systems are based on other types of catalogs, such as Books in Print, and the Guide to Periodical Literature.

Computer Assisted System

A computer assisted system is one in which a digital computer is used to prepare the information-retrieval device or catalog. The most common of these systems are the KWIC (Key Word In Context) index, and the KWOC (Key Word Out of Context) index.

KWIC

The KWIC index is an index of all documents in the system listed in alphabetical order by each major word of the title. It is also known as a permuted title index. The chief difficulty in using an index of this type is that the title is often not representative of the contents of the work. For this reason, the KWOC index was developed.

KWOC

The KWOC index lists all documents in the system in alphabetical order by each "descriptor" assigned to the document. If the descriptors have been properly chosen, they provide a good representation of the contents of the documents. The two major problems associated with the KWOC index are

the use of synonymous but different descriptors, and the effort required to assign the descriptors in the first place. The problem of synonyms is usually solved by the use of a controlled thesaurus of allowable descriptors. The problem of assigning descriptors has given rise to two solutions: the professional abstractor, and the Uniterm, or automatically generated key-word (descriptor).

Uniterms

Uniterms are key-words selected from the title and abstract of a document. A computer scans the title and abstract picking out each word which already exists in the thesaurus. These words then become the descriptors for the document. In some cases, precoordinated terms are also chosen. These are terms which have a specific relation such as "information-retrieval" instead of "information" and "retrieval" separately. In some cases, any words found are used as key-words instead of only words which are already in the thesaurus. This then is an uncontrolled thesaurus.

The difficulties with the Uniterm approach are that synonyms are not usually recognized, and that the assumption that the title and abstract are representative of the content is not always valid. Only the most sophisticated systems have search provisions for synonyms. The title of a document is usually so general that it is useless for search purposes. The abstract of a document presents a summary of results, but often does not mention the contributing factors. In addition, since most papers are not written by professional writers, both the title and the abstract may be poor representations of such content as could be represented.

In short, the major advantage of the Uniterm system is the ability to assign some set of key-words to the document. This is often necessary because the volume of new documentation is too large to be processed in any other way unless facilities already exist.

Pulls

The term "pulls" represents the class of documents whose accession numbers are reported by the search. Some of these documents will be relevant, and some of them irrelevant.

Hits

The term "hits" represents the subclass of pulls which are relevant. Relevant is defined to mean independently relevant, that is, a document is a hit if it contains useful information regardless of whether or not that same information was contained in other hits.

Trash

The term "trash" represents the subclass of pulls which were not relevant. Any pull which was not a hit is automatically trash. The two subclasses are mutually exclusive.

Misses

The term "misses" represents the class of relevant documents which should have been pulled but were not because the search request was phrased in such a way that they were excluded.

Value

The relative performance can now be defined in two ways: in terms of the cost of misses, or in terms of the cost of trash. Depending on the value placed on each of these, the same system may have either good or poor performance.

The ideal system has no misses and no trash. In practice, trash is tolerated to decrease the number of misses. In particular, if the system lists the documents in the order of most-likely-to-be-relevant to least-likely-to-be-relevant, the trash is more likely to be at the end, and the user can stop looking at the list at any convenient point. Not all search methods allow this type of listing.

Search Methods

There are four basic search methods. They are the term-matching, percentage, boolean, and weighted-term methods.

Term Matching

The term matching method pulls all documents on which a specified number of search key-words match index key-words. The disadvantages are that documents with longer lists of index key-words are more likely to match, that there is no way to indicate the relative importance of each match, and that there is no way to show relations between key-words.

Percentage

The percentage method is a modification of the term matching method. Instead of a specified number of matches, a specified percentage of the index key-words must match. This eliminates the bias toward documents with longer index lists; however, the other disadvantages remain.

Boolean

The boolean system treats matches as a set of boolean conditions. If the specified condition is met, the document is pulled. The search key-words are now related by the logical operators "not," "and," and "or." This allows relations between the key-words to be specified. It does not provide for relative importance of each key-word, except by the hierarchy of the condition.

Weighted Term

The weighted term system assigns a weight to each key-word. If the sum of the weights on terms which match exceeds a specified threshold the document is pulled. This provides for the relative importance of terms, but not for the relations between them except as a function of the weights.

Choice of Method

The choice of a search method should be based on the performance of the method. Surprisingly, while the boolean system would seem to be the more flexible, the weighted term system works better. This is because in practice the cost of misses is much higher than the cost of trash. The boolean system has less trash, but the weighted term system has fewer misses. A better system, however, is a "hybrid" system which combines some of the features of both. This hybrid system is the one used by the IHL information retrieval system.

3.3.2 Description of a Document

A document is that unit of information which is large enough to have its own description of content. A journal is not properly a document, but a collection of documents. The descriptors for a journal would be too general to be useful for searching.

Attributes

A document has attributes such as title, author, content, etc. It is cataloged by the values of these attributes. A search then, selects certain documents which have specified values for their attributes. The specific key-words under which a document is indexed may be considered values of the attribute "descriptors."

The usefulness of defining attributes lies in the fact that search logic can be applied to the values for any attribute. This then allows a more general type of searching than key-words alone. At the same time, the values of other attributes are often common to fewer documents, so the search can go faster.

The "descriptor" attribute is the only one which represents content. The use of other attributes implies that the user already has a good idea where to look and wants to pass this idea on to the searching system.

Description

The following attributes describe a document:

TITLE: The title of the document.

PRIME AUTHOR: The first author listed.

SECONDARY AUTHORS: Any other authors.

SOURCE: The source of a book, or the name of a journal in which the document appears.

CORPORATE AUTHOR: The name of the corporation or organization sponsoring or issuing or sponsoring the document.

ACCESSION NUMBER: A key to the location of the actual document.

DESCRIPTORS: A list of key-words representing the content.

ANNOTATION: A short prose description of the content.

In addition to these attributes, several others are useful for searching. The use of attribute values to describe a document to the computer is discussed in the next section.

3.3.2.1 Descriptive Input

Each document is entered into the system by providing values for its attributes. These values are punched into a series of tabulating cards along with coding to indicate which attribute they belong to. While the discussion to follow will assume that cards are the input medium, it is only necessary that the input be in the form of card images. These images may actually be input from paper tape, magnetic tape, teletype, etc.

General Layout

The card is divided into three areas. Columns 1, 2, and 3 are the control area. Column 1 contains a character indicating the attribute with which the data values are to be associated; columns 2 and 3 contain sequence numbers within each attribute card group.

Columns 4 through 72 contain values to be associated with the attribute indicated by the character in column 1. These values are separated from

each other by commas, or in some cases, slashes. If the values must continue onto more than one card, each card but the last must end either with a comma or a slash, except for title or abstract cards.

Columns 73 through 80 (or the end of the record) are ignored, and may be used for any purpose.

Sequence

The set of cards describing a document must be in sequence within each attribute group. Further, the attribute groups must be in a specific sequence. The sequence will be defined after the discussion of card types.

3.3.2.2 Accession Number Cards

The accession number cards have the following format:

Col. 1:	N
Col. 2-3:	Sequence number starting with 00.
Col. 4-72:	The prime accession number followed by a slash, followed by secondary accession numbers separated by commas.

The prime accession number must be present. It locates the document in the user's library. It may, however, have the special value "*" in which case it is assigned by the system as the next sequential number available. The secondary accession numbers are optional. They may be used for Library of Congress card numbers, etc.

The prime accession number must be followed by a slash whether any additional secondary accession numbers follow or not. The secondary accession numbers are separated by commas. No comma follows the last one.

If more than one card is required, they must be in sequence on columns 2 and 3. Each card except the first and last must end with a comma. The first card may end with either a comma or a slash. The last card must not end with a comma.

Any characters other than comma, slash, asterisk, and blank may be used in accession numbers. Blanks are always ignored.

The maximum length of the prime accession number is 8 characters. The maximum length of all accession numbers including the slash and separating commas is 255 characters. Blanks are not counted.

At least one accession number card must be present and contain the prime accession number. This group of cards must be the first group of cards.

3.3.2.3 Author Cards

The author cards have the following format:

Col. 1: N

Col. 2-3: Sequence number starting with 00.

Col. 4-72: Authors separated by slashes, prime author listed first.

Each author may be listed in any desired format. The exact same format must be used in searching. Therefore it is desirable to establish a standard format.

Blanks at the beginning of a card, immediately preceding a slash, and immediately following a slash are ignored. All other groups of blanks are reduced to one blank. The maximum length for any one author is 64 characters, not including the slash. An author may not continue across cards.

If more than one card is required, every card must end with a slash. The last author's name must be followed by a slash. Multiple cards must be in sequence on columns 2 and 3.

A total of 255 characters, including the slashes and groups of blanks which have been reduced to one blank may be used to specify authors.

No author cards need be included, but if any are present they must follow the accession number cards.

3.3.2.4 Corporate Author Cards

The corporate author cards have the following format:

Col. 1: X

Col. 2-3: Sequence number starting with 00.

Col. 4-72: Corporate authors separated by slashes, prime corporate author listed first.

Each corporate author may be listed in any desired format. The exact same format must be used in searching. Therefore, it is desirable to establish a standard format.

Blanks at the beginning of a card, immediately preceding a slash, and immediately following a slash are ignored. All other groups of blanks are reduced to one blank. A corporate author may not continue across cards. The maximum length for any one author is 64 characters, not including the slash.

If more than one card is required, every card must end with a slash. The last corporate author's name must be followed by a slash.

A total of 255 characters, including the slashes and groups of blanks which have been reduced to one blank may be used to specify corporate authors.

No corporate author cards need appear, but if any are present they must be in sequence on columns 2 and 3, and must follow any author cards.

3.3.2.5 Source Cards

The source cards have the following format:

Col. 1:	P
Col. 2-3:	Sequence number starting with 00.
Col. 4-72:	A source reference followed by a slash.

Only one publisher reference is allowed per document. This reference is used to indicate the publisher of a book or the name and pages, etc., of a journal in which the document appeared.

A maximum of 64 characters, not including the slash may be used. Blanks at the beginning of the card and immediately preceding the slash are ignored. All other blanks are counted. Any character except slash may be used.

No publisher card need appear. If one is used, it must have 00 in columns 2 and 3, and must follow any corporate author cards.

3.3.2.6 Category Cards

The category card has the following format:

Col. 1:	C
Col. 2-3:	00.
Col. 4-6:	Category number right justified, with leading zeros punched.

The category number is used to partition the main document files into subfiles so that only subfiles need be searched. This feature is useful only in large systems and will not be fully implemented in the initial system.

The category number ranges from 0 to 255. If this card is not used, the category 000 is implied.

The category card has a fixed format and must appear exactly as specified.

The category card need not appear. If it is used, it must follow any publisher cards.

3.3.2.7 Descriptor Cards

The descriptor cards have the following format:

Col. 1:	D
Col. 2-3:	Sequence number starting with 00.
Col. 4-72:	Prime descriptors separated by commas followed by a slash, followed by secondary descriptors separated by commas.

The differentiation between primary and secondary descriptors allows the search algorithm to use different weights for these two cases. The primary descriptors are those considered most important by the abstractor. If there are no primary descriptors, the slash should appear in column 4 of the first card.

Blanks are always ignored. No descriptor may continue across more than one card. The maximum length for a descriptor is 64 characters not including blanks, commas, or slashes.

Each card except the last must end with either a slash or a comma. There must be no comma following the last descriptor, but if it is the last prime descriptor, the slash must be present. Only one card may end with a slash.

