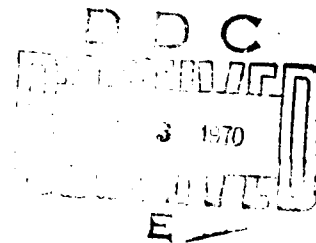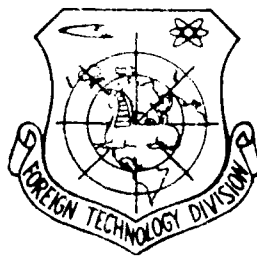# FOREIGN TECHNOLOGY DIVISION

AN EXPERIMENT OF DEVELOPMENT OF INFORMATION RETRIEVAL
LANGUAGE IN SECTIONS OF TECHNICAL INFORMATION
AT ENTERPRISES AND IN ORGANIZATIONS

by

Yu. L. Pokras

EDITED MACHINE TRANSLATION

AN EXPERIMENT OF DEVELOPMENT OF INFORMATION
RETRIEVAL LANGUAGE IN SECTIONS OF TECHNICAL
INFORMATION AT ENTERPRISES AND IN ORGANIZATIONS

By: Yu. L. Pokras

English pages: 19

Source: Nauchno-Tekhnicheskaya Informatsiya.
Seriya 1. Organizatsiya i Metodika
Informatsionnoy Raboty, (Scientific
and Technical Information. Series
1. Organization and Methods of
Information Work), 1968, No. 3, pp.
23-27.

This document is a Mark II machine aided
translation, post-edited for technical accuracy
by: William Kennedy

UR/0446-68-000-003

U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

* ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.
The use of diacritical marks is preferred, but such marks
may be omitted when expediency dictates.

AN EXPERIMENT OF DEVELOPMENT OF INFORMATION RETRIEVAL LANGUAGE IN SECTIONS OF TECHNICAL INFORMATION AT ENTERPRISES AND IN ORGANIZATIONS

Yu. L. Pokras

The various aspects of information service work at RaD bodies are considered, the Reference Files of a developmental body is characterized. From a study of information requests, the user analysis is attempted. The necessity and possibility is argued of developing a common information-retrieval language for the plant's information service. Methods of IRL preparation are reviewed, and main problems in creating and implementing it are give. Analized are the vocabulary, structure and use of IRL, a view of future work on it is presented.

In spite of interest toward problems of search, questions of development of information-search systems in information services of planning and designing organizations remain open. Separate attempts do not solve such a problem. At the same time the specific character of the work, the variety of subjects, and the large volume of the reference and information fund make the problem of creation of effective IPS in planning and designing organizations very topical.

The Characteristic of an Information Fund

The total number of primary documents in the SIF [information fund] of a design bureau attains 100,000 units. To them pertain book and periodic publications stored in the fund of the technical library

(about 40,000 units), engineering drawings of machines and equipments developed by other organizations (are in OTI) [Department of Technical Information], standards, normal and technical conditions (in division of normalization), patent descriptions (in patent bureau), firm's catalogs, price-lists, product-list reference books (in OTI), engineering drawings of machines, developed by the design bureau (in technical archives), and own publications (in OTI).

The yearly increase of the fund is 5000 units. Approximately 2000 units of obsolete documentation yearly are excluded from the fund.

The information apparatus of the SIF constitutes a complex of card files and indicators. The card files — main, special and auxiliary — also are in various subdivisions of the KB [design office]. The technical library conducts the card file of the fund according to Universal Decimal Classification and alphabetic, and also the card file of ordered literature and literature obtained via MBA [interlibrary loan]. In the OTI are the main information card file, organized according to Universal Decimal Classification, the auxiliary card file — translation is bibliographic indicators, price-lists — and special card files — addresses, foreign firms, articles. The card files of patent descriptions, organized according to numbers, classes and firms, are in the patent bureau. Yearly indicators of standards and normals of machine building serve as information apparatus to normals and standards.

The large number of various primary documents and different card files to them complicates the search for needed information. In order to obtain necessary materials, it is necessary to bypass four subdivisions, and to examine several different card files.

