

Providing Access to the Photographic Collection of Charles F. Dwyer

Laura Guy¹, Joanne Lerud-Heck², Jennifer Ward³

INTRODUCTION

Established in 1991 at the Arthur Lakes Library on the Colorado School of Mines campus in Golden, Colorado, The Information Center for Ropeway Studies houses information on the theory, design, operation, and history of ropeway systems. The Center now contains several hundred monographs, seven journal and newsletter titles, a manufacturers' catalog file, a reprint file, videos, 35 mm slides, lanternslides, and photographs. Financial assistance from OITAF-NACS continues to support the journal collection of the information center. The monograph and serial titles are available through the computerized public access catalog, CATALYST at <http://catalyst.coalliance.org> and through a subject-specific database, ROPEWAY, at <http://ropeway.coalliance.org>. ROPEWAY includes citations to books, journal articles, conference articles, and other information contained in the Center and in some cases, elsewhere as well.

The Information Center for Ropeway Studies continues to be unique, as there are no other specialized information centers in this subject area in the United States. Although the Institute of Mechanical Systems, Ropeway Techniques Division at the Swiss Institute of Technology (ETH) in Zurich, Switzerland, has a significant collection with a portion of the collection accessible through the <http://chembib-CLICAPS.etha.ch> database, no other library has facilitated access to such a collection with a database for in-depth coverage. The ROPEWAY Database averages about 250 searches per month and the Center handles requests for information from around the world.

The collection was, in large part, donated by Charles "Chuck" F. Dwyer, P. E., a Colorado ropeway engineer with considerable experience in designing, building, testing, and regulating ropeway systems. Small historical collections from other ropeway professionals, such as Robert Deiner, Robert Heron, and Casper Meals, are added as they are received and new items are purchased each year.

CHARLES F. DWYER BIOGRAPHY

A Denver native, Charles F. Dwyer was born in 1921. He attended the University of Colorado, graduating in 1942 with a B.S. in Civil Engineering. After college, he served in the U.S. Naval Reserve, seeing action in both the European and Pacific theaters. He entered the ropeway profession in 1946 by answering an ad in a Denver newspaper, which read, "steel detailer wanted." Heron Engineering Company, a newly formed engineering firm in Denver, had placed the ad. They were fabricating the structural steel and providing machinery components for the No. 1 single-chair lift at Aspen, Colorado. Dwyer also worked on the No. 2 single-chair lift at Aspen. While working on these lifts, Heron Engineering was retained by Berthoud Pass, Colorado, to design and supply structural and mechanical components for the first continuously-

¹ Systems Librarian, Arthur Lakes Library, Colorado School of Mines, Golden, CO 80401 lguy@mines.edu

² Director, Arthur Lakes Library, Colorado School of Mines, Golden, CO 80401 jlerrud@mines.edu

³ Administrative Assistant, Arthur Lakes Library, Colorado School of Mines, Golden, CO 80401 jward@mines.edu