A total of 510 characters may be used for descriptors, including any commas and slashes, but not including blanks.

No descriptor cards need appear, but if any are present they must be in sequence on columns 2 and 3, and must follow any category cards. Normally, at least one descriptor card will be present.

3.3.2.8 Title Cards

The title cards have the following format:

Col. 1: T

Col. 2-3: Sequence number starting with 00.

Col. 4-72: Title information.

The title information may take up a maximum of 255 characters including all blanks and punctuation. Counting begins in column 4 of the first card and continues from column 72 to column 4 of the next card. A maximum of 4 title cards may be used.

No title cards need appear, but if any are present they must be in sequence on columns 2 and 3, and must follow any descriptor cards.

3.3.2.9 Annotation Cards

The annotation cards have the following format:

Col. 1: Y

Col. 2-3: Sequence number starting with 00.

Col. 4-72: Abstract information.

The abstract information may take up a total of 510 characters including all blanks and punctuation. Counting begins in column 4 of the first card and continues from column 72 to column 4 of the next card. A maximum of 8 abstract cards may be used.

No title cards need appear, but if any are present they must be in sequence on columns 2 and 3, and must follow any title cards.

3.3.2.10 Order of Cards

The input cards must be in the following order:

Accession number cards: At least one card.
Author cards: If any.
Corporate author cards: If any.
Source card: If any.
Category card: If any.
Descriptor cards: If any.
Title cards: If any.
Annotation cards: If any.
End card: Optional.

The end card has an E in column 1. It contains no other information. It is used for skipping if an error in input is detected. It may be placed at the end of any document description.

At least one type of card other than Accession number and End must appear in every document description.

3.3.3 Searching

The TIC Information-retrieval system uses a hybrid search method that combines some of the features of the boolean method with the weighted-term method. It differs from most other information-retrieval systems in two ways. It allows searching by attributes other than key-words, and it allows dual weights on attribute values.

The dual weighting system works as follows: if the value specified matches with a secondary value for this attribute, the first weight is used; if it matches with prime value for the attribute, the second weight is used. Note that the weights are in reverse order. Only one weight need be specified, in which case it will be used for a match with either a primary or secondary value. This is logically the weight which would be used for secondary values, and hence its position as first.

There are three types of search cards which are identified by an I, C, or S in column 1. Columns 2 and 3 are used for sequence within each group.

The I cards are identification cards. Up to 6 cards may be used, each of which contains a line of identification. This identification is printed on the output so that it will be routed to the proper place. At least one identification card must be used.

A single C card is used to separate search questions and to specify the category in which the search is to take place. The category must be punched in columns 4, 5, and 6, right justified with leading zeros. Categories are 000 to 255. Category 000 implies all categories. This card must be present.

The S cards contain one or more search values. Each search value has a prefix indicating the attribute to which it applies, a value, and a suffix indicating the weights. At least one search card must be present.

The combination of one or more I, C, and S cards is known as a profile. A profile may contain more than one search question. The order of cards must be as follows:

I cards.

C cards.

S cards.

one or more groups of one C card followed by S cards.

There may be only one C card per question.

The normal weighting range is +9 to -9. The sum of weights on matching terms must exceed some positive threshold to cause a pull.

The boolean conditions are indicated by weights of +10, +11, and -10. They may be defined as follows:

A term weighted +11 must be present for a pull, regardless of the sum of weights.

A term weighted -10 must not be present for a pull, regardless of the sum of weights.

A term weighted +10 will cause a pull regardless of the sum of weights, providing that no term weighted -10 is present.

These conditions may be shown as follows if P indicates a pull, A and B have weights of +10, C and D have weights of +11, D and E have weights of -10, and T is true if the threshold has been exceeded:

P = (A or B) and not (D or E) or

P = (C and D and T) and not (D or E).

3.3.3.1 Prefixes and Values

The prefix of each search value indicates the attribute with which it is to be associated. The prefix has the form of a single letter followed by an equal sign. The following prefixes and values are defined:

A = 'author name': The value is the name of an author. It must be enclosed in single quotes. Leading and trailing blanks are ignored. Other groups of blanks are reduced to a single blank. The final length must be 64 or fewer characters. Each expected variation of the author's name should be listed separately.

X = 'corporate author': The value is the name of a corporate author. The above comments apply.

D = descriptor: The descriptor is any desired key-word. All expected synonyms should be listed.

Blanks between terms are ignored. Values continue from column 72 of one card to column 4 of the next card.

The special prefix and value, T = positive number followed by comma, may appear only once. This sets the threshold. It need not appear if all searching is by boolean condition. Otherwise it must appear.

3.3.3.2 Suffixes

A suffix consists of 1 or 2 weights. They are separated from the value by a slash and terminated by a comma.

The two forms are:

/any-match-weight, and

/secondary-weight primary-weight,.

The weights must be signed if negative. If positive, they may be unsigned, but either a plus sign or a blank must separate the secondary weight and the primary weight.

The uses of +10, +11 and -10 have already been discussed. The normal range of weighting is +9 to -9. A key word which is highly relevant would be given a high weight. A key word which is slightly relevant would be given a low positive weight. Words which cause trash to be pulled are given negative weights to help suppress the trash.

A term then consists of a prefix followed by a value, followed by a suffix.

The primary weight is used if the value matches a primary value. The secondary weight is used if the value matches a secondary value. If only one weight is given, it is used for either type of match.

3.3.4 Additional Output

The following special outputs are available from the TIC system:

List of documents by authors.
List of documents by prime authors.
List of documents by corporate authors.
List of documents by prime corporate authors.
List of documents by descriptors (KWOC index).

BIOGRAPHIES

The following are representative biographies of personnel who would be employed in the conduct of the proposed Tobacco Information Center project.

3i employs professional abstractors and indexers only, with the prerequisite of a minimum of a Masters degree or equivalent as well as experience in the field of information sciences.

GERALD L. BRODSKY

Project Director

Gerald L. Brodsky, Director of 3i, guides technical activities in the field of literature research and documentation services in a broad range of scientific subjects, particularly within the pharmacological and biomedical sciences. He supervises technical personnel engaged in retrospective literature searching (covering all scientific languages), translating activities (both as a part of search assignment and as separate services), abstracting, preparation of specialized abstract and announcement journals, and quality control for industrial as well as governmental organizations.

Mr. Brodsky held the position of Manager of the Scientific Literature Unit at the Auerbach Corporation for three years where he held full responsibility for sales, technical and production activities in the field of literature research and documentation services. Earlier he was President of Scientific Information Services, Inc., and was associated with Medical Literature, Inc., and Scientific Literature Consultants, Inc., where he participated in several major information research projects and activities.

Before entering the scientific information field, Mr. Brodsky did experimental research at Wistar Institute, where he specialized in the field of cancer virology.

Mr. Brodsky received his B.S. at the University of Pennsylvania and has done graduate work in biochemistry and physiology at Temple University Medical School and the University of Pennsylvania Graduate School.

Mr. Brodsky is a member of the American Documentation Institute, the American Medical Writers' Association, the Special Libraries Association, and the American Association for the Advancement of Science.

DR. ROBERT R. BLANKEN

Technical Director

Robert R. Blanken, senior member of 3i, is Technical Director specializing in scientific information services, which include the production of abstract journals and indexes, translations, and the preparation of specialized retrospective and current bibliographies in support of research and development programs. As editor, he is also responsible for the training of personnel and the over-all quality of the services offered.

Dr. Blanken entered the scientific information field while attending graduate school at the University of Pennsylvania, when he was employed by the College of Physicians of Philadelphia to scan the medical literature and prepare abstracts and translations. He subsequently became Director of the Medical Documentation Service of the College of Physicians Library, where he directed several projects, including: the preparation and indexing of Influenza Abstracts; alerting and searching services for the Council for Tobacco Research; and abstracting and indexing for the National Foundation. Subsequently, he joined the staff of Scientific Literature Consultants as editor and supervisor of their translation program and the preparation of data cards in the field of cancer chemotherapy, under a government contract.

More recently, Dr. Blanken held the position of Scientific Editor at the Auerbach Corporation where his activities included the preparation of Cancer Chemotherapy Abstracts and Cardiovascular Compendium.

Dr. Blanken holds a B. S. degree in Chemistry from the University of Pennsylvania, 1950 and a Ph.D. in Biochemistry received at that University in 1960. In addition, he is a linguist, able to read twenty-six languages, and a specialist in scientific information research, primarily in the biomedical field.

DR. HENRY ALTSCHULER

Technical Staff

Dr. Altschuler is a consultant-editor and scanner at 3i and has responsibilities which include scanning and evaluation and advising on matters in the areas of experimental research.

Concurrently with his association at 3i, Dr. Altschuler is Director of Research Laboratories of Gerontological Research at the Home for the Jewish Aged, and a member of the Albert Einstein Medical Center.

Prior to his association with 3i, Dr. Altschuler was an editor-abstractor for the Auerbach Corporation and has had a great deal of experience in abstracting and indexing cancer chemotherapy and carcinogenesis literature, especially that of Slavic origin.

A research assistant in the Department of Medicine at Hahnemann Medical College, and at Smith, Kline and French Laboratories, he has become knowledgeable in practical research, particularly in the areas of cancer.

Dr. Altschuler received his B.S. degree at the University of Illinois in 1952, an M.S. degree at the University of Pennsylvania in 1954, and a Ph.D. at the Philadelphia College of Pharmacy and Science in 1959, where he received the Karr Fellowship from Smith, Kline and French Laboratories.

ELEANOR W. ASHKENAZ

Technical Staff

Dr. Ashkenaz is a scanner and evaluator for 3i. She has had extensive experience as a literature scientist including that of scanning, editing, abstracting, and indexing.

Dr. Ashkenaz was a literature chemist at Allied Chemical Corp., Rohm and Haas Company, and Sidney M. Cantor Associates. As a literature scientist, Dr. Ashkenaz utilizes her knowledge of 9 foreign languages.

Dr. Ashkenaz received her B.S. and Ph.D. at the University of Pennsylvania in 1937, her specialty being physiology and biochemistry. She is a member of the American Chemical Society, Special Libraries Association, AAAS, and American Association of University Women.

DR. DAVID L. DIPIETRO

Technical Staff

Dr. Pietro is an abstractor and indexer for 3i.

He has had extensive experience indexing and abstracting for the Auerbach Corporation preparing materials for Cancer Chemotherapy Abstracts, Cardiovascular Compendium, and services to commercial organizations.

Dr. DiPietro has done research in the field of cancer at the Institute for Cancer Research, Harvard Medical School, Temple University Medical School, and the Lankenau Hospital.

Dr. DiPietro received his A. B. in chemistry at Temple University in 1955, his A. M. and Ph. D. in biochemistry at that University in 1957 and 1961 respectively.

BARBARA ENGSTROM

Technical Staff

Mrs. Engstrom is an abstractor-indexer for 3i.

She has had over five years experience as a literature scientist and has prepared abstracts and index terms for several major abstract journals including Carcinogenesis Abstracts. She was employed by Auerbach Corporation and Scientific Information Services, Inc.

Mrs. Engstrom received her B.A. at Northwestern University in 1958 majoring in biochemistry, and her M.A. in endocrinology and biochemistry at New York University in 1961.

RALPH GARNER

Consultant

Mr. Garner is a consultant to 3i in matters dealing with mechanized information storage and retrieval.

He has had experience in this field as Director of Systems and Data Processing at the Institute for Scientific Information from 1961-1966.

Mr. Garner has been involved in citation indexing and has written papers on this subject; the most recent being "Graph Theoretical Analysis of Citation Index Structures".

