

## EUGENE P. MECKLY

### APPROPRIATION OF FUNDS

When the final design was presented in detail to the research management it received prompt approval, due in large measure to our early attention to multilevel communications. The formal request for appropriation of funds received similar prompt approval, for similar reasons.

### CONSTRUCTION

A general contractor was selected on the basis of competitive bidding. Ground was broken two weeks after the contract was awarded. Weekly meetings were held with the general contractor and subcontractors to review progress, pinpoint problem areas, and make appropriate decisions. Critical-path scheduling techniques were employed in the later stages. In spite of some delays in steel delivery, a trucking strike, and a period of severe weather conditions, we were able to complete the construction in April of 1968 within four weeks of schedule.

### THE MOVE

It was our objective to accomplish the move into the new facilities with the least possible disruption of technical information services. Careful planning of the logistics of moving the research collection made it possible to accomplish the move in three distinct weekend operations, with very little interference to normal service.

### THE FUTURE

While it is premature to conduct any comprehensive evaluation of our new organization and facilities at this

time, our initial expectations appear to have been realized. We incorporated sufficient flexibility into our design to be able to adapt to the changing needs of the Corporation, and to make the fullest use of new techniques and equipment in the field of information technology. And we believe that our staff has the attitude and motivation required to adapt to these changing circumstances and to maintain a high level of effectiveness in using and communicating technical information.

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## The Technical Information Facility of Koppers' Research Center\*

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The sequence of events which led to the creation of Koppers' information facility is described. Starting with the architects' original concept, this paper discusses the design and layout, construction, move-in, and present-day use. Certain features which have proven to be especially helpful are described, as are some features which have caused difficulties. Some cost figures on furniture and equipment are given in addition to the actual replacement cost of the entire printed collection. Based on experience with outside information retrieval systems and on the use of certain microfilm equipment, an estimate is presented for the future operation of this information facility.

The location and design of the Koppers' technical information center were the results of the incorporation of such a center into a major research establishment. Management had very carefully chosen a site that was centrally located with respect to the homes of the employees of the research department. The architects then designed a research center to fit the terrain. This terrain,

approximately 176 acres, located about 12 miles east of Pittsburgh, allowed for the design of a fairly long, multilevel complex. The location of the library in this complex is at one edge of the present research space but will be more nearly central, based on future expansion plans. Construction on the research center was begun in 1959 and completed in 1961.

Figure 1 is a view of the research center taken from the north looking toward the main administration wing.

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To the reader's left is a large, two-level, glassed-in portion. The first level of this glassed-in portion is the cafeteria; the second level is the location chosen by the architects for the library.

The location of the library and its physical dimensions were entirely the product of the architects' creativity. The basic layout of the library is rectangular, 80 × 100 feet, with several smaller adjoining rooms. These adjoining rooms include a security vault and Xerox room, each 8 × 14 feet, a cloak room and microcopy room, each 10 × 12 feet, and a vault room in the basement, 10 × 15 feet. This amounts to approximately 10,000 sq. feet of floor space available for technical information functions. These figures include the second level of the stack area. We were given the task of laying out the offices, stacks, and other details connected with the design of the library. The size of the library collection in 1957 was approximately 10,000 bound volumes with subscriptions to approximately 250 periodicals. The research department had approximately 250 people, of which roughly one-half were professionals. These figures are in contrast to the 1967 figure of 17,000 bound volumes, subscriptions to 450 periodicals, and a research department staff of 325 of which roughly two-thirds are professionals.

Our first effort was to determine if the space allotted by the architects was sufficient for 10 years' expansion (management had said that we were to plan a library which would not need major alterations for 10 years). In addition to being restricted to the basic rectangular plan of 80 × 100 feet, we were further restricted by the fact that three of our four walls were all glass, and the stack area was predetermined by structural requirements in the center of the rectangle.

Using standard data<sup>1,2</sup> to estimate the growth of technical literature for the decade, 1957–67, we made detailed calculations on total lineal feet of shelving, office space for personnel in the Technical Information Group, and seating capacity for patrons of the library. As a result of these calculations, it was found that the stack area would have to be increased from a single- to a double-level section.

At this point, I would like to emphasize the wonderful cooperation we received not only from our own manage-

ment but from the architects as well. This cooperation was evidenced by the fact that when shown our detailed calculations regarding space requirements for 10 years' expansion, the architects immediately added a second level to the stack area at the request of our management. The second level of the stack area was not equipped with new shelving initially since our calculations indicated that the first level would suffice for five years. We did, however, refinish some of our old shelving and erect it on the second level where we could store unbound and rarely used materials. We are still using the second level for this purpose. We also find that this second level is useful for storing empty boxes, unused shelves, and other miscellaneous bulky materials.