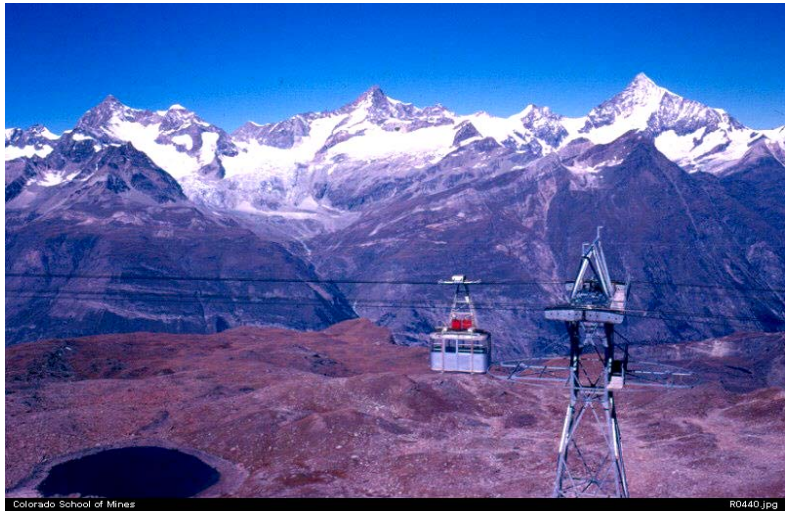
circulating, fixed-grip, double-chair lift in the world. In 1947, Heron installed two tandem, bi-cable, single-chair lifts at Arapahoe Basin. In the early 1950s numerous Heron Engineering monocable, double-chair lifts were built in California and Utah. With Dwyer as one of their engineers, Heron Engineering also built several materials ropeways and access tramways throughout the West: a gondola was built at the Sugar Bowl ski area in California in 1953; and a reversible, 12-passenger tramway was built at Estes Park, Colorado, in 1955. Dwyer left Heron Engineering in 1960 to pursue work with Ketchum, Konkel & Hastings, a leading Denver structural engineering firm. In 1962 he left them to join E. G. Constam, pioneer lift engineer and supplier of surface lifts in Europe, Canada, and the United States. Dwyer stayed with Constam three years, installing 15 chair lifts and T-bars. In 1965, Dwyer joined Breckenridge Lands Corporation where he was in charge of engineering and construction for the new Breckenridge Ski Area. In 1966, Dwyer was encouraged to submit an application for the Chief Aerial Tramway Engineer on the Washington Office Staff of the U.S. Forest Service. Working out of Denver, his responsibilities included training and assisting Forest Service engineers from all nine regions in ropeway activities. During the late 1960s, the U.S. Forest Service became actively involved in exercising jurisdiction over ropeway facilities operating on public lands.

As part of his Forest Service employment, Dwyer began writing for the ropeway field including Forest Service manuals and procedural manuals and then branching out into articles for the industry journals. Dwyer was involved in several special projects during his tenure with the U.S. Forest Service. These included: 1) the Walt Disney proposal for ski area development in the Mineral King area of California, 2) the proposal for large-scale materials transport associated with mining projects in the White Clouds area in Idaho, 3) ropeway access for the top of El Unke in Puerto Rico, 4) possible ski area near Mendenhall Glacier near Juneau, Alaska, and 5) several large-cabin reversible tramway projects: Palm Springs, California; Jackson Hole ski area near Teton Village, Wyoming; and Sandia Peak near Albuquerque, New Mexico. Dwyer also assisted in the investigation of ropeway accidents including: 1) the 1976 gondola accident in Vail, Colorado; 2) the 1986 chair lift accident at Keystone Resort in Colorado; 3) the T-bar accident at Loveland Basin Ski Area in Colorado; 4) the 1978 reversible tramway accident at Squaw Valley Ski Area in California; and 5) the chairlift accident at Heavenly Valley, California. He was active in many professional societies and organizations, including service on the B77.1 Aerial Passenger Tramways Committee under the umbrella of the American National Standards Institute. After 21 years of service with the U.S. Forest Service, Dwyer retired to begin a career as an active retiree.

In 1991, Dwyer gave the Arthur Lakes Library his professional library, including books, journals, and papers. It has formed the core collection of the Information Center for Ropeway Studies. Included in the gift of materials are hundreds of historically significant photographs and 35 mm slides.

DESCRIPTION OF DWYER'S PHOTOGRAPHIC CONTRIBUTIONS

The slides and photographs contributed by Charles F. Dwyer are organized into several books categorizing different aspects of ropeway systems. Dwyer's collection contains nearly 1,500 slides taken between 1957 and 1985. The slides depict construction, components, and evacuation of ropeways. Many of the images illustrate the operating components within ropeway systems. Dwyer has photographed ropeways in Europe as well as the United States and Canada.



Matterhorn Area. Photograph by Charles F. Dwyer October 1969

The photographs and slides are currently being digitized, described, and added to the Arthur Lakes Library's Image Database (<http://csmphotos.coalliance.org>). Interested individuals may



Erecting tower at Copper Mountain, Colorado Photograph by Charles F. Dwyer July 1972

access and view the images from anywhere in the world. These images are of considerable value because they document ropeway historical use, accidents, equipment configuration, and facility design. The images also contain educational and cultural content. This digitization project is one of several efforts taking place to foster new and existing partnerships, further develop the collection, increase visibility of the Center, and improve the availability of Center materials.