Mr. Garner received his B.S. in physics at the City College of New York in 1961 and his M.S. in Information Science at the Drexel Institute of Technology.

WILTRUD GOLDSCHMIDT

Technical Staff

Wiltrud Goldschmidt is a technical abstractor-editor for 3i. She is a specialist in editing and evaluation of literature in the field of metabolic diseases with particular experience in cancer literature.

Prior to her association with 3i, Mrs. Goldschmidt was a free-lance abstractor, editor and translat r working for several institutions, including the University of Pennsylvania Hospital.

Mrs. Goldschmidt was employed for several years by Smith, Kline and French Laboratories as an abstractor and editor in the Science Information Department. Additional experience in the abstracting field was gained prior to her permanent immigration to the United States while employed by the Deutsche Medizinische Sprachendienst in Munich.

Mrs. Goldschmidt obtained practical experience while doing research at the Microbiological Laboratories at H. Mack Co., Ulm, Germany, and at Klinge Pharmaceutical Company, Munich, Germany.

At the University of Mainz, Germany (1948-51), Mrs. Goldschmidt received credits equivalent to a Master's degree. After an additional three years at the University of Mainz Medical School (1951-1953), she became an exchange student at the University of Pennsylvania Medical School, where after two years she became the assistant to Dr. P. Gyorgy. As Dr. Gyorgy's assistant, Mrs. Goldschmidt worked for two years on endocrinological studies.

CONSTANTINE KLEIN

Technical Staff

Constantine Klein is an abstractor-indexer at 3i and has responsibilities which include the abstracting and indexing of biochemical literature.

Prior to his association with 3i, Mr. Klein was associated with the production of Cancer Chemotherapy Abstracts and the preparation of biological activity cards under a contract for the Cancer Chemotherapy National Service Center. He was employed by Auerbach Corporation for three years performing literature abstracting and indexing.

Mr. Klein has gained extensive experience in the biochemical field especially with regard to nucleic acid research, at Wyeth Laboratories, Albert Einstein Medical Center, and the University of Pennsylvania Medical School.

Mr. Klein received his formal education at the University of Bucharest in Rumania and the University of Torino Medical School in Italy in 1954.

JOAN S. LAVAN

Technical Staff

Mrs. Joan S. LaVan is a medical abstractor-indexer at 3i.

Mrs. LaVan has gained extensive experience in technical abstracting and editing of medical and biochemical literature as editor of Biochemical Sections at Biological Abstracts, Inc., and as an abstractor-indexer at Auerbach Corporation.

Prior to her association with Biological Abstracts, Mrs. LaVan was a regular contributor to Chemical Abstracts.

After receiving her B.A. at Bryn Mawr College in 1957, she obtained her M.A. in biochemical cytology at Columbia University, 1958, where she was a Higgins Fellow. Mrs. LaVan also attended graduate school at the New York University School of Medicine.

She is a member of Sigma Xi.

DR. ALFRED S. C. LING

Technical Staff

Dr. Ling is an abstractor-editor for 3i. In addition, he aids in evaluating pharmacological literature, especially in the German and French languages.

Prior to his association with 3i, Dr. Ling gained extensive technical writing experience, including abstracting, as a contributor to professional medical society journals. He has also published over twenty-five original papers in the field of pharmacology and internal medicine.

Dr. Ling received his A.B. degree in 1948 at Princeton University, an M.Sc. degree in physiology at the University of Illinois, a Ph.D. in pharmacology at the University of Maryland School of Medicine, and an M.D. degree at that University.

As a resident at the Pennsylvania Hospital in the Department of Internal Medicine, Dr. Ling has gained extensive practical, as well as theoretical experience, in the field of cancer chemotherapy.

DR. ALFRED G. LISI

Staff Member

Alfred G. Lisi, a senior staff member of 3i, is a pharmacologist who specializes in abstracting, editing and indexing in various fields of medicine. As assistant editor of Cardiovascular Compendium, he is responsible for quality control as well as training of personnel.

After acquiring his medical background in the Pharmacology Department of Jefferson Medical College, Dr. Lisi became an Assistant Professor in the Pharmacology Department of the University of North Dakota School of Medicine. He later brought his medical knowledge to bear upon medical writing when he entered the medical information field. He did both abstracting and editorial work on journals devoted to psychopharmacology, cancer chemotherapy, and gastrointestinal diseases. He served as editor of the first three volumes of "Carcinogenesis Abstracts".

Dr. Lisi is a graduate of the University of Pennsylvania from which school he received a B.S. in biology in 1932, and a Ph.D. in plant pathology in 1939.

He is a member of the American Association for the Advancement of Science, the Academy of Natural Sciences in Philadelphia and is a special affiliate of the American Medical Association.

GIOVANNA R. MAZZANTI

Technical Staff

Dr. Mazzanti is an abstractor for 3i and is responsible for literature in the Romance languages as well as in English.

Prior to her association with 3i, Dr. Mazzanti was employed by Auerbach Corporation, and prepared abstracts for Cancer Chemotherapy Abstracts.

Before entering the scientific information field, Dr. Mazzanti did research at the Skin and Cancer Hospital, in Philadelphia.

Dr. Mazzanti received her B.A. at the University of Florence, in Italy, and her Doctorate of Biological Sciences from the University of Perugia in 1954.

DR. LOLITA D. MOORE

Technical Staff

Lolita D. Moore is an abstractor-indexer at 3i and has responsibilities including the abstracting and indexing of Italian, French, Spanish, and Portuguese biomedical literature, particularly in the field of microbiology.

An experienced abstractor, Dr. Moore has been associated with the production of several abstract journals, including Cancer Chemotherapy Abstracts and Carcinogenesis Abstracts. In addition she gained extensive abstracting experience at the Medical Documentation Service of the College of Physicians Library, Philadelphia, Pennsylvania.

Dr. Moore has gained practical research experience in the field of cancer at the Breast Tumor Clinic of the Albert Einstein Medical Center in Philadelphia.

Dr. Moore received her B.A. and M.A. in 1963 at the University of Pennsylvania in Microbiology and her Ph.D. in bacteriology at Rutgers University in 1966. In addition, she has published over 20 papers dealing with her research in the field of cancer.

DR. ROBERT POLLACK

Technical Staff

Dr. Pollack is an indexer and editor at 3i and is responsible for quality control with respect to document evaluation.

His experience in the field of documentation is extensive, his most recent contribution being that of indexing and editing for Cancer Chemotherapy Abstracts.

Dr. Pollack has also had extensive practical research and teaching experience, holding the position of Chairman of the Department of Biochemistry, Temple University School of Dentistry since 1962.

In areas related to the present proposed project, he has had over eight years of experience as Senior Research Scientist for the Department of Agriculture at the Eastern Regional Research Laboratory.

Dr. Pollack received his B.S. (1948) and M.S. (1949) from the Philadelphia College of Pharmacy and Science, and his Ph.D. from the University of Tennessee, majoring in biochemistry, in 1954.

VESNA RES

Technical Staff

Mrs. Res is an abstractor-translator for 3i. Her specialty is Pharmaceutical Chemistry, as well as translating over five foreign languages.

Prior to her association with 3i, Mrs. Res was employed by Auerbach Corporation as an editor and abstractor working in several medical disciplines. She has been an abstractor and indexer for the past 6 years.

Mrs. Res holds a Master's Degree in Pharmacy from the University of Zagreb in Yugoslavia in 1956.

LINDA STAROSCIK

Technical Staff

Linda Staroscik, an abstractor at 3i, participates in the production of abstract journals and indexing services.

Prior to her association with 3i, Mrs. Staroscik was a literature scientist at the Auerbach Corporation and at the Science Information Department of Smith, Kline, and French Laboratories.

Mrs. Staroscik has had practical experience in the field of physiology and was an instructor in Biology and physiology at Barnard College.

Mrs. Staroscik received her A.B. at Bryn Mawr College in 1961, with honors in biology, and her M.A. at Columbia University in 1963.

HILDA VILKOMERSON

Technical Staff

Miss Vilkomerson is an editor of biomedical abstracts at 3i.

Prior to her association with 3i, she prepared and edited abstracts for Cancer Chemotherapy Abstracts and Carcinogenesis Abstracts for the National Institute of Health.

Miss Vilkomerson has dealt successfully with the problems of the publication of scientific information and brings to this work a facility for several foreign languages.

Prior to becoming the Associate Editor of Biological Abstracts, Miss Vilkomerson did practical research in the area of cytogenetics at Brown University.

Miss Vilkomerson holds a B.A. and M.A. from Columbia University in 1940 and has an equivalent doctorate in biology from that University.

She is a member of the American Institute of Biological Sciences, the American Genetics Society, American Documentation Institute, Sigma Xi, and Sigma Delta Epsilon (Women's Biology Honor Society).

EUGENE WALL

Consultant

During the course of Mr. Wall's work in documentation, he developed many innovations and the solutions to numerous theoretical and management problems. These included early work with computers as information searching equipment, solutions to language problems, and vocabulary control in the fields of engineering and theoretical and applied chemistry. Most recently he has directed the development of the Department of Defense's new intra-departmental thesaurus ("Project LEX").

Prior to his present private consultant work, he was employed by Information Dynamics Corporation and Auerbach Corporation. He has (1) directed the development of the indexing and retrieval thesaurus for the large, mechanized announcement and retrieval system of American Society for Metals, (2) designed the storage and retrieval system now being implemented by NASA's Space Science Data Center.

Mr. Wall joined Documentation, Incorporated, in June, 1960, as Technical Director. While there, he was Project Director for the data processing aspect of the Cancer Chemotherapy program and instrumental in design and startup of the NASA Technical and Scientific Information System. He was Chairman of the ASTIA (now DDC) Thesaurus Revision.

In July, 1962, Mr. Wall accepted appointment as Director of Technical Information Services for the Engineer's Joint Council.

In 1956, he assumed supervisory responsibility for the documentation aspects of a major study in the field of management sciences. In 1958, he was assigned supervisory responsibility for all consulting work to the Du Pont operating organization in information and data processing.

In 1946, he joined E. I. duPont de Nemours & Company as a Development Engineer in the Central Engineering Department, handling projects of increasing complexity and responsibility, involving equipment development, process improvement and cost reduction engineering.

In 1944, Mr. Wall graduated from the University of Missouri with a degree in Chemical Engineering. From 1944 through 1946, he served as a United States Naval officer assigned to sea duty.

EVA B. WINTER

Technical Staff

Eva B. Winter is an information specialist with extensive background in organizing and managing scientific and technical information services, scanning, evaluating and translating scientific literature, and performing literature searches.

After acquiring varied experience in the retrieval and dissemination of chemical and medical literature she organized the Technical Information Service of Scott Paper Co. in Phila. As head of this operation she was responsible for acquiring, scanning, evaluating and disseminating information in a wide variety of subject areas.

Prior to her employment at Scott Paper Co., she was at the National Center for Documentation and Libraries (in Budapest); she coordinated activities of the specialized documentation centers and was responsible for compiling national and international bibliographies.

Mrs. Winter received her B.S. in Library Science and Documentation from the University of Budapest in 1951 and her diploma as Russian Scientific Translator in 1954.

She is a member of the American Documentation Institute and Special Libraries Association, and is the author of several articles in her field.

JOHN S. SAYER
Consultant

John S. Sayer is a consultant to 3i . He has had extensive experience in the field of information sciences.

Recently, Mr. Sayer was Vice President of Information Dynamics Corporation and Vice President of Auerbach Corporation where he directed the activities of the Computer System Analysis group.