The problem is considerably simplified, if the consumer asks for concrete document. As will be shown below, the majority of information demands in design organizations are formulated in the form of the name of a concrete document. This can be explained by

two causes: first, the concrete character of work of the designer, who needs for example, a drawing of the completion article or some calculation formula; secondly, the constant habit of using a textbook or reference book, which are well studied and still familiar from student years.

Practice shows that publications of the current year are in insufficient demand due to weak information about them, and also by virtue of the above-mentioned conservation of designers. But then the biggest demand is for literature issued in the preceding year.

Demands of Consumers of Information and Methods of Their Satisfaction

Analysis of information demands conducted in a design bureau gave interesting results.[1]

The total number of demands in 60 working days is 300, i.e., the average frequency of demand is equal to 5 per day. Here 90.6% of the demands were oral, 5.7% written, and 3.7% by telephone. It is necessary to note that these, as a rule, were demands for documents.

The time spent in information retrieval is excessively great. Thus, 60% of the demands were satisfied in 1-5 min, 17.6% in 5-10 min, 11.7% in 10-60 min, and 10.7% in more than an hour.

What is the cause of large expenditures of time in information retrieval?

It turns out that 50% of demands are satisfied simply thanks to the memory of OTI and technical library workers knowing "by heart" where to look for that or another document, 20.6% with the help of inverse card file, realized on uniterm-cards, about 14% with help of special card files (for example, address — 6%, firm's 1.3%, etc.), 11% of demands were in the stage of clarification, and almost 4% of demands directed were satisfied.

Such a role of the memory workers in search of documents shows that, in spite of the well-developed network of card files in the division of technical information, they embrace not all documents, not all factographic information, which can be issued to the consumer of information. This signifies also that in the absence of that or another OTI worker, failure to deliver a document is possible.

Almost 87% of all demands pertain to demands for a concrete document (including 23.6% of all demands addressed to the technical library), thematic demands 8%, address and other 5%.

Data characterizing the official level of workers asking information is of interest: 53.9% of demands proceeded from leading and chief designers, leaders of design bureau and divisions; for designers of I category and senior engineers proceeded 15.9% demands, from other organizations 22.6% (far from all the demands entering the design bureau were directed to the OTI).

Even a preliminary, sketchy analysis of information demands shows that for acceleration of search is needed a more flexible apparatus than bibliographic card files.

It is usually considered inexpedient to mechanize the main information-bibliographic card file [GSBK] (ГСБК) since its volume (100-150 and even 200 thousand cards) requires creation of an interbranch descriptor language, which is practically an impracticable problem for information subdivisions of enterprises. The natural desire to use ready languages is also not realizable: experience will show that the need for information even extraordinarily close to the profile of work of organizations, even in considerable degree duplicating subjects, is nevertheless different. In connection with this it is usually recommended to develop particular IPS [information retrieval systems] on narrow branch massifs from 2 to 10 thousand documents or articles in volume (for factographic card files) realized on maps with boundary perforation and clearance punched cards.[2]

In SIF of certain organizations, for example, are separated up to 10-12 subarrays, in which are collected documents on uniform subjects or are reflected the characteristics of articles and equipment. Moreover in GSBK is necessarily given the corresponding dispatch. Thus, for every subarray is created a particular IPS on a base of the descriptor language developed for it. Subsequently, after experimental exploitation is possible unification of massifs into single and corresponding merging (and processing) of sublanguages into a single descriptor dictionary.

Operational experience of OPI [Odessa Polytechnic Institute] showed that particular descriptor languages already in the process of their development cross to such a degree that the expediency of creation of a single descriptor language very quickly becomes clear. Correction, particular languages were developed for factographic IPS of articles — crane operators of cranes, fork loaders, trailers-heavy draft-horses. Nevertheless, about 50% of the dictionary descriptors on fork loaders completely entered the dictionary on crane operators to cranes. On the whole the number of terms general for three IPS, attained 10-15%. As a result it was decided to refuse development of particular IPS and to create a single information-search system based on a single descriptor dictionary.