The majority of the construction slides, depicting the erection of ropeways, construction of access roads, and land surveys, were taken in the early 1970s at Copper Mountain, Colorado; Winter Park, Colorado; Cheyenne Mountain, Colorado; Lake Eldora, Colorado; and Mt. Shasta, California.

Dwyer included slides of the main ropeway components that facilitate safe and efficient transport of goods and people: towers, sheaves, bull wheels, wire rope, chairs and grips, ramps for loading and unloading passengers and materials, and other structures for housing drive terminals and machinery. Most of the Center's slide collection is made up of these types of images, which is

one of the historically significant attributes of the collection.

The bulk of Dwyer's evacuation slides were taken at safety seminars; however, some were taken in emergency situations. Evacuation images from Vail, Colorado; Park City, Utah; Mammoth Mountain, California; Grouse Mountain, Vancouver, British Columbia; and Seven Falls, Colorado, are all included in the collection.

The collection also contains OITAF-NACS photographs from the 1st and 5th Continental Enclosed Carrier Tramway Symposia, which took place in Snowbird, Utah, August 27-31, 1979 and Steamboat Springs, Colorado, in August 1992. This portion of the collection includes snapshots of symposia participants and conference-sponsored ropeway tours.

As a ropeway engineer for the U.S. Forest Service, Dwyer photographed U.S. ski areas and ropeways. Most of these are located in Colorado; however, there are photos from Stratton Mountain Resort, Vermont; Teton Village, Wyoming; Park City, Utah; Sun Valley Resort, Idaho; and Mt. Hood, Oregon.



Dr. Gabor Oplatka and Max Clayton at OITAF-NACS 1st Continental Enclosed Tramway Symposium, August 1979. Photograph by Charles F. Dwyer

DIGITIZATION PROJECTS AT THE ARTHUR LAKES LIBRARY

As the cost of high quality scanning equipment dwindles and the Internet's reputation as an academic tool grows, the digitization of precious resources has become a priority and a reality at the Arthur Lakes Library. Several digitization projects have been undertaken to provide access to the Library's unique holdings. (For example, see Mining and Mineral Industries in the US: Photographic Perspectives at <http://www.mines.edu/library/cdp/index.html>, and the digitized version of the 1909 San Juan Placers, Gabel Mining District Papers at <http://www.mines.edu/library/archives/MHA0005.html>).

The availability of wire rope material online benefits a far broader audience – both in and out of academe – than could be reached by traditional means. However, digitization is not preservation, and the intent of most major digitization projects such as the Library of Congress American Memory Collections (<http://memory.loc.gov/ammem/>) is not to *replace* the original materials but to *enhance access*. Indeed, digital resources represent a significant investment that requires its own preservation: digital content is vulnerable to software and hardware obsolescence and information specialists such as librarians and archivists must make long-term commitments to keeping collections accessible.

A wide variety of original sources, including pictorial and textual materials, audio, video, maps, atlases, and sheet music can be digitized. The nature and content of the originals, the primary purposes of the project, the state of technology, the availability of resources, the scale of the

collection, and the goals of the program should all be taken into account when defining digitization procedures. “Best practices” for the creation, storage, and management of digital content as well as descriptive metadata (which supports discovery through search and browse functions) must be identified. The Arthur Lakes Library staff has developed measures, strategies and best practices for creating, preserving and making accessible digital resources.

These procedures have been employed in a project to digitize and create access to the photographic collection of Charles F. Dwyer.

The following are best practices for the digitization of materials that have been established by Library staff. These strategies and standards serve their purpose at a given time, but changing source materials and technologies may require different solutions in the future:

- An archival or preservation image file is distinguished from an access image file (usually a lower resolution copy) that can be created for access purposes.
- Both preservation and access files are in standard (e.g., non-proprietary) formats.
- Originals are scanned at the highest quality possible and appropriate to avoid rescanning and re-handling the original item.
- A document (e.g., photograph) is treated as an object. Unambiguously documenting and describing it ensures access to the document.
- Meaningful descriptive information is compiled and a record is created for each individual item, enabling a user to *find*, *identify*, *select*, and *obtain access* to the entity described.
- There is no “one size fits all” for scanning. Different documents have different attributes that dictate how they are treated.