Prior to this, Mr. Sayer was the Executive Vice President and General Manager of Documentation, Inc., where he was responsible for general administration and technical direction of company activities. Under Mr. Sayer's direction, the company was active in all phases of information processing, including consultation; systems study, design and installation: and "in-house" operation on conventional EAM and tape-equipped computers.

Previously, Mr. Sayer held a series of supervisory and technical management positions with E. I. duPont de Nemours & Company. He directed the group that developed, tested, and first applied the critical path method (CPM) scheduling technique. He also directed development of the first thesaurus of chemical engineering terms, which has been adopted, with modifications, by the American Institute of Chemical Engineers. The philosophy and approach used in this thesaurus work is being further developed by the Engineers' Joint Council in its work on a similar reference volume for all member societies. Mr. Sayer was administratively responsible for the technical forces in the Central Engineering Department that provided company-wide consultation in the application of advanced engineering practices to the areas of physical facilities maintenance and management engineering.

Mr. Sayer is an active lecturer. He has given numerous presentations in the information processing, management sciences, physical facilities, and maintenance fields.

Mr. Sayer received his B.S. degree in Mechanical Engineering at the University of Minnesota in 1940 and his Professional Engineer's License from the State of Delaware in 1952. He is a member of the American Society of Mechanical Engineering and of the American Society of Professional Engineers.

CORPORATE CAPABILITY

TELECOMPUTATIONS, INCORPORATED

In 1964, Systems Science Corporation recognized the growing importance of service bureau operations in the computing field.

TELECOMPUTATIONS, INCORPORATED was formed with Systems Science Corporation maintaining a controlling interest through ownership of fifty-one percent of its common stock.

In April 1965, TELECOMPUTATIONS, INCORPORATED purchased a service bureau in the Washington, D. C. area that had been in operation since 1961. TELECOMPUTATIONS currently employs thirty-five persons and operates an IBM 1440 16K Tape-Disk System. In October 1966 an IBM System 360, Model 40, will be installed.

TELECOMPUTATIONS, INCORPORATED is located at 1104 Spring Street, Silver Spring, Maryland.

In servicing it's clients, TELECOMPUTATIONS is involved in numerous computer applications---both commercial and scientific---for industrial and governmental organizations.

CORPORATE CAPABILITY

SYSTEMS SCIENCE CORPORATION

Systems Science Corporation was formed in 1962 by a group of men, the majority of whom were Indiana University faculty members active in the computing field. Initially, it served as a clearing house for consulting work performed on an individual basis within the computing field. In time, the corporation found itself undertaking increasingly larger projects, and it became necessary to employ fulltime personnel in addition to those members of the company engaging in part-time consulting activity. This steady growth resulted in a contract with the City of St. Louis in 1964, to develop and install a large-scale, real-time information retrieval and management control system for the police department. The resultant effect was to change the company to a fulltime operation and to greatly expand the work force.

At present, Systems Science has a full-time staff of twenty-two systems engineers, all of whom have had a wide range of experience in large-scale computing applications. In addition to our full-time staff, we regularly employ personnel from Indiana University and draw heavily upon people from different disciplines with computing experience who serve as consultants on specific projects and applications.

Corporate headquarters for Systems Science is maintained in Bloomington, Indiana, where much of the basic systems development is carried out because of its proximity to Indiana University. An office and full staff at 1104 Spring Street, Silver Spring, Maryland, serves the Washington, D. C. area.

R. C. COOK

SYSTEMS SCIENCE CORPORATION

FIELDS OF SPECIAL COMPETENCE

Management Information Systems
Police Data Systems
Project Management
Real-Time Systems
Systems Analysis and Design

ACADEMIC BACKGROUND

University of California at Los Angeles, Business Administration

EXPERIENCE HIGHLIGHTS

Vice-President - Systems Science Corporation. Project leader for the design of the Law Enforcement Information Network (LEIN) for the State of Michigan. Participated in the evaluation of the hardware systems proposals submitted by vendors. Set-up the organization for the implementation of the system.

Project-Manager responsibilities for design and implementation of all data processing and management information portions of St. Louis Police Department computer system. Directed the activities of a work group during the implementation phase and developed the internal programming support group responsible for continuing program maintenance.

President - Telecomputations, Incorporated. Chief Executive Officer of a data processing center with widely diversified accounts in business and government. Emphasis is on product development and marketing leading toward the implementation of a full multi-processing, teleprocessing utility featuring on-line, real-time services for commercial applications of any size.

Vice-President, Marketing and Systems Design - Automated Data Processing Services, Inc. Directed the installation of data processing systems for commercial and government applications, the latter including the Peace Corps, Department of Education, Agency for International Development, and Department of Agriculture. Data processing consultant to the International Association of Chiefs of Police.

President - International Tabulating Corporation. Development of training programs in

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R. C. COOK (Continued)

all fields of data processing. Contractor to the International Association of Chiefs of Police. Development of a beat assignment program to be applied to the third largest police department in the nation. Developed traffic statistics in conjunction with human behavior patterns. As contractor for the Department of Health, Education and Welfare, developed many statistical tables applicable to diverse fields of education.

Consultant - Los Angeles Board of Education. Development of a syllabus and instruction of a pioneer program in machine accounting.

Systems Analyst - General Film Laboratories, Inc. Designed and installed a completely automated production control system that, from one focal point, ordered, assigned effort, set-up machines, expedited, billed and shipped approximately one million feet of motion picture film per week. Designed and installed complete automation of all accounting requirements.

Systems Analyst - RKO Radio Studios. Developed a daily labor and material costing program for a motion picture studio. Developed a payroll program that involved sixty-six operating union contracts. Established all accounting functions under machine control.

JAMES M. WINER

SYSTEMS SCIENCE CORPORATION

FIELDS OF SPECIAL COMPETENCE

Systems Analysis
Technical Management
Multi-programming
Mathematical Statistics

ACADEMIC BACKGROUND

State University of New York at Buffalo, Electrical Engineering Cornell University, Engineering Physics

EXPERIENCE HIGHLIGHTS

Systems Analyst - Systems Science Corporation. Responsible for the design and development of a file control system to be used in conjunction for high turnover, on-line data files for the Michigan Law Enforcement Information Network. The control system is designed to accommodate dynamic files consisting of names and automobiles and is so structured that the files are self-ordering.

Systems Programmer - Indiana University. Design of a buffered input/output system for direct-coupled computers with disk and drum. Design for a multi-processing, real-time system.

President - Computers and Human Factors Research. Monte Carlo simulations of cancer cell colony growth. Industrial fan and compresser calculation program for assembly of special units from stock parts. Demonstration programs for various computers.

Head, Systems Programming Group - State University of New York at Buffalo. Extensive modification to the resident and monitor portions of the IBSYS system. Design of a natural language compiler for statistical problems. Design of a class scheduling program for use by administrators without assistance. Evaluation of effectiveness of, and complications associated with, certain types of medical treatments. Development of a series of automatic tabulating systems to build n by m matrices and perform chi-square tests on survey data. Designed a completely relocatable MACRO assembly program usable with several compilers designed to mate with it and an associated symbolic subroutine loader and relocator, and an input/output control system for a satellite computer used in conjunction with scientific machines.

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JAMES M. WINER (Continued)

Programmer - Cornell Aeronautical Laboratory, Inc. Programmed an assembler-translator for testing the design of a proposed computer. Demonstration programs; solution of determinates.

PROFESSIONAL AFFILIATIONS

Association for Computing Machinery
Association for Symbolic Logic

MACHINE AND LANGUAGE PROFICIENCY

Machines: IBM 704, 709, 7040/44, 1620, 1710, 1401, 1440, 1460
CDC 3400, 3600
Royal McBee LPG-30
Burroughs 220, 5500
Bendix G-15D

Languages: ALGOL, FORTRAN, AUTOCODER, SPS, Machine Languages

ROBERT P. SHUMATE

SYSTEMS SCIENCE CORPORATION

FIELDS OF SPECIAL COMPETENCE

Large-Scale Project Management
Systems Design
Management Sciences
Simulations
Mathematical Analysis
Traffic Analysis
Resource Allocation Modeling
Real-Time Systems

ACADEMIC BACKGROUND

Northwestern University - Police Administration

EXPERIENCE HIGHLIGHTS

President - Systems Science Corporation. Chief executive officer exercising overall direction of the firm's consulting efforts in federal, state, and local governments, as well as in commercial and scientific fields. Particularly in the law enforcement and traffic analysis areas, Mr. Shumate has pioneered numerous systems applications.

Exercised total direction for the development and implementation of a large real-time computer system for the St. Louis Police Department. This system involved the use of an IBM 7040-7740 configuration with input/output from the 42 data terminals. The salient real-time features of this system are the rapid information retrieval and automatic message switching sub-systems.

Directed the systems design of the state-wide law enforcement network in Michigan.

Directed the feasibility and systems design study contained in the report entitled "A Regional Law Enforcement Systems Design", prepared for the Metropolitan Washington Council of Governments.

Participated in the development of resource allocation modeling, and the development of advanced software.

Director of Research - Indiana University, Department of Police Administration. Directed a long term study of the management practices and procedures of the Indianapolis Police Department which resulted in a major overhaul of policy and operating philosophy.

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ROBERT P. SHUMATE (Continued)

Principal Investigator in the development of a traffic flow simulation model which involved the creation of a specialized programming language called SIMCAR (Described in a paper delivered before the National Academy of Sciences, January, 1964).

Developed a prototype system for the retrieval of stolen automobile information using natural language capabilities.

Director and Principal Investigator of a large-scale project researching the effect of traffic enforcement on vehicle accidents. This study resulted in the development of specific models of traffic flow behavior.

Project Director for an extensive field study into the effect of alcohol on driver involvement in vehicle accidents.

Served on the Executive Committee of the Indiana University Research Computing Center.

Assistant Director for Research and Development, International Association Chiefs of Police. Conducted various research programs dealing with traffic behavior as a function of enforcement level and the utilization of computers for resource allocation of police manpower. Directed management and operational survey of law enforcement agencies, including the Chicago Police Department and the Florida Highway Patrol.

Associate Director of Research and Development, Traffic Institute, Northwestern University. Responsible for a broad program of research in the problems of traffic. Included among the significant projects were a study into the effect of rural traffic enforcement on vehicle speeds, the first application of digital computer simulations to analyze traffic accident frequency, and the development of a series of manuals for traffic police training.

Directed the organization and development of the Wisconsin State Highway Patrol, and conducted numerous management studies of other state and municipal law enforcement agencies.

MACHINE AND LANGUAGE PROFICIENCY

Machine: IBM 650, 1620, 709, 7040, 360.
Burroughs 5500.

Language: SOAP, FAP, MAP, COBOL, SPS, FORTRAN.

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ROBERT P. SHUMATE (Continued)

PROFESSIONAL AFFILIATIONS

American Academy of Sciences -- Highway Research Board
American Standards Society
National Committee on Uniform Traffic Statistics -- Former Chairman
National Safety Council -- Executive Committee of the Traffic and Transportation Conference

APPENDIX

APPENDIX A. COMPUTER OPERATION INSURANCE

A.1 Back Up System

At the present time the proposed computer program is in operation as a tape system on a Control Data Corporation 3600 computer. This program is to be converted to a disc system utilizing IBM 360 model 40 hardware.

If the proposed disc system is not operational at the required time, the CDC 3600 will be utilized as a backup and will operate until such time as the proposed system is implemented successfully.