Apparently, the expediency of creation of several particular or one general IPS depends on the concrete conditions of work of the organization, its specialization, the number of subjects, the volume of the massif of documents, and also on the preparedness of the frames.

Development of Information Retrieval Language

Of well-known methods of IPYa [information retrieval language] development was accepted the most labor-consuming, but, apparently, the most correct means — treatment of the document of the massif.

Composition of the dictionary is conducted in four stages: composition of a list of key words, editing of the list of key words and treatment of it for the descriptor dictionary (1st edition); field testing of dictionary and introduction of changes in it; final editing of dictionary and formation of IPYa. This work is fulfilled in the following way.

In the beginning was composed a search image of the document [POD] (ПОД) on a special card:

(Front of card POD)

Search image of document No.————————

No. in order	Key words	Delivery						
		Number of demand						
	Basic							
1 2 3								
	Higher and connected							
1 2 3								

Compose ◄——►————————196

(Back of card POD)

Motion of document

No. in order	Last name, first name and patronymic	Division	Date	
			delivery	return

For an analysis of the use of key words in POD all signigicant words are written in one column. From the right side is left a place to note what words were used in the search instruction on which this

6

document was issued. This will allow revealing as a result of field testing on what key words a document is issued, and what words are "dead," carrying practically no information load.

After composition of the search image the key words (including higher and connected terms) are transferred to a uniterm-card, in which is entered also the inventory number of the document.

During indexing of the document in its search image were included the highest possible number of key words carrying, in the opinion of the indexer, information load. Subsequently this facilitated editing the dictionary.

Composition of a list of key words on the base of POD in the indexing process is very labor-consuming work, requiring from indexer engineering knowledge in that region to which pertain subjects of documents introduced into IPS, and also elementary indexing skills, skill in concisely expressing the basic contents of the document.

The dictionary of key words reflects the subjective terminology of authors of documents. Thus, for example <u>Boring-Crane Machines</u> (this term is accepted in our IPS as a descriptor) in various documents appear as autopitdrills, drill-stolbostavy [Translator's note: no translation found for this word] pitdrills, machine-stolbostavy, machines for drilling of pits, etc. Crane operator cranes are called mobile, self-propelled, etc. In connection with illegible terminology it is necessary to keep almost all key words in a dictionary of descriptors, uniting under one descriptor the greatest possible number of related ideas. This allows, on the one hand, expanding the number of "inputs" to the dictionary and, consequently, comparatively easily translating the contents of the document from natural to search language. On the other hand, a smaller number of descriptors facilitates information retrieval, increasing fullness of deliver (it is true, at the expense of increase of information noise).

The existing dependence according to which increase of fullness of delivery is possible only due to increase of noise and conversely, forces one to look for the path of creation of language satisfying both requirements. This means that the number of descriptors should be as small as possible since besides the probability of expression of the same thought by various words and methods decreases. The language becomes poorer and coarser and noise is increased, but information losses decrease.

Thus, instead of key words "bolts," "nut," "screws," "pin," etc. the descriptor Fastening Components is accepted. Thus, all documents containing these ideas are described by the descriptor Fastening Components. Consequently, on the demand, for example, about pins, will be composed the search instruction with this descriptor. This means that, besides documents about pins, will be issued also documents about bolts, nuts and all other components united under the descriptor Fastening Components.

In IPS information subdivisions of enterprises are usually used information-search languages without grammar, i.e., without indicators of coupling and role. In spite of increase of noise to 50%, application of IPYa without grammar gives fully satisfactory results. Complication of language by introduction of coupling and role indicators is justified, as is known, only on large massifs for IPS realized on ETsVM [electronic digital computers].

Realization of the described method of creation of IPYa was started with indexing of key words of the first 1500 documents. Key words were written on card POD. Higher and connected terms were introduced by the indexer on the basis of his experience and intuition. In the most complex cases other OTI workers and also the most qualified designers and technologists were consulted.