During the scanning process, image quality choices (type of image representation, spatial resolution, luminance, compression, etc.) are made prior to creation of the digital object based on artifact type, physical features, and end usage.

The initial image capture (scanning) creates the preservation quality image and sets an upper limit on the image quality that is available for any subsequent use of the initial image. The purpose of preservation quality images is the reconstruction (to the extent possible) of a faithful copy of the original source document. In addition, the preservation quality image is used to produce access quality images which are optimized for retrieval and viewing over a network.

Preservation quality images are created in the TIFF (Tagged Image File Format) file format. Scanning is done at the highest resolution appropriate to the nature of the source material. These images are not edited, processed or compressed in any way so as to produce an archival-quality digital image. Longevity of the preservation copy is viewed as being dependent not only on the

durability of the archival media on which it is stored, but on the quality of the initial image capture being sufficient to support all future needs.

After the preservation quality image is created, two different access copies are produced to fulfill two different types of access strategies. Access copies are created in the JPEG (Joint Photographic Experts Group) file format. The first access copy is intended for sustained, detailed use via the Internet and provides a full, accurate representation of the image but has a file size appropriate for online use. In addition to having a lower resolution and being significantly faster to load over the Internet than the preservation quality image, a small black border containing identifying information is placed on the bottom of the image. This border is not intended as a watermark so much as a way to provide image identification and branding.

The second access copy is a “thumbnail” image intended for browsing use in the bibliographic record. It is greatly reduced in size in comparison to the other access copy. The thumbnail is small enough to load quickly into the Image Database’s item record display. It is hyperlinked to the larger access image. Along with the record’s descriptive information the thumbnail allows the user to decide if they want to view the larger image.

Describing pictorial materials accurately is time-consuming and expensive. Unlike a book, which usually has a title page on which basic information is recorded, an image does not describe itself. Words are needed to indicate the place or event represented in a photograph, its creator, the names of people portrayed, and when it was taken. The creation of quality descriptive cataloging as well as related metadata that provide the information needed to retrieve, access and manage the images are key components to any digitization project. The information describes intellectual content, technical features, and ownership and rights management information. For the Dwyer photographs, the bibliographic records are created at the time of scanning, using software designed in-house that facilitates the production of quality information. A single bibliographic record describes both the original item and the digitized preservation quality image. The purpose of these records is to enhance online search and retrieval accuracy and improve resource discovery and identification capabilities in the Image Database.

The descriptive information contained in the bibliographic records is profoundly important. As content is added and enhanced, the user is more likely to find records that match a search request. Mandatory elements required to describe the photographs in the Image Database include: title, creator, subject terms, dates (original and digital), format, rights, thumbnail image, link to full-sized access image, holding institution information, and description. All the fields of the records are indexed and searchable.

After initial creation, the records are converted into the USMARC format, which is the internationally accepted bibliographic data format required by the database software. The records are then loaded into the Image Database where they are freely accessible to interested individuals anywhere in the world.

THE IMAGE DATABASE

The Image Database at the Colorado School of Mines' Arthur Lakes Library provides access to historical and recent images of mining, ropeways, Colorado scenery, and the Colorado School of Mines campus. These images represent photographs and other graphic formats held by the Arthur Lakes Library (including those donated by Charles F. Dwyer) and the National Mining Hall of Fame and Museum in Leadville, Colorado. Like its sister database, ROPEWAY, the Image Database is a sophisticated and powerful bibliographic database that provides a search tool to assist users in discovering what information resources are located within the Library. Bibliographic records in the database are surrogates of the "real thing" – a photograph, slide, or other graphic format. The record describes in broad terms the item and provides the user enough information to determine its usefulness. A small "thumbnail" image is included in the record display, as is a link to the full-sized access image.

Searching the Image Database

Basic Searching or Custom Searching?

To begin a search the user goes to <http://csmphotos.coalliance.org> and clicks on one of two search options to select a Basic Search or a Custom Search.

The Basic Search (see Figure 1) performs a normal search. In the dialog boxes, specify the search terms and the type of search (Keyword, Author, Title, Subject). Choosing Basic Search permits the following searches to be performed:

Keyword Anywhere (Relevance) searches retrieve items containing one or more keywords in any part of the record. Similar to a web search engine, results are ranked with most relevant items appearing first. Enter words in any order as with an Internet search engine.