A.2 Hardware Breakdown Insurance

Systems Science Corporation presently has working relationships with several other computer centers which have similar hardware to that to be employed in the proposed project. If there is a breakdown in equipment, the other centers will be used to fulfill the contractual obligation.

A.3 Fire Insurance

Duplicates of all programs and files will be stored in approved vaults to protect against fire or any other form of physical damage.

A.4 File Dump Insurance

The program to be employed utilizes a 2 disc system. On the first disc there is an inverted file in which accession numbers follow index terms. The second disc contains all document information in serial order.

Since only numbers would be printed out initially, a file dump consisting of large quantities of information would be impossible. The quantity of accession numbers printed out would indicate the quantity of total information that would be retrieved on complete search.

APPENDIX B. CONFIDENTIALITY

B.1 Personnel

All personnel that will be employed in the conduct of the proposed project will be screened by a designated Security Officer of 3i. This screening will take the form of a very careful investigation of the employee's background, affiliations, etc., and the information will be made available to the Project Officer from The Tobacco Institute.

In cases where the employee's background is hazy or where there is any doubt related to security measures, an outside security agency check will be made and evaluated. The agency used will be approved by The Tobacco Institute.

All personnel that are presently employed by 3i that will work on the project will be re-reviewed and complete updated information will be presented to The Tobacco Institute.

The Administrative Project Officer from 3i will work with the Project Officer of The Tobacco Institute so that all parties are aware of the backgrounds and capabilities of personnel working on the project.

It is expected that part-time personnel will be utilized on the proposed project. For security measures as well as quality control with regard to abstracting and indexing, all work will be done on 3i's premises.

B.2 Security Officer

A Security Officer will be designated to maintain all security precautions for the project. This Security Officer will hold regular (weekly or biweekly) meetings with all personnel regarding security measures to both alert and maintain the confidentiality of the project as well as inform and update procedures and information developed in the system.

Richard L. Bullington, Jr., because of his fourteen years experience in the National Security Agency and his knowledge of methods and procedures for security measures, will be responsible for developing all security procedures.

B.3 Facility

All possible precautions will be taken to safeguard materials accessioned into the program. Duplicate control logs will be kept, as is presently the procedure at 3i, to insure that the status of each document is kept and can be traced.

A register will be kept at the reception desk for all persons entering and leaving the facility. The time entering and leaving will be recorded, as well as the purpose for the visit in cases of non-employees. These non-employees will be received in the reception area and will not have access to the working area. Non-employees include salesmen, suppliers, as well as outside employees working on other projects.

Fireproof safes and filing cabinets will be utilized for storage of documents in process that are not being worked on.

B.4 Levels of Confidentiality

There will be one of three levels of confidentiality that will be ascribed to each document entering the system. The levels will be: A - Top Secret; B - Secret; C - Confidential.

All documents entering the system will be at least confidential and this category will have most of the documents in it. In cases where there is a B or an A level document, this material will be handled with greater security, particularly the A level. In the latter case, the material will be immediately given to persons designated to handle this type of material and immediately processed and forwarded to the Project Officer of The Tobacco Institute prior to entering the document into the mechanized portion of the system. This document or associated documents, i.e., abstract, index terms, will not be entered into the mechanized system until approved by the Project Officer of The Tobacco Institute.

Material of the B level will be handled in a similar fashion with the exception being that more people in the organization will be cleared to handle this type of work.

It is envisioned that material that enters the system in the C category can, after evaluation, become an A type document. Provisions will be made to handle these documents accordingly.

B.5 Computer Services

Punched-cards will be made directly from paper-tape generated at 3i's facility. In this way the number of persons handling documents will be minimized. After the punched-cards are made and are used to put the information into the computer, the paper-punched tape will be destroyed.

All precautions taken at 3i will be maintained in Systems Science Corporation's facility in Silver Spring, Maryland.

B.6 Maintenance of Overall Security

As mentioned above, there will be a Security Officer in charge of confidentiality of all materials. In addition, there will be a printed document or manual that will be given to all persons working on the project that will clearly outline all security precautions to be taken, as well as rules and regulations that must be followed.

These formal instructions will be approved by The Tobacco Institute's Project Officer prior to distribution.

Any material that must be delivered from one facility to another will be done so by personal delivery.

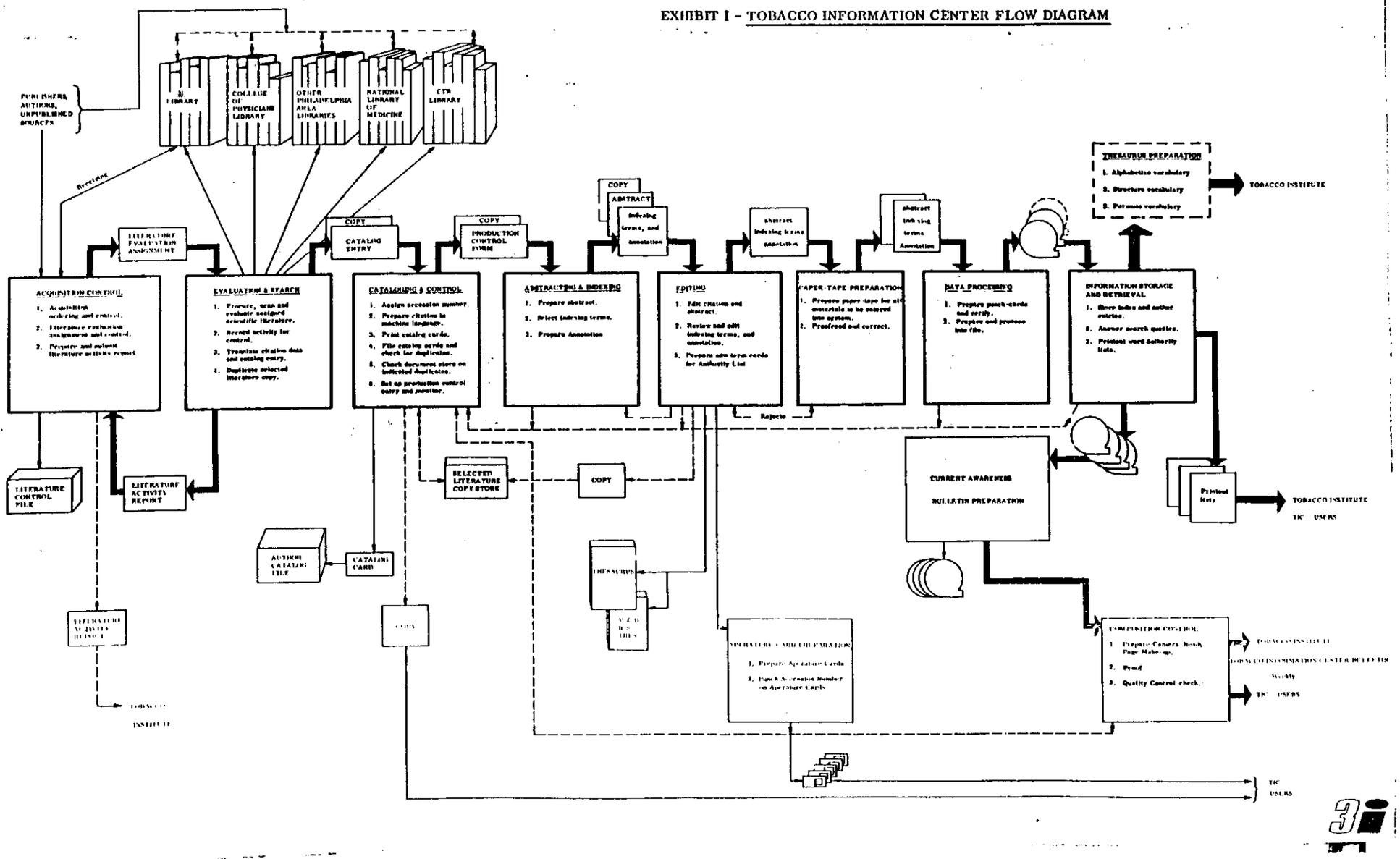
APPENDIX C. BUSINESS PRACTICE RESTRICTIONS

3i and its subsidiaries, and Systems Science Corporation and its subsidiaries, agree to restrict their business relationships to individuals and organizations that do not relate directly to the Tobacco Industry.

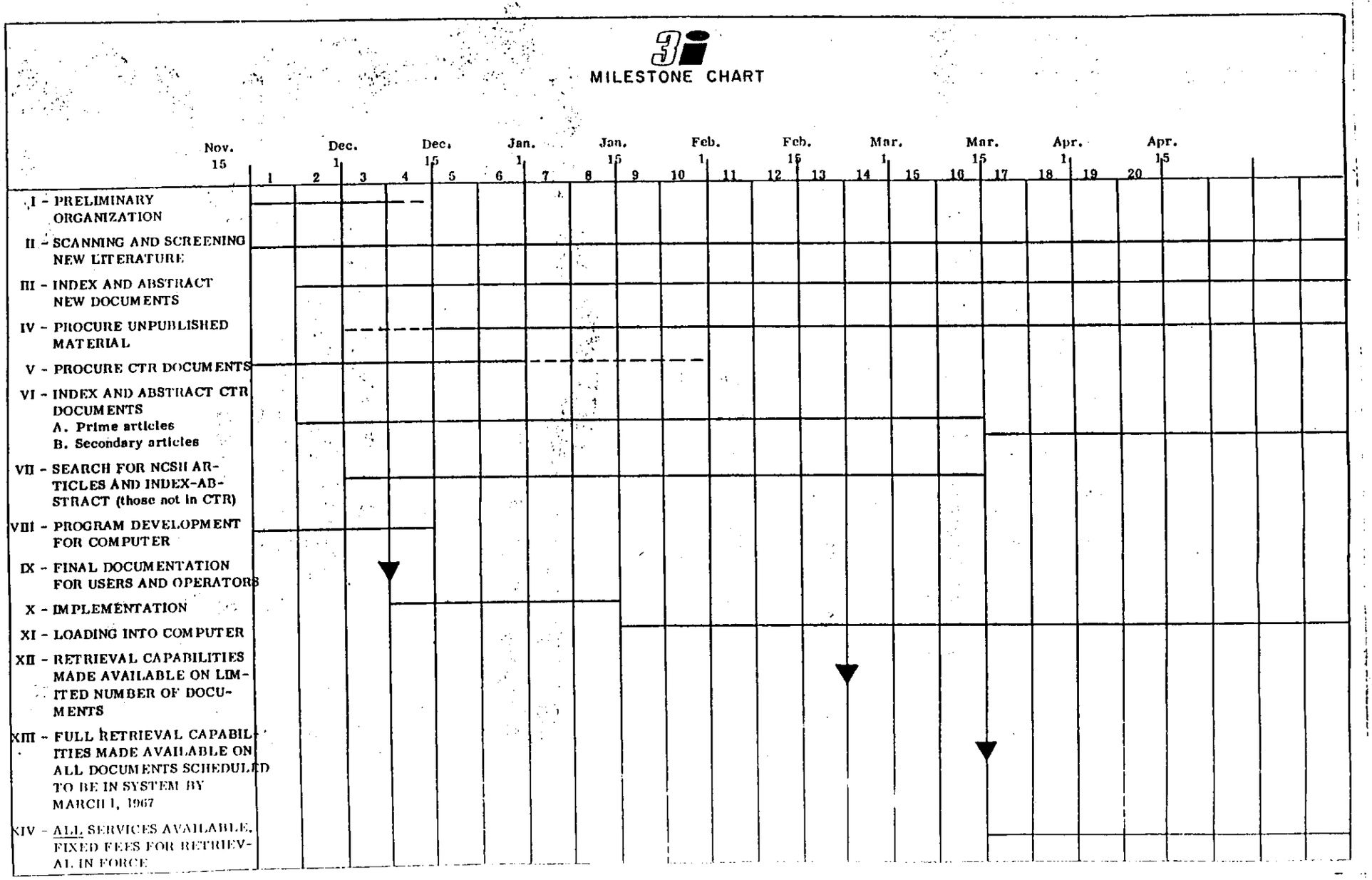
In cases where there might be a conflict, the Tobacco Institute will be consulted and approval will be obtained in writing.