We then proceeded with our planning with regard to arrangement of office spaces, work flow, etc. I would like to report that our thinking at that time was guided by possible future developments in methods of information handling, computer retrieval, microforms, and other innovations, but I must admit that we were concerned primarily with the use of all the forms, materials, and equipment which were common at that time. We did, however, make provision for a separate room which we set aside for microforms—i.e., a microfilm reader, a micro-card reader, cabinets for the microforms, and special chairs and tables for using the readers.

Figure 2 shows the layout of our facility as finally approved.

In 1957 when we were designing our facilities, our staff consisted of a manager, librarian, secretary, library clerk, two stenographers, and three literature chemists. The duties of the manager, librarian, and secretary need no explanation. The library clerk is responsible for logging in journals, processing new books, and charge-out duties. One of the literature chemists handled translations and literature searches. One was responsible for the preparation of a weekly abstract bulletin. The third was responsible for the operation of the research report files. This involved cataloging and indexing all research department reports using an expanded Dewey decimal system.

We had to take into consideration the flow of mail, the processing of books, the flow of journals to the abstractor and thence to the open shelves, and the noise level



Figure 1. Exterior view of offices and library

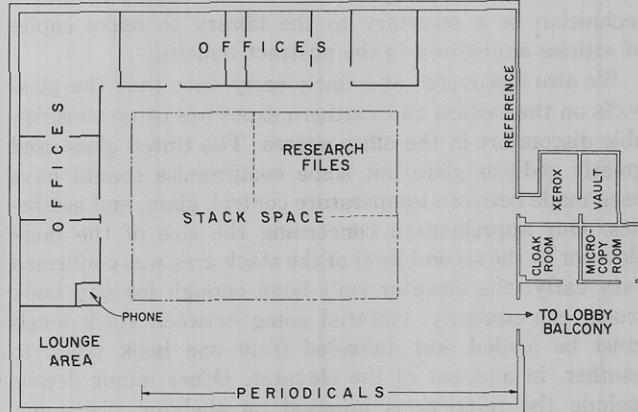


Figure 2. Floor plan of Technical Information Facility

from typewriters in the main reading areas. We wanted to keep a library clerk in the front of the library; we wanted the research files chemist near the front; and we wanted the manager's and librarian's offices as accessible as possible. The basic rectangular plan as dictated by the architects' layout placed some restrictions on our planning of the central stack area; thus, we had to allow for traffic flow from one side of the library to the other. The placement of study carrels within the stack area affected this traffic flow as did the location of the research files within the stack area. This latter placement had the additional requirement of being made security-proof from the rest of the library. We used six study carrels of a standard type, that is, shelf-like writing tables 3 feet in width suspended from the shelving uprights. With three of the exterior walls being solid glass, we were limited in placement of shelving with the result that we were forced to place the abstracts bar along one wall of the stack area. We utilized another wall of the stack area for vertical files. The third wall of the stack area is taken up by general reference shelving, and the fourth wall at present is blank.

We made provision for a separate cloak room, a classified document room, and a separate room for a Xerox machine. We provided a small telephone closet for library patrons and a separate vault in the basement for storage of original laboratory notebooks. Figures 3, 4, and 5 illustrate some of the furnishings and arrangement of selected areas of our library.

With this general description of the facility, I would like to point out some of the good and bad features, some that were apparent immediately, others that did not show up until much later. For example, the vault is inconveniently located. We knew this from the beginning, but couldn't do much about it. The telephone closet turned out to be useless as most of the patrons continued to use the staff phones instead of the public phone provided. The telephone was subsequently removed, and the closet is used for storage of material to be sent to the bindery. Our reading area is not fully utilized, but I believe that this is partially our own doing. One of the features of our information services program is a weekly abstract bulletin of current journal literature and some patent gazettes which is sent to every technical member of the research department. This means that a lot of browsing is done in the offices using the abstract bulletin rather than the library. Many of the chemists send a technician or a secretary to the library to make copies of articles announced in the abstract bulletin.