For the experimental massif were removed documents stored OTI — drawings, firm's catalogs, surveys, prospects, price-lists, product-lists of spare parts, log books and guides on exploitation

8

of machines. Books, journalistic articles, standards, normals and patent descriptions were not introduced into the system.

Considering the specific character of work of the design bureau and the frequency of demands of the type "Drawing of such a subassembly of a machine of such a model," it was decided to include in IPYa all makes and names of models of machines, according to which there are documents in the massif, separating them in a separate subject class. After indexing of 1500 documents the list of brands and models of machines counted 768 designations, which predetermined separation of them from the dictionary.

All key words were written on uniterm-cards, where numbers of documents were recorded.

After treatment of documents the whole dictionary of key words was reprinted on machine in four intervals with respect to the alphabet, where the reference number of the key word and the number of documents the search image of which this word enters were entered:

11.	Motor vehicles...................	143
12.	Automotive.......................	122
13.	Automotive construction.........	46
14.	Lift trucks.....................	4
15.	Trailer trucks..................	8

The total number of key words (without indication of brands and models of machines) was 1248.

All key words were recorded in the nominative case and in the plural. An exception was cases in which a word in a multiple and single number had various values (for example, of <u>Organization</u> and <u>Organization</u>).

Pronouns and prepositions were rejected; cardinal numbers were united in groups, depending on what they characterize. Thus, in accordance with All-Union Government Standard 9692-67 "Crane

operators self-propelled general purpose" the following series of
load capacities is accepted: to 3, 3-5, 5-8, 8-12, 12-20, 20-30,
30-50, 50-75, 75-120 and over 120 t.

The indexers aspired to take a key word correspond to one word
of natural language; however, stable word combinations were preserved
(for example, Scientific Organization of Labor, Cargo Characteristic,
Overall Mechanization).

In the process of indexing the contents of the document was
mentally formulated in the form of two or three short simple
sentences in natural language disclosing the meaning of the document.
Besides it was necessary to imagine to oneself how a demand can be
formulated and to introduce into the search image of the document
all words which are connected with the contents of the document.

In the search image of the document was included information
about language, time of output, country, form of document, designation
of organization-producer and other criteria one way or another
characterizing the document.

In process of editing first of all was conducted selection of
one of key words as descriptor. Thus, for above mentioned example
were accepted following descriptors:

10. Motor Vehicles
11. Automotive
12. Automotive construction — use Motor Vehicles and Manufacture
13. Lift trucks — use Fork Loaders
14. Trailer trucks — use Trailers-Heavy Draft-Horses

It was decided to leave the key word Automotive as descriptor
along with the word Motor Vehicles, inasmuch as it characterizes a
large number of documents. It was necessary to proceed thus also
in certain other cases. The final conclusion concerning the
expediency of inclusion of related words in the dictionary of

descriptors will be drawn after experimental exploitation of IPS and editing of the dictionary.

Under one descriptor were united related, close in meaning, equivalent words.

Thus, under the descriptor Go-Anywhere Vehicles are united the key words "Amphibians," "Swampaerosleighs," "Snowswampmovements," under the descriptor Anemometers are united "Anemographs," "Anemorhumbometers," "Wind signalling apparatuses," "Signalling apparatuses of wind," and under the descriptor Towers are united "Autotowers," "Hydraulic hoists," etc.

The homonymy of natural language was compensated by the introduction of separate descriptors for each of the homonyms. Thus for the term "Control" were introduced three descriptors:

Control — 1 (process)
Control — 2 (construction)
Control — 3 (organization)

Key words not descriptors but entering some class of conditional equivalence, as one could see from examples, were supplied by dispatch "use;" this means that instead of the given key word it is necessary to use such a descriptor. In the dictionary this dispatch has the following form:

Key word   use Descriptor
or
Lift trucks — use Fork Loaders.

Exposure of basic relations was begun from the setting of generic-specific couplings. In the accepted structure of the dictionary the following designations were introduced:

v — higher descriptor, more general, generic with respect to the given descriptor;

11

n — lower descriptor, particular, specific with respect to the given descriptor;

s — synonym, i.e., key work united under the descriptor;

a — associative descriptor, i.e., connected in meaning with the main descriptor of the article.