EXHIBITS

EXHIBIT I - TOBACCO INFORMATION CENTER FLOW DIAGRAM



3i MILESTONE CHART



LG 2018446

EXHIBIT III

SAMPLE COMPUTER PRINTOUT

TO: JOHN DOE

CATEGORY: 022

TITLE: MORBIDITY AND MORTALITY FROM CANCER IN CALI, COLOMBIA

AUTHOR(S): CORREA, P./LLANOS, G.

CORPORATE AUTHOR(S): SCHOOL OF MEDICINE, UNIVERSIDAD DEL VALLE, CALI, COLOMBIA

SOURCE: JOURNAL OF THE NATIONAL CANCER INSTITUTE 36/4:717-745, APRIL 1966

ACCESSION: 15001

DESCRIPTORS: MORTALITY, MORBIDITY, CIGARETTE SMOKING, LUNG NEOPLASMS, LARYNX NEOPLASMS, MOUTH NEOPLASMS, PHARNX NEOPLASMS, COLON NEOPLASMS, RECTUM NEOPLASMS, STOMACH NEOPLASMS, GALLBLADDER NEOPLASMS, SKIN NEOPLASMS,THYROID NEOPLASMS, VAGINA NEOPLASMS, PENIS NEOPLASMS, KAPOSI SARCOMA, LUNG BRONCHI, CIGARETTE CONSUMPTION, UTERUS NEOPLASMS, CONCESSIONS, CARCINOMA, ADENOCARCINOMA, CARCINOMA ALVEOLAR CELL, CARCINOMA EPIDERMOID/CHORIOCARCINOMA, SQUAMOUS CELL CARCINOMA, EYE NEOPLASMS, CARCINOID, LYMPHOSARCOMA, LEIOMYOSARCOMA, LEUKEMIA, MYELOMA, HODGKIN'S DISEASE, BONE NEOPLASMS, MELANOMA, URINARY BLADDER NEOPLASMS, TESTIS NEOPLASMS, OVARY NEOPLASMS, SINUS CAVITY NEOPLASMS, LIP NEOPLASMS, CYLINDROMA, PUERTO RICO, LYMPHOMA, RETINOBLASTOMA, NEUROBLASTOMA, OSTEOSARCOMA, CENTRAL NERVOUS SYSTEM NEOPLASMS, PROSTATE NEOPLASMS, GEOGRAPHICAL SITES, COLOMBIA, ENVIRONMENTAL FACTORS, SOCIOECONOMIC LEVEL, AGE, ENGLAND, WALES, NEW YORK, FINLAND, PHENOLS, NICOTINE, TOBACCO EXTRACTS, TOBACCO COLOMBIAN BLACK, TOBACCO U.S. (LIGHT), SEX DIFFERENCE, EPIDEMIOLOGY, PROSTATE NEOPLASMS, LIVER NEOPLASMS, SWITZERLAND, ISRAEL, JAPAN, NORWAY, PORTUGAL, ESOPHAGUS NEOPLASMS, TONGUE NEOPLASMS, KIDNEY NEOPLASMS, SALIVARY GLAND NEOPLASMS, BREAST NEOPLASMS, PANCREAS NEOPLASMS

ANNOTATION: THE RESULTS OF CANCER MORBIDITY AND MORTALITY SURVEYS INDICATE A HIGHER INCIDENCE OF CANCER OF THE LARYNX, BUCCAL CAVITY AND PHARYNX THAN OF CANCER OF THE LUNG IN CALI, COLOMBIA, DESPITE A HIGH CIGARETTE CONSUMPTION, WHICH MAY BE RELATED TO THE CARCINOGENICITY OF COLOMBIAN TOBACCO FOR THE UPPER RESPIRATORY TRACT.

SAMPLE QUESTION: (1) ARE THERE ANY BRANDS OF TOBACCO WHICH SEEM MORE LIKELY TO BE ASSOCIATED WITH PHARYNGEAL CANCER RATHER THAN LUNG CANCER?

(2) WHAT IS THE RELATIVE INCIDENCE OF CANCER OF THE LUNG AND UTERUS IN ANY LATIN-AMERICAN COUNTRY?

get back next week abstract article by #

TO: JOHN DOE

CATEGORY: 022

TITLE: THE INFLUENCE OF CIGARETTE SMOKING IN THE CAUSATION OF ATHEROSCLEROSIS

AUTHOR(S): MULCAHY, R./HICKEY, N.

CORPORATE AUTHOR(S): ST. VINCENT'S HOSPITAL, DUBLIN, EIRE

SOURCE: ANGIOLOGY 17/4:259-263, APRIL 1966

ACCESSION: 15002

DESCRIPTORS: CIGARETTE SMOKING, ATHEROSCLEROSIS, CORONARY DISEASES, SMOKING HABITS, ATHEROGENESIS, CONCESSIONS/RETROSPECTIVE STUDY, EPIDEMIOLOGY, IRELAND, MYOCARDIAL INFARCTION, CORONARY INSUFFICIENCY, ANGINA PECTORIS

ANNOTATION: FOLLOWING A RETROSPECTIVE STUDY ON 363 PATIENTS WITH CORONARY HEART DISEASE, IT WAS CONCLUDED THAT THERE IS INSUFFICIENT EVIDENCE SO FAR TO INCRIMINATE CIGARETTE SMOKING AS A DIRECT CAUSE OF ATHEROSCLEROSIS

SAMPLE QUESTION: COLLECT SURVEY-TYPE STUDIES OPPOSING THE IDEA THAT SMOKING CONTRIBUTES TO CORONARY HEART DISEASE

TO: JOHN DOE

CATEGORY: 098

TITLE: SMOKING AND THE BLACKY ORALITY FACTORS

AUTHOR(S): KIMELDORF, C./GEIWITZ, P. J.

CORPORATE AUTHOR(S): UNIVERSITY OF MICHIGAN, ANN ARBOR

SOURCE: JOURNAL OF PROJECTIVE TECHNIQUES 30/2:167-168, APRIL 1966

ACCESSION: 15003

DESCRIPTORS: SMOKING HABITS, PSYCHOLOGICAL FACTORS, BLACKY PICTURES, ORALITY, CIGARETTE SMOKING/EROTICISM, SADISM, LUNG NEOPLASMS, AGGRESSION

ANNOTATION: PSYCHOLOGICAL TESTING OF MALE COLLEGE STUDENTS INDICATED THAT HEAVY SMOKERS SCORE SIGNIFICANTLY HIGHER ON "ORAL CRAVING"

SAMPLE QUESTION: WHAT TYPE OF PERSON SMOKES, I.E., ARE THE TWO GROUPS OF SMOKERS AND NON-SMOKERS DIFFERENT IN OTHER WAYS?

TO: JOHN DOE

CATEGORY: 052

TITLE: THE CONTEMPORARY SIGNIFICANCE OF CHRONIC BRONCHITIS (GERMAN)

AUTHOR(S): SCHMIDT, O. P.

CORPORATE AUTHOR(S): KLINISCHES SANATORIUM TRAUSNITZ DER LANDESVERSICHERUNGSANSTALT NIEDERBAYERN-OBERPFALZ, BAD REICHENHALL, GERMANY

SOURCE: MEDIZINISCHE KLINIK 61/8:308-313, FEBRUARY 25, 1966 TRANSLATION

ACCESSION: 15004

DESCRIPTORS: BRONCHITIS, CIGARETTE SMOKING, AIR POLLUTION, LUNG BRONCHI, MUCOUS MEMBRANE/CILIASTASIS, EPITHELIUM, MUCUS, HYPEREMIA, MUSCLE SPASM

ANNOTATION: TOBACCO SMOKE AND INDUSTRIAL AIR POLLUTION ARE IMPLICATED IN THE ETIOLOGY OF CHRONIC BRONCHITIS, DUE TO THEIR EFFECT ON THE BRONCHIAL MUCOSA

SAMPLE QUESTION: COLLECT MATERIAL RELATING BRONCHITIS TO EFFECTS ON THE CILIATED EPITHELIUM

TO: JOHN DOE

CATEGORY: 057

TITLE: SEX, LIFESPAN AND SMOKING

AUTHOR(S): FISCHER, R.

CORPORATE AUTHOR(S): DIVISION OF BEHAVIORAL SCIENCES, DEPARTMENT OF PSYCHIATRY, COLLEGE OF MEDICINE, OHIO STATE UNIVERSITY, COLUMBUS

SOURCE: EXPERIENTIA 22/3:178-179, MARCH 15, 1966

ACCESSION: 15005

DESCRIPTORS: SEX DIFFERENCE, CIGARETTE CONSUMPTION, LONGEVITY, BASAL METABOLISM, MORTALITY, LUNG NEOPLASMS/AGE, CORONARY DISEASES, MOTOR VEHICLE ACCIDENTS, BRONCHITIS

ANNOTATION: ON THE BASIS OF STATISTICS, THE EXCESS MALE MORTALITY IS ASCRIBED TO A COMBINATION OF HIGHER MALE BASAL METABOLISM AND EXCESS MALE SMOKING

SAMPLE QUESTION: HAS ANYONE EVER SUGGESTED THAT THE HIGHER MALE DEATH RATE IS DUE TO A HIGHER METABOLIC RATE?

TO: JOHN DOE

CATEGORY: 007

TITLE: SPONTANEOUS AND INDUCED HYPERPLASIA AND NEOPLASIA IN THE MOUSE LUNG

AUTHOR(S): PEACOCK, P. M./PEACOCK, P. R.

CORPORATE AUTHOR(S): CANCER RES. DEPT., ROYAL BEATSON MEM. HOSP., GLASGOW, SCOTLAND

SOURCE: BRITISH J. CANCER 20(1):127-133, MARCH 1966

ACCESSION: 15006

DESCRIPTORS: HYPERPLASIA, CARCINOGEN AIRBORNE, CARCINOGEN BLOOD-BORNE, LUNG NEOPLASMS, LUNG ALVEOLI, NEOPLASMS LOCALIZATION/ ANIMAL EXPERIMENTS, SOOT, BENZOPYRENES, BENZANTHRACENES, ISONIAZID, NITROQUINOLINE-N-OXIDE, MICE STRAIN A, MICE C57 BLACK

ANNOTATION: ON THE BASIS OF THE HISTOPATHOLOGY OF SPONTANEOUS AND INDUCED MOUSE PULMONARY TUMORS, A DISTINCTION IS MADE BETWEEN FACTORS ACTING THROUGH THE PULMONARY CIRCULATION AND AIRBORNE FACTORS ACTING DIRECTLY ON THE EXPOSED ALVEOLAR EPITHELIUM

SAMPLE QUESTION: CAN ANIMAL LUNG TUMORS BE PRODUCED AS READILY BY SYSTEMIC CARCINOGENS AS BY CARCINOGENS ACTING ON THE PULMONARY ALVEOLAR EPITHELIUM?