Keyword Anywhere (Boolean) searches retrieve items containing one or more keywords in any part of the record. Combine search terms using: **and, or, not**.

Author Browse searches retrieve items that a person or corporate entity has authored. Enter last name first for personal names, and enter corporate names in normal order. Enter as much of the name as known, e.g. **johnson** finds Dave Johnson, E.W. Johnson, J.A. Johnson, John Johnson, etc.

Title Browse searches retrieve items by the exact title or first few words of the title. Multiple words are treated as a phrase: mosquito pass (finds "mosquito pass"). Searches automatically truncate to the right when abbreviated, e.g. **mos** finds mosquito pass, mosquito gulch, etc.

Subject Heading Browse searches retrieve items by subject, e.g. **animals, pack or leadville (colo) or copper mines and mining**.

Database Name: Image Database

Figure 1: Basic Search Screen

Use the Basic Search to:

- Search by the item’s exact title or by the first few words of the title.
- Browse an author's list of works.
- Generate a relevancy listing based on words used anywhere in the record.
- Combine search terms using Boolean operators.

A Custom Search (see Figure 2) finds records using keywords located in specific fields. Choosing Custom Search permits the following searches to be performed:

Keyword Anywhere searches retrieve items with one or more keywords or phrase found in any of the record’s fields (author, title, description, subject, etc.).

Author Name searches retrieve items with personal or corporate name search term entered in the record’s authorship fields.

Title Keyword searches retrieve items with the search term entered in the record’s title field.

Subject searches retrieve items with the search term entered in the record’s subject (“keyword”) field.

Database Name: Image Database

Basic Search Custom Search

Search for: all of these Search by:

AND OR NOT

Search for: all of these Search by:

AND OR NOT

Search for: all of these Search by:

10 Records per page Search Reset

Figure 2: Custom Search Screen

Use the Custom Search to:

- Search for a title when the first few words of the title are not known.
- Combine different fields in a search such as Author and Title, or Author and Subject.

Title Lists and Author/Subject Headings

Most searches result in a list of titles (see Figure 3). The exceptions to this rule are the Author Browse and Subject Browse searches, which result in a list of author or subject headings. In the case of title lists, the user can click on the hyper-linked list entry to go directly to an item record. In the case of headings lists, the number of titles associated with each name or subject is listed. Only one heading and its associated titles may be viewed at a time by clicking on the heading.

#	Title Long	Author	Date
<input type="checkbox"/> 1	[Summit of Mosquito Pass] [picture]		1950
<i>Contact the Circulation Desk for Assistance Regarding Holdings Information</i>			
<input type="checkbox"/> 2	[Summit of Mosquito Pass] [picture]		1950
<i>Contact the Circulation Desk for Assistance Regarding Holdings Information</i>			
<input type="checkbox"/> 3	[Summit of Mosquito Pass] [picture]		1950
<i>Contact the Circulation Desk for Assistance Regarding Holdings Information</i>			
<input type="checkbox"/> 4	[Summit of Mosquito Pass] [picture]/ Charles T. Burgess	Burgess, Charles T.	1950
<i>Contact the Circulation Desk for Assistance Regarding Holdings Information</i>			
<input type="checkbox"/> 5	[Summit of Mosquito Pass] [slide]		1950
<i>Contact the Circulation Desk for Assistance Regarding Holdings Information</i>			

Figure 3: Title List Screen

Item Records

Individual item records can be displayed in Citation or Staff view. Citation view provides all the information associated with the record, including author, title, subject, narrative, URL and date (see Figure 4). Some fields are hyper-linked: clicking on a hyperlink leads to other similar records (if the hyperlink is an author or subject), or to the digitized image or digital rights statement. Staff view provides the record in USMARC format and is primarily used by librarians.

[Erecting tower with aircrane at Copper Mountain, Colorado].

Database: Image Database

Call Number: R0573

Title: [Erecting tower with aircrane at Copper Mountain, Colorado].

Other Author(s): [Arthur Lakes Library.](#)

[Russell L. and Lyn Wood Mining History Archive.](#)

Date: August 1973.

Linked Resources: [Full size image.](#)



[Digital Rights Statement](#)

Description: Slide : col. ; 2 x 2 in.