In the dictionary this appears as follows:

Motor Vehicles

    v. Motor and Tractor Industry
      n. Buses
      n. Dumpers
        a. Autoexport
        a. Balancers
        a. Belaz (Belorussian automobile plant)
        a. Go-Anywhere Vehicles
        a. Gas (Gor'kiy automobile plant)
        a. Main Transmission
        a. Internal Combustion of Engine
        a. Cabs
        a. Kaz (Chinese automobile plant)
        a. Kraz (Kremenchug automobile plant)
        a. Bodies
        a. Maz (Minsk automobile plant)
        a. Mzma (Moscow plant of low-displacement motor vehicles)
        a. Minavtoprom (Ministry of automotive industry)
        a. Moaz (Mogilev automobile plant)
        a. Bridges Automotive
        a. Nami (Scientific research automotive engine institute)
        a. Nati (Scientific research motor and tractor institute)
        a. Niiavtoprom [Scientific research institute of automobile industry]
        a. Suspensions

a. _Soyuzsel'khoztekhnika_ [Union agricultural technology]

a. _Windshield Wipers_

a. _Tractors_

a. _Transporting_

a. _Prime Movers_

a. _Uaz_ (Ul'yanov automobile plant)

a. _Uraz_ (Ural automobile plant).

The designations "v" and "n" play the role of cross references between descriptors, indicating their position relative to one another and creating a hierarchy of ideas entering the descriptor dictionary.

For reflection of associative couplings is used the reference "a." Couplings of this kind were set intuitively taking into account possible formulation of demands concerning descriptors and only on the basis of descriptors included in the dictionary.

In the descriptor article _Motor Vehicles_ are included descriptors designating automobile plants (_Belaz_, _Kraz_), scientific research institutes on automotive construction (_Nami_, _Nati_), various organizations connected with the branch (_Minavtoprom_, _Soyuzsel'khoztekhnika_), and also descriptors reflecting coupling of the type "integer — part" (_Bodies_, _Suspension_) and "object — application" ("_Transporting_"). Also included are descriptors designating objects having properties in common with the title descriptor of the article (_Tractors_, _Prime Movers_).

For descriptors consisting of several words, it is necessary to select a direct or inverse form of writing, for example, _Fork Loaders_ or _Loaders Fork_. Usually such writing is used as is most often used in natural language, giving preference in doubtful cases to words having great informative load, and carry them to the first place.

The descriptor dictionary is shaped in the form of a book and

13

consisting of an explicative note, a lexico-semantic indicator [LSU] (ЛСУ), a systematic indicator of descriptors [SUD] (СУД) in the form of generic-specific trees, a subject indicator of descriptors [PUD] (ПУД) united in subject classes, an index of descriptors [AUD] (АУД) with indication of number of table of generic-specific couplings and the number of subject class and numbering indicator of descriptors [NUD] (НУД).

Such a dictionary structure helps to find equivalent words and to definitize formulation of the search instruction. In tables of generic-specific relationships hierarchic couplings between descriptors, and in subject classes associative relationships are expressed in evident form. Certain descriptors enter two or more classes.

Exploitation of an Information Retrieval System

The best means of mechanization of information retrieval in information services are prosvetnyye [Translator's note: no translation found for this word] cards. These punched cards permit in the process of IPS exploitation expanding and to correcting information-search language, rapidly and simply introducing new documents into the system and easily finding them. It is possible to modify program of search, immediately to find out whether the massif has documents responding to the demand, etc.

In connection with the fact that equipment for work with such punched cards (perforator, optical screen) is not produced by industry, and that their preparation by the design bureau is very complicated, it was decided as temporary measure to realize the 1st edition of the IPYa on uniterm-cards.

For the uniterm-card is accepted the usual bibliographic card ruled with 10 vertical and 13 horizontal columns. This gave the possibility to take on one card up to 120 numbers of documents. The capacity of such a uniterm-card is practically used not more than

14

30-40%, but this is sufficient. Uniterm-cards on which it was necessary to start second or third cards (continuation) turned out to be not more than 5.