TO: JOHN DOE

CATEGORY: 007

TITLE: ORAL, SUBCUTANEOUS AND INTRATRACHEAL ADMINISTRATION OF CARCINOGENIC LACTONES AND RELATED SUBSTANCES: THE INTRATRACHEAL ADMINISTRATION OF CIGARETTE TAR IN THE RAT

AUTHOR(S): DICKENS, F./ JONES, H. E. H., WAYNFORTH, H. B.

CORPORATE AUTHOR(S): COURTAULD INSTITUTE OF BIOCHEMISTRY, MIDDLESEX HOSPITAL MEDICAL SCHOOL, LONDON, ENGLAND

SOURCE: BRITISH JOURNAL OF CANCER 20/1:134-144, MARCH 1966

ACCESSION: 15007

DESCRIPTORS: TOBACCO TAR, CIGARETTE SMOKE CONDENSATE, LACTONES, TOBACCO TAR NEUTRAL FRACTION, AFLATOXINS, CARCINOMA, HYPERPLASIA, LUNG BRONCHI, TRACHEA, LUNG ALVEOLI, CONCESSIONS/ ROUTE OF ADMINISTRATION, INTRATRACHEAL INSTILLATION, LUNG NEOPLASMS, BREAST NEOPLASMS, ANIMAL EXPERIMENTS, RATS, β-PROPIOLACTONE, BENZOPYRENES, SORBIC ACID, DEHYDROACETATES, STERIGMATOCYSTIN, GEDUNIN, UTERUS NEOPLASMS

ANNOTATION: ONE OR 3 INTRATRACHEAL INSTILLATIONS WEEKLY OF AN UNDILUTED NEUTRAL FRACTION OF TOBACCO SMOKE CONDENSATE IN RATS FOR 1 YEAR LED TO SOME LOCAL HISTOLOGIC CHANGES BUT NO LUNG TUMORS

SAMPLE QUESTION: WHAT IS THE RELATIVE CHANCE THAT APPLICATION OF TARS OR OTHER CARCINOGENS TO THE TRACHEAL MUCOSA WILL PRODUCE PULMONARY AND NON-PULMONARY TUMORS?

TO: JOHN DOE

CATEGORY: 024

TITLE: PULMONARY EMPHYSEMA. PREVALENCE, SEVERITY, AND ANATOMICAL PATTERNS IN MACROSECTIONS, WITH RESPECT TO SMOKING HABITS

AUTHOR(S): ANDERSON, A. E. JR./HERNANDEZ, J. A., HOLMES, W. L., FORAKER, A. G.

CORPORATE AUTHOR(S): RESEARCH LABORATORY, BAPTIST MEMORIAL HOSPITAL, JACKSONVILLE, FLORIDA

SOURCE: ARCHIVES OF ENVIRONMENTAL HEALTH 12/5:569-577, MAY 1966

ACCESSION: 15006

DESCRIPTORS: SMOKING HABITS, CIGARETTE SMOKING, LUNG, LUNG PARENCHYMA, PULMONARY EMPHYSEMA, MORBIDITY, HISTOLOGY, CONCESSIONS/AUTOPSY STUDIES, EPIDEMIOLOGY, SURGEON GENERAL'S REPORT

ANNOTATION: WHEN EMPHYSEMA IN 165 SINGLE LUNGS FROM ADULTS WAS ASSESSED IN RELATION TO SEVERITY, IN CONJUNCTION WITH THE SMOKING HISTORIES, SOME INTERESTING CORRELATIONS BUT NO EVIDENCE OF A CAUSAL RELATIONSHIP COULD BE DEMONSTRATED

SAMPLE QUESTION: COLLECT REPORTS OF POSTMORTEM STUDIES REFUTING A CORRELATION BETWEEN SMOKING AND EMPHYSEMA

TO: JOHN DOE

CATEGORY: 022

TITLE: SMOKING AND CANCER OF THE URINARY BLADDER IN MALES IN POLAND

AUTHOR(S): STASZEWSKI, J.

CORPORATE AUTHOR(S): INSTITUTE OF ONCOLOGY, GLIWICE, POLAND

SOURCE: BRITISH J. CANCER 20(1):32-35, MARCH 1966

ACCESSION: 15008

DESCRIPTORS: CIGARETTE SMOKING, CARCINOMA, SMOKING HABITS, INHALATION, MORBIDITY, URINARY BLADDER NEOPLASMS/PIPE SMOKING, CIGAR SMOKING, RETROSPECTIVE STUDY, EASTERN EUROPE, EPIDEMIOLOGY, POLAND, COAL MINERS, PEPTIC ULCER, LUNG TUBERCULOSIS, OCCUPATION

ANNOTATION: THE RESULTS OF A RETROSPECTIVE STUDY OF SMOKING HABITS AMONG 150 MALE BLADDER CANCER PATIENTS AND 750 AGE-MATCHED CONTROLS WERE "COMPATIBLE WITH THE VIEW THAT CIGARETTE SMOKING INCREASES THE RISK OF CANCER OF THE URINARY BLADDER"

SAMPLE QUESTION: WOULD A COAL MINER WHO SMOKED CIGARS OR A PIPE BE MORE OR LESS LIKELY THAN A CIGARETTE-SMOKING OFFICE WORKER TO DEVELOP BLADDER CANCER?

TO: JOHN DOE

CATEGORY: 153

TITLE: TESTIMONY BEFORE THE COMMITTEE ON COMMERCE, MARCH, 1965

AUTHOR(S): HELWIG, F. C.

CORPORATE AUTHOR(S): ST. LUKE'S HOSP., KANSAS CITY, MO.

SOURCE: TOBACCO INSTITUTE FILES (TRANSCRIPT OF HEARINGS ON CIGARETTE LABELING HELD BY THE COMMITTEE ON COMMERCE)

ACCESSION: 15009

DESCRIPTORS: VIRUSES, CIGARETTE SMOKING, SKIN NEOPLASMS, LUNG BRONCHI, LUNG NEOPLASMS, COMMITTEE ON COMMERCE, TOBACCO TAR, ANIMAL EXPERIMENTS, STATISTICS, HISTOLOGY, EPITHELIUM, MORBIDITY, SKIN PAINTING, CARCINOGEN CONTENT/LIP NEOPLASMS, MOUTH NEOPLASMS, PHARYNX NEOPLASMS, TRACHEA NEOPLASMS, PNEUMONIA, AGE, SEX DIFFERENCE, DIAGNOSIS, GEOGRAPHICAL SITES

ANNOTATION: IN THIS STATEMENT, WHICH IS ACCOMPANIED BY A CURRICULUM VITAE AND AN EXTENSIVE BIBLIOGRAPHY, THE AUTHOR CRITICIZED THE STATISTICAL AND EXPERIMENTAL EVIDENCE SUGGESTING THAT CIGARETTE SMOKING CAUSES CANCER. HE EXPRESSED THE STRONG FEELING, BASED ON HIS OWN EXPERIENCE, THAT A VIRUS CAUSES THE MAJORITY OF CANCERS

SAMPLE QUESTION: ANY INFORMATION PRESENTED AT 1965 CONGRESSIONAL HEARINGS REGARDING THE LACK OF AN ASSOCIATION BETWEEN CIGARETTE SMOKING AND CANCER OF THE TRACHEA OR ORAL CAVITY?

TO: JOHN DOE

CATEGORY: 007

TITLE: A STUDY OF TOBACCO CARCINOGENESIS. VI. THE ROLE OF PRECURSORS

AUTHOR(S): WYNDER, E.L./WRIGHT, G. F., LAM, J.

CORPORATE AUTHOR(S): SLOAN-KETTERING INST., NEW YORK, N. Y.

SOURCE: CANCER 12(6): 1073-1078, NOVEMBER-DECEMBER, 1959

ACCESSION: 15011

DESCRIPTORS: HEXANE SOLVENT, SKIN NEOPLASMS, PAPILLOMA, SKIN PAINTING, AROMATIC HYDROCARBONS, PRECURSORS, CHEMICAL CARCINOGENESIS, TOBACCO EXTRACTION,TAR YIELD/TOBACCO CASED, CIGARETTE SMOKE CONDENSATE, PYROLYSIS, STEROLS PYROLYSIS, BENZOPYRENES, ANIMAL EXPERIMENTS, NICOTINE, MICE SWISS

ANNOTATION: CONDENSATES FROM UNEXTRACTED CIGARETTE TOBACCO AND CONDENSATES FROM CIGARETTE TOBACCO WHICH HAD BEEN EXTRACTED WITH HOT HEXANE SHOWED TUMORIGENIC ACTIVITIES ON MOUSE SKIN THAT WERE NOT CONSISTENTLY DIFFERENT

SAMPLE QUESTION: HAS WYNDER SUGGESTED THAT PRIOR EXTRACTION OF TOBACCO WITH ORGANIC SOLVENTS COULD REDUCE THE CARCINOGENIC ACTIVITY OF THE TARS?

EXHIBIT IV

SAMPLE ABSTRACTS
(To Be Included In Weekly Bulletin And On Microfilm Card)

TITLE: SMOKING AND THE BLACKY ORALITY FACTORS

AUTHOR(S): Kimeldorf, C./Geiwitz, P. J.

CORPORATE AUTHOR(S): University of Michigan, Ann Arbor

SOURCE: Journal of Projective Techniques 30/2:167-168, April 1966

ACCESSION: 15003

DESCRIPTORS: smoking habits, psychological factors, Blacky pictures, orality, cigarette smoking/eroticism, sadism, lung neoplasms, aggression

ANNOTATION: Psychological testing of male college students indicated that heavy smokers score significantly higher on "oral craving"

ABSTRACT: A group of 22 male college students was compared on six orality factors of the Blacky Pictures (a measure of orality centered on oral eroticism and sadism) to explore the differences between heavy smokers and non-smokers. Of these, 15 had never smoked cigarettes and 7 smoked an average of 20 or more per day (heavy smokers). Light smokers and smokers who had quit were eliminated. Heavy smokers were found to score significantly higher on "oral craving" and to exhibit more defensiveness in a situation involving hostility toward the mother, as compared with non-smokers, the authors say. "Thus, the over-all picture of the heavy smoker is of an individual with relatively intense oral desires who tends to avoid overt exhibition of animosity in interpersonal relations, perhaps to avoid offending a possible source of oral supplies. Such a picture is clearly consonant with psychoanalytic theory and therefore constitutes a small increment in the empirical validity of both the theory, and simultaneously, the orality factors of the Blacky Test."

It is suggested that this psychological hypothesis may help to explain the inability of the heavy smoker to stop, "despite overwhelming evidence that cigarette smoking increases the probability of lung cancer and other diseases."

TITLE: SPONTANEOUS AND INDUCED HYPERPLASIA AND NEOPLASIA IN THE MOUSE LUNG

AUTHOR(S): Peacock, P. M./Peacock, P. R.