Access: Restricted access.

Narrative: Sikorsky-Erickson Air-Crane lifts tower into place.

Subject(s): [Copper Mountain Resort.](#)

[Ropeways Construction Colorado.](#)

[Towers.](#)

[Copper Mountain \(Colo.\).](#)

[Summit County \(Colo.\).](#)

[White River National Forest \(Colo.\).](#)

Notes: Item title supplied by cataloger.

"Copper Mtn."

The following information applies to the digital image:

Date scanned: 2004-04-10.

Computer file. 1 file : 722,764 bytes ; 600dpi.

Corresponding digital image available from the Colorado School of Mines; online via <http://www.mines.edu/library/digital/photodb/R0573.jpg>.

Figure 4: Item Record

Output Options

Multiple records from a title list can be selected by marking the checkbox on the left side of the screen. Marked records may then be emailed, saved to disk, or printed.

Use the **Record Options** dialog box at the bottom of the screen to select your output options. In the **Records** section select: **Selected on Page**, **Selected on all Pages** or **All on Page** to select records. Choose the **Download Format** desired (either Full Record, Brief Record or EndNote Citation). Finally, *print*, *save* or *email* the records you have selected.

Search History

Clicking the **History** button displays a record of the searches performed during a session. The user can edit and/or resubmit earlier searches from this list. The most recent search will appear first. When the browser is closed or the user clicks the **Exit** button, the history record is deleted.

Need Help?

At any time click on the **Help** button to receive basic assistance on database functions and features.

CONCLUSION

Scholars in such disciplines as architectural historians, environmental researchers, and social and political historians have traditionally used graphic image collections. In the past, research libraries focused primarily on meeting the needs of scholars; however, researchers are no longer the main clientele for graphic image collections. K-12 students, genealogists, history buffs and others (including those desiring the acquisition of images for sentimental or aesthetic uses) are often the main users of image collections. The universal reach of digital images on the Internet has become a means to respond to this escalating demand to furnish broader access.

Although online access to images can serve as a reference surrogate, reference librarians at the Arthur Lakes Library play an important role in the creation of the Image Database by providing guidance on bibliographic content, record display, and search configuration. And despite one of the goals of the Image Database to be “self-serve,” reference librarians continue to assist patrons in the identification and access of materials of interest. The Image Database provides many helpful features to assist users such as the inclusion of thumbnail images, a variety of search types, numerous output options, and hyperlinked fields identifying related records.

The images Charles F. Dwyer donated to the Arthur Lakes Library are of considerable value and have diverse applications. Dwyer’s career spanned an important time in the history of recreational ropeways. Photographs from these years document the quickly expanding ski industry of the time, the evolution of components and machinery, and the elements of design for ropeways. Additionally, Dwyer was very involved in the foundations of safety for ropeways that continues to influence design approval and testing of newly constructed ropeways as well as continued testing for operational ropeways. Evacuation methods, well documented in his

collection, show proper evacuation procedures; many of these methods are still in use today. Dwyer's collection also includes pictures of several ropeway accidents. In addition to providing a historical record of each incident, analysis of these images assists industry in maintaining the highest level of safety standards.

In addition to the practical and historical applications of the images donated by Charles F. Dwyer, there are cultural contexts to the images as well. For example, pictures of Vail in the 1960s show a very different type of community than Vail in 2004. Additionally, there are culturally noteworthy photos of other landmarks throughout the United States and Europe.

The photographs donated by Charles F. Dwyer belong to one of several collections being digitized for inclusion in the Image Database of the Arthur Lakes Library at the Colorado School of Mines. Dwyer's contribution includes nearly 1,500 photographs and slides taken between 1957 and 1985. These pictures depict ropeway construction, components and evacuations, accident documentation, and conference attendees. Using procedures developed at the Library, the photographs and slides are described, digitized and uploaded into the Image Database. As seen above, the database contains searchable records detailing each item. Along with its descriptive content, each record includes a thumbnail image and a link to the full-sized image. The Dwyer photographs can be used for artifactual, educational, historical, cultural, analytical and other purposes. In accessing the Image Database, people from all over the world can benefit from the contributions of Charles F. Dwyer.