Uniterm-cards are located in alphabetic order, where on key word-synonyms are started dispatching cards with reference to the corresponding descriptor. In general, it is possible instead of a dispatching card to start a uniterm-card on a word-synonym and to take on it all numbers of documents corresponding to the descriptor.

Uniterm-cards are convenient too by the fact that the number of documents from them can be easily transferred to the prosvetnyye cards — the location of numbers on a uniterm-card and on a prosvetnoy card is the same, thanks to which punching of punched cards is simplified.

Information retrieval is carried out by visual comparison of numbers on cards with the descriptors of the search instruction. If some number is on all cards, these documents have to be issued on demand.

This process is extraordinarily simple especially with concrete demands. However, when it is necessary to satisfy the thematic demand of more or less wide profile, the procedure of search is considerably complicated. This is connected with the necessity to consider basic, i.e., generic-specific and associative relationships between descriptors. As a result search must be conducted not in one, as with concrete demand, but in two and more stages.

The search instruction in the beginning is composed with the help of descriptors on the base of the demand. Higher and connected terms are not considered.

The second stage of search is carried out taking into account lower (one order) and associative descriptors; the third taking into account those two and three orders lower. On the fourth stage are

used higher terms (one-two orders), which increases fullness of delivery, but noise is simultaneously increased. In general, two, and in the extreme case, three stages of search are enough. Thus, the demand "Production of crane operators of cranes in countries of the Council of Economic Mutual Assistance" is translated into the following search instruction: <u>Manufacture, Cranes, Country of Council of Economic Mutual Assistance, Crane Operators</u>.

However documents containing information on this subject can be called, for example: "Automotive cranes produced in the USSR" or "Crawler cranes of the German Demorcratic Republic." Required information, undoubtedly, is contained both in that and in another document, and they will be issued on the second and third stages of search respectively. With use of higher terms can be issued, for example the document "Load-lifting machines prepared by socialist countries." It is probable that the needed information is contained in this document.

Conclusions

Further exploitation of IPS, expansion of the massif of documents, treatment of the dictionary of descriptors and output of the 2nd edition makes it possible to draw concrete conclusions concerning the possibilities and means of creation of information-search systems in planning and designing organizations. However, already now experience of even short-term exploitation of IPS permits affirming that development of information-search systems on the basis of descriptor IPYa and with realization of them on uniterm-cards in a fully soluble problem for information subdivisions of enterprises and organizations.

<div align="right">
Article received in
editoral office
30 October 1967
</div>

THEY WRITE TO US

Experiment of Planning of Works on Retrieval of Information Materials

In many BTI [offices of technical information] of even big enterprises plans of work provide for lectures and movie propaganda, organization of missions, seminars, schools of advanced methods of labor, collection and treatment of information materials, etc. In the best case plans included work on sampling of information materials and control of their realization. This explained by the fact that it is easier to plan such work than to provide a whole year of search of necessary information materials and documentation for development of long-term themes by design offices, bureaus, sections of introduction of new technology and advanced experiment into production.

In the trust Orgtekhstroy [Translator's note: no translation found for this word] of the Glavverkhnevolzhskstroy . [Translator's note: no translation found for this word] is accumulated certain experience of planning of works on search for information materials necessary for builders.

The division of technical information and propaganda of the trust Orgtekhstroy services 17 construction organizations and enterprises of building materials of Glavverkhnevolzhskstroy, located on territory of four regions: Vladimir, Ivanov, Kostroma and Yaroslav. Besides this OTI services 10 industrial divisions of the

trust "Orgtekhstroy" and apparatus Glavverkhnevolzhskstroy. Since 1964 the division of technical information of the trust "Orgtekhstroy" proceeded to planning of search of information materials.

The plan is composed in accordance with requisitions of trusts and enterprises. Requisitions enter OTI in January of every year with indication of the form of works (composition of survey, selection of information, obtaining of technical specification and records and others) and periods of performance. The plan is discussed at the technical council and is affirmed by the controlling trust "Orgtekhstroy."