CORPORATE AUTHOR(S): Cancer Res. Dept., Royal Beatson Mem. Hosp., Glasgow, Scotland

SOURCE: British J. Cancer 20(1):127-133, March 1966

ACCESSION: 15006

DESCRIPTORS: hyperplasia, carcinogen airborne, carcinogen blood-borne, lung neoplasms, lung alveoli, neoplasms localization/animal experiments, soot, benzanthracenes, isoniazid, nitroquinoline-N-oxide, mice strain A, mice C57 black

ANNOTATION: On the basis of the histopathology of spontaneous and induced mouse pulmonary tumors, a distinction is made between factors acting through the pulmonary circulation and airborne factors acting directly on the exposed alveolar epithelium

ABSTRACT: In the introduction to a paper on the histopathology of pulmonary tumors in mice, both spontaneous and induced by isoniazid, nitroquinoline-N-oxide, benzpyrene and benzanthracene derivatives, it is mentioned that "the susceptibility to spontaneous development of pulmonary tumors is high in A Strain and low in C57 Black;" these tumors are generally described as subpleural, originating in the alveolar epithelium. "In mice which show deposits of soot in the pleura, these correspond with the presence of soot-laden macrophages in the walls of the pleural lymphoid follicle..." In addition to classifying the tumors observed histologically, the authors discuss the difference between the vis a tergo due to internally administered carcinogens acting via the pulmonary artery, and the vis a fronte due to airborne carcinogens acting on the exposed surface of the alveolar epithelium. "....the presence of soot, either free or more often after phagocytosis in the peripheral alveoli and lymphatics, suggests that airborne carcinogens might be expected to occur in similar situations." It is pointed out that lesions of other sites greatly outnumber the subpleural lesions, but that "tumors of subpleural origin in both experimental and control groups are partly accounted for by the same etiological factors, which probably include airborne carcinogens." "....alveolar hyperplasia in the mouse lung is an early manifestation of an essentially neoplastic process; ....the evidence for the association particularly of tumors of subpleural origin with engorgement of peripheral lymphatics suggests that the concentration of airborne carcinogens at these sites may be of etiological importance." "It is suggested that the subpleural lesions are caused mainly by airborne carcinogens and the lesions at other sites by blood-borne carcinogens." (Grant from the British Empire Cancer Campaign)

TITLE: ORAL, SUBCUTANEOUS AND INTRATRACHEAL ADMINISTRATION OF CARCINOGENIC LACTONES AND RELATED SUBSTANCES: THE INTRATRACHEAL ADMINISTRATION OF CIGARETTE TAR IN THE RAT

AUTHOR(S): Dickens, F./Jones, H. E. H., Waynforth, H. B.

CORPORATE AUTHOR(S): Courtauld Institute of Biochemistry, Middlesex Hospital Medical School, London, England

SOURCE: British Journal of Cancer 20/1:134-144, March 1966

ACCESSION: 15007

DESCRIPTORS: Tobacco tar, cigarette smoke condensate, lactones, tobacco tar neutral fraction, aflatoxins, carcinoma, hyperplasia, lung bronchi, trachea, lung alveoli, concessions/route of administration, intratracheal instillation, lung neoplasms, breast neoplasms, animal experiments, rats, β-propiolactone, benzopyrenes, sorbic acid, dehydroacetates, sterigmatocystin, gedunin, uterus neoplasms.

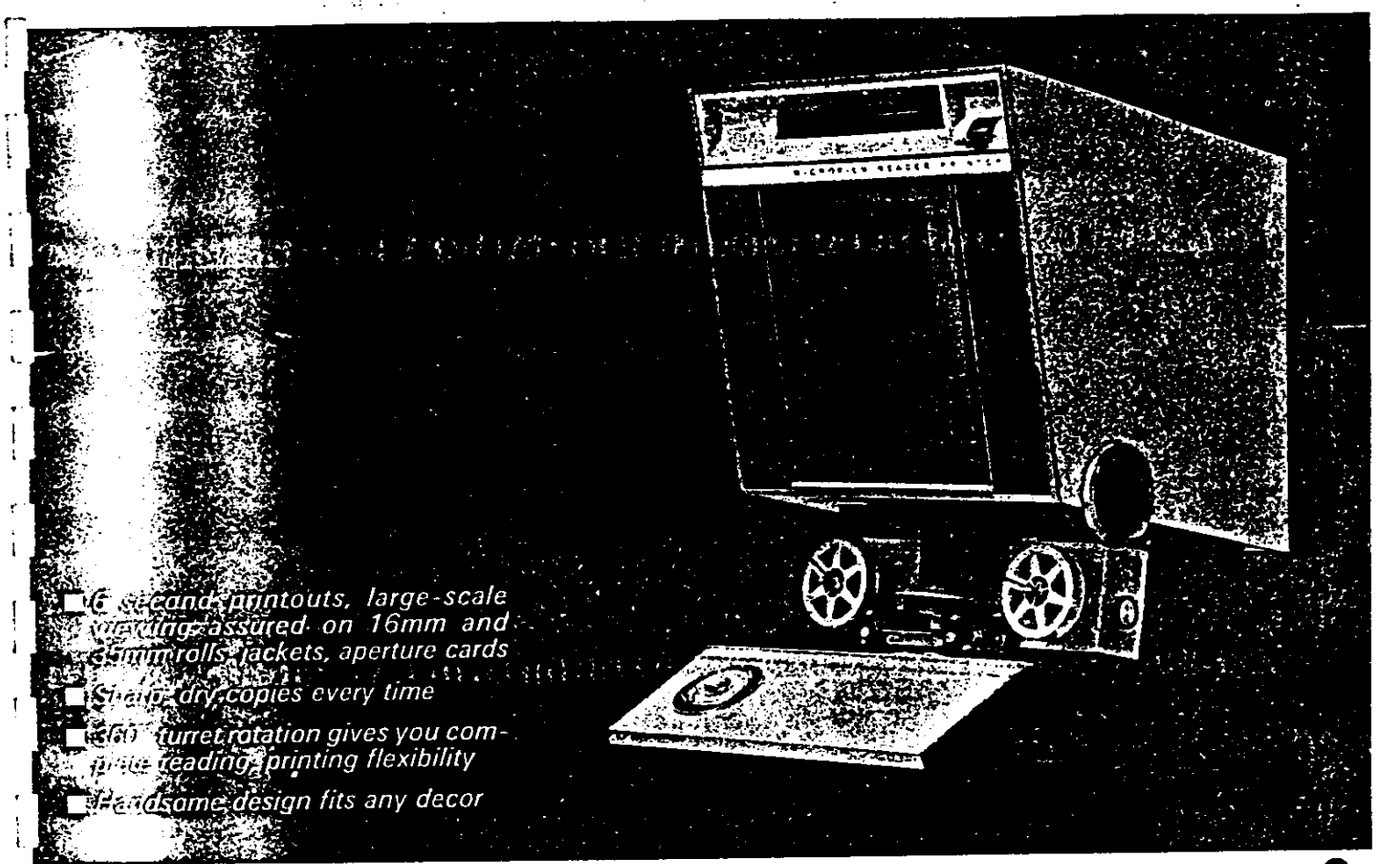
ANNOTATION: One or 3 intratracheal instillations weekly of an undiluted neutral fraction of tobacco smoke condensate in rats for 1 year led to some local histologic changes but no lung tumors

ABSTRACT: An undiluted neutral fraction of tobacco smoke condensate (30 µliter doses) was instilled intratracheally once weekly and 3 times weekly to separate groups, each of 10 female rats, throughout the course of one year: one mammary tumor appeared after 74 weeks in the first group and two at 95 and 104 weeks in the second; a uterine tumor appeared also at 104 weeks in the thrice-weekly group of rats. No lung tumors were seen in either group. All the rats and 6 controls (treated with atropine, ether and tetracycline) showed severe changes in the delicate alveolar tissue and some hyperplasia of the bronchiolar epithelium. β-Propiolactone (0.3 mg twice weekly) administered intratracheally led to the development of 1 lung cancer in a group of 6 rats. Aflatoxins by all routes tested (s.c., by mouth in drinking water, and intratracheally) proved to be effective carcinogens. When aflatoxins were given intratracheally, 3 of 6 rats developed squamous carcinoma of the trachea. Intratracheal benzpyrene did not lead to the formation of any tumors.

"The difficulties inherent in producing lung cancer in experimental animals with pure carcinogens are emphasized in our intratracheal experiments, where a number of substances including benzopyrene, which have been shown to be carcinogenic by other routes, have proved to be ineffective," the authors say. (Supported by the Tobacco Research Council and by the British Empire Cancer Campaign.)

EXHIBIT V

3M EQUIPMENT READER-PRINTER



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Contract for Deed
Corporation to Joint Tenants

Form No. 57

Minnesota Uniform Conveyancing Blanks (1961)

This Agreement, Made and entered into this Twentieth day of October, 19 57, by and between Nolan Dairy Products

a Corporation under the laws of the State of Minnesota, party of the first part, and Sam Doe and Sarah Doe, parties of the second part;

Witnesseth, That the said party of the first part, in consideration of the covenants and agreements of said parties of the second part, hereinafter contained, hereby sells and agrees to convey unto said parties of the second part, as joint tenants and not as tenants in common, their assigns, the survivor of said parties, and the heirs and assigns of the survivor, by a Warranty Deed, accompanied by an abstract evidencing good title in party of the first part at the date hereof, or by an owner's duplicate certificate of title, upon the prompt and full performance by said parties of the second part, of their part of this agreement, the tract of land, lying and being in the County of Ramsey and State of Minnesota, described as follows, to-wit:

Lot nine (9), block three (3), Crestwood addition to the city of St. Paul according to the map or plat of said addition on file and or record in the office of the register of deeds of Ramsey County, Minnesota;

And said parties of the second part, in consideration of the premises, hereby agree to pay said party of the first part, at as and for the purchase price of said premises, the sum of $22,000 twenty-two thousand and 00/100 Dollars, in manner and at times following, to-wit: seven thousand and 00/100 dollars ($7,000) cash in hand paid, the receipt of which is hereby acknowledged; ten thousand and 00/100 dollars ($10,000) by the assumption herein by the parties of the second part and their agreement to pay hereby evidenced, according to its terms that certain mortgage on said premises in the principal sum of ten thousand and 00/100 dollars ($10,000), recorded in the office of said register of deeds in Book 234 of Mortgages on page 123; five thousand and 00/100 dollars ($5,000), the balance of said purchase price payable in equal monthly installments of fifty and 00/100 dollars ($50.00), or at the option of the parties of the second part a greater sum, on or before the first day of each month commencing May first, 1957 and interest on the balance from time to time unpaid on the purchase price at the rate of six percent (6%) per annum from date hereof, said monthly payments to be applied, first, in payment of such interest, and the balance in reduction of the unpaid balance of the purchase price herein. When said balance of five thousand and 00/100 dollars ($5,000) and interest shall have been paid the party of the first part will execute and deliver to parties of the second part a marketable warranty deed to the above described premises.

Said parties of the second part further covenant and agree as follows: to pay, before penalty attaches thereto, all taxes due and payable in the year 19 58, and in subsequent years, and all special assessments heretofore or hereafter levied

also that any buildings and improvements now on said land, or which shall hereafter be erected, placed, or made thereon, shall not be removed therefrom, but shall be and remain the property of the party of the first part until this contract shall be fully performed by the parties of the second part; and at their own expense, to keep the buildings on said premises at all times insured in some reliable insurance company or companies, to be approved by the party of the first part, against loss by fire for at least the sum of fifteen thousand and 00/100 dollars ($15,000) Dollars and against loss by windstorm for at least the sum of fifteen thousand and 00/100 dollars ($15,000) Dollars payable to said party of the first part, its successors or assigns, and, in case of loss, should there be any surplus over and above the amount then owing said party of the first part, its successors or assigns, the balance shall be paid over to the said parties of the second part as their interest shall appear, and to deposit with the party of the first part policies of said insurance. But should the second parties fail to pay any item to be paid by said parties under the terms hereof, same may be paid by first party and shall be forthwith payable, with interest thereon, as an additional amount due first party under this contract.

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