We also discovered at a fairly early date that the glass walls on the eastern and southern exposures cause considerable discomfort in the office spaces. The tinted glass used greatly reduces glare but some compromise should have been made between temperature control, glare, and aesthetics. Our apprehension concerning the size of the book elevator to the second level of the stack area was confirmed very early; the elevator isn't large enough for any book truck, consequently, material going between stack levels must be loaded and unloaded from one book truck to another, in and out of the elevator. Other minor details include the restrictions imposed on shelving placement by using double-sided sliding reference shelves. These sliding reference shelves are, however, very convenient

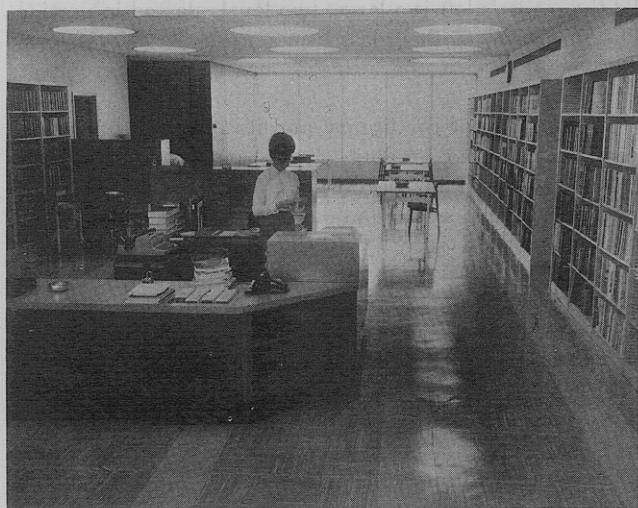


Figure 3. Charge-out desk and card catalog



Figure 4. Abstracts bar and lounge chairs



Figure 5. Current periodicals shelving

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and useful, particularly in the bound journal section where many of the volumes are quite heavy. The hanging wire book brackets used in place of ordinary book ends are very easy to use but they do require care because book pages are easily crumpled when books are pushed into them.

I know that actual costs are of great interest, but I regret that I am unable to give design or construction costs for the information facility. The reason is that the technical information center was designed as an integral part of the entire research center, the total cost of which was \$8,000,000. It is practically meaningless, therefore, to try to split out the cost for one segment of the entire complex, as one would have to take into consideration the land, the design, and utilities. One cost figure which may be of interest is the cost of the furnishings and the equipment, that is, the card catalogs, charge-out desk, current periodical shelving, tables, chairs, filing cabinets, drapes, etc. The cost of these items came to slightly under \$24,000. The cost of the metal shelving in the central stack area was \$8000 installed (this was for the first level only). Another cost figure which may be germane, but one that is rarely available because of the time and effort involved to calculate it, is the actual replacement cost of the entire book collection, that is, the texts and bound journals. By taking detailed inventory of our entire collection, exclusive of vertical file material and microcopy, I arrived at the figure of \$275,000. This inventory was taken in 1966 and should probably be increased by about \$20,000 to reflect current value.

As I have said, our facility was designed and built along traditional lines and has been operated along the same lines. The size of our staff is approximately the same except that we now have a part-time literature chemist working on our Derwent PLASDOC program. I can now predict, however, that in the very near future, possibly within a year or two, the operation of the library will be influenced to a great extent by the availability of much more sophisticated microfilm reading and printing equipment. As a result of our participation in the PLASDOC program, in which complete specifications of all plastic patents are made available on 16-mm. microfilm, we have found a rather convenient way of handling microfilm cartridges. In our case, we are using a 3M

Filmac 400 16-mm. Cartridge Reader-Printer. We receive 16-mm. film from PLASDOC, reload it into 16-mm. cartridges, run the cartridge through the reader-printer, record the meter readings as we do so, and then simply type, reduce, and paste on the front of the cartridge the meter readings for the entire contents of each cartridge. We have found that this is a very quick and efficient way of using microfilm. It is my belief that with proper placement of additional readers in the stack area, for example, at each study carrel location, we could replace at least 75% of our bound journals with 16-mm. microfilm cartridges. As you can imagine, in a library of 17,000 bound volumes this would have a tremendous impact on the daily operation and usage of the collection. The cost of such microfilm would be partially offset by the savings in binding costs which amount to approximately \$2500 per year.

We have, in addition, participated in other new external information retrieval programs. These programs in no way affected the design and operation of our facility, but they did represent an attempt on our part to satisfy the varied requirements of our patrons. For example, we have participated in the Polymer Information Service sponsored jointly by the Division of Rubber Chemistry of the American Chemical Society and the University of Akron. We were also participants for several years in the Knowledge-Availability Systems operated by the University of Pittsburgh as part of the National Aeronautics and Space Administration Spin-Off Program. Participation in these programs has given us valuable experience in computer-based information retrieval systems—experience which will help us to design a computer retrieval system for our internal research reports.

In conclusion, new developments in storing and handling information have already begun to affect our operation. I feel, however, that the physical facilities are in need of no major alterations to adapt to these new methods.

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