The curator, having obtained such a plan, composes on every subject or group of subjects working a program which anticipates what sources of information it is necessary to examine in the first place, i.e., sources where it is most probable to encounter necessary material thematic and chronological boundaries form of work (composition of bibliographic reference, abstract survey, comparison tables, and obtaining of technical documentation). This program also provide for distribution of all work on search for necessary materials between the curator (engineer), library workers, and SIF. As a rule, the leader is an engineer-specialist.

Thus, in the plan of the section of technical information was included the point: "Organization of roof works with application of hot bituminous mastics." Since the subject is very broad jointly with the designers and engineers of the construction and installation trust were definitized the boundaries of the subject, the criterion of appraisal of materials, and other parameters. The subject was split into several divisions and subdivisions:

    device of cement tightening device;
    stacking of heater;
    vapor insulating works;
    preparation of mastic;

horizontal and vertical transportation of mastic;
gluing of roll materials.

After composition and affirmation by OTI chiefs of the program,
the curator proceeded to search for information materials on the basis
of which the analytic survey was composed. In tables which were
composed in a defined form were given digital and descriptive
comparisons of forms of works used in different organizations of
the country.

The analytic survey was discussed at the technical council of
the trust, where machines, mechanisms, equipment and labor processes
necessary for introduction were sampled. On the decision of the
technical council the curator of the OTI ordered technical
documentation. As a result of search and sampling of materials on
the subject "roof works," at construction projects were introduced
about twenty different kinds of equipment: a unit for heating up
and supply of bitumen to the roof (is borrowed for Volgograd
builders), a bitumen panel (is borrowed for minchan) [Translator's
note: no translation found for this word], unloading on pier
(engineering drawings obtained from Leningrad), a machine tool for
rewinding and purification of the Ruberoid (technical documentation
obtained from Nizhnego Tagila) [Translator's note: no translation
found for these words], thermos for storage of mastic (borrowed for
builders of Irkutsk) and others.

In accordance with the plan for a year search was carried out
on 152 subjects, as a result of which were composed 7 information
surveys and 32 thematic bibliographic references obtained and issued
for introduction of 227 sets of borrowed tehcnical documentation.

Planning of search of information materials permitted improving
work on introduction of borrowed measures. Thus, in 1966 total
savings exceeded 800 thousand rubles.

> V. N. Nasonov (Head of the section
> of technical information of the
> trust "Orgtekhstroy")

Security Classification

DOCUMENT CONTROL DATA · R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*	2a. REPORT SECURITY CLASSIFICATION
Foreign Technology Division Air Force Systems Command U. S. Air Force	UNCLASSIFIED
	2b. GROUP

3. REPORT TITLE

AN EXPERIMENT OF DEVELOPMENT OF INFORMATION RETRIEVAL LANGUAGE IN SECTIONS OF TECHNICAL INFORMATION AT ENTERPRISES AND IN ORGANIZATIONS

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*
Translation

5. AUTHOR(S) *(First name, middle initial, last name)*

Pokras, Yu. L.

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
1968	19	

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 6050205	FTD-MT-24-30-70
c.	9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*
d. DIA Task No. T68-05-02	

10. DISTRIBUTION STATEMENT

Distribution of this document is unlimited. It may be released to the Clearinghouse, Department of Commerce, for sale to the general public.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	Foreign Technology Division Wright-Patterson AFB, Ohio

13. ABSTRACT

The various aspects of information service work at RaD bodies are considered, the Reference Files of a developmental body is characterized. From a study of information requests, the user analysis is attempted. The necessity and possibility is argued of developing a common information-retrieval language for the plant's information service. Methods of IRL preparation are reviewed, and main problems in creating and implementing it are given. Analyzed are the vocabulary, structure and use of IRL, a view of future work on it is presented.

DD FORM 1473 (1 NOV 65)

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Information-Search Systems Computer Language Data Retrieval Information Retrieval Language						