Alaska State Library
Historical Collections

Guide to Collection

Davis, Trevor M., Collector

Trevor M. Davis Photograph Collection

PCA 97-1

1 folder
15 b&w photographs

Processed by : Ken Nail
Updated by: Jacki Swearingen, Mar. 2014

ACQUISITION: The fifteen photographs in this collection were part of the photographs copied from the nearly 2,000 negatives Trevor Davis donated to the Alaska State Library between 1985 and 1987. The specific accession number is unknown.

ACCESS: The collection may be viewed. However, the images may not be photocopied.

COPYRIGHT: Request for permission to publish or reproduce material from the collection should be discussed with the Librarian.

PROCESSING: The photographs are numbered and sleeved in Mylar.

BIOGRAPHICAL NOTE

Trevor Davis was born to Francis Caroline (Brooks) Davis and J. Montgomery Davis on December 10, 1892 in Alameda, California. At the age of three months, he came to Juneau with his mother who had gone south for the delivery.

Trevor began taking photographs in 1912 of the Juneau area and Southeast Alaska and continued until his retirement in 1969. For twenty-five years, he also owned the "Snappe Shoppe," a photography store located on Seward Street. In 1922, Trevor married Carol Beery, a musician, author and poet laureate of Alaska. One of Trevor's more unusual possessions was a 12"x 20" negative camera that enabled him to photograph panoramic views of the Juneau area. The camera was previously owned by Ed Andrews, a Douglas photographer whose studio burned in the Douglas fire of 1937. Trevor Davis died in on March 6, 1990 in Juneau, Alaska.

Trevor's mother, Francis Davis, was an artist, originally from London, and created many paintings of Alaska, some of which are in the Alaska State Museum. Davis Street, in Juneau, is named for J. Montgomery Davis, Trevor's father, who came to Juneau in 1891 to work for the Nowell Gold Mining Company.

SCOPE AND CONTENTS NOTE

The 15 photographs in this collection were taken in the mill of the Alaska-Juneau Gold Mining Company, ca 1930. The details concerning gold processing and machinery were provided by John Mulligan and others at the U.S. Bureau of Mines, Juneau.

INVENTORY

1-1. [Two rotary tipples, A-J mill.] (no. I)

Milling began at the rotary tipples. The tipple on the left was dumping simultaneously 4 ten-ton ore cars from the mine. Each train from the mine had forty similar cars. The tipple on the right was being repaired. The ore from the mine usually had an average value of about $1.50 or less per ton at $35.00 per ounce of gold. The mine operated 24 hours per day, 363 days per year and averaged over 12,000 tons per day. The tipples dumped over 1200 car loads per day, into a 1500 ton hopper. Six devices, called apron feeders, moved the ore from the hopper to the primary crushers.

1-2. [Crushers, A.J. mill.] (no. 3)

The 3 primary crushers on the main crusher floor below the tipples. These were 36 x 48 inch Jaw crushers with 8-inch open settings. These crushed plus 4-inch size mine run feed from the tipple hopper and fed it to a series of grizzlies (coarse bar screens) and vibrating screens that segregated the ore by size. To allow for maintenance, two crushers worked, while one was held in reserve. The entire mill was similarly engineered to avoid shutdowns caused by equipment failure.

1-3. [Close-up of vibrating screen.]

One of the vibrating screens on the crusher floor. Ore from the hopper and the primary crushers was segregated by size and mineral content using screens and picking belts. All plus 4-inch size ore went over two picking belts that carried it past groups of four men who raked off the mineralized rock. Plus 3-inch size went over similar picking belts. All minus 3-inch size ore and all mineralized ore raked off the picking belts was crushed to progressively finer sizes as it passed through gyratory crushers, cone crushers and two roll crushers. Fines were screened out at every stage and fed to the bal1 mills. The ultimate result was 3 products; (1) plus 4-inch waste, (2) plus 3-inch waste, and (3) minus 1 1/2-inch ball-mill feed.

1-4. [Man working between conveyor belts.]

Plus 4-inch waste on the left and plus 3-inch waste on the right enroute via belt haulage from the picking belts to the dump. The man probably was greasing the bearings. One-half of the mine run rock was discarded at this stage. This is the source of the "A-J rock" that forms the rock dump and is used for fill throughout the Juneau area. Discarding half the ore cut grinding costs with little loss of gold. If all the rock had been ground the mine would not have been profitable.

1 -5. [Close-up of roll crusher belt.]

The mineralized rock from the picking belts and the minus 4-inch material from the primary crushers went to the gyratory crushers and then to the cone crushers. Plus 1 1/2-inch discharge from the cone crushers went to the roll crushers. This was a roll crusher driven through the belt shown and a similar belt on the opposite side by a pair of 150-horsepower electric motors. It was one of the number 2 roll crushers that crushed to a smaller size material previously crushed in a number 1 roll crusher. The two wheels crushed the material as it passed between them. See picture 6(1-14). Minus 1 1/2-inch discharge from the rolls went to the ball mills.

1 -6. [Three workers, right, near dismantled roll crusher.] (no. 91)

A roll crusher dismantled for repair. (Howard Hayes is the man on the left). The mechanics on the maintenance crew were putting a shell on one of a set of two rolls. The circular device made of pipes was an oil or gas burner used to heat the shell. The shell was like a thick steel tire. It fitted over a very heavy split rim that was keyed to the axle. The men were tightening the split rim while the shell was hot. When the shell cooled it shrank to make a very secure fit.

1 -7. [Ball mill and drag classifier.]

In the background is a ball mill, a rotating steel tank lined with heavy steel plates and containing steel balls which ground the crushed ore to fine sand size. In front of the ball mill is a drag classifier that separated the sand from the water and slimes by dragging the sand up a ramp. The objects with round openings in the foreground are spare bearing caps for the roll crushers.

1 -8. [Ball mill, left; stairs, right.] (no. 17)

A ball mill equipped with trunnion trommel screens to remove fines. Oversize was returned by elevators for regrinding.

1 -9. [Upper ball mill floor with elevators.] (no. 1 0)

Discharge from grinding in the ball mills was screened and cleaned in desliming cones. Three products resulted: (1) oversize that was elevated and reground (2) fine sands that were sent to the Deister tables for treatment (3) fines and slimes that were sent to thickeners and then to flotation cells for treatment.

1 -10. [Man, left, background in machine shop.]

The machine shop. A large force of mechanics was constantly employed in maintenance and repair. (no. 37)

1 -11. [Man working at lathe.] (no. 31)

A large lathe in the machine shop. The mine plant also included a foundry in which worn and broken parts were melted and recycled.

1-12. [A battery of Deister tables, gravity separation devices.]

There were over 100 in the mill. There also were gravity traps and sluices to recover coarse gold. The deslimed fine sands (minus 7 mesh) from the ball mills flowed over riffles on the tables in a stream of water. The devices driven by a belt in the foreground imparted shaking motion to produce three products: (1) a concentrate of heavy minerals (2) middlings for retreatment and (3) tailings for disposal. The feed to the tables had about 4 dollars worth of gold per ton. After a series of treatments including screening and regrinding the concentrate was worth over 20 thousand dollars per ton.

1-13. [Man, left, near floatation cells.]

Flotation cells on the retreatment floor. These cells contained water and small amounts of oily materials, called reagents, which selectively coated certain minerals. When air was bubbled through the mixture, the coated materials formed froth on the surface that was skimmed off. Two products resulted: (1) mineralized concentrate which was dried and shipped to a smelter (2) tailings which were discarded.

1-14. [Man, right, cleaning amalgam.] (no. 92)

The gravity concentrate from the Deister tables assayed $20,000 to $30,000 per ton. It was charged into the rotating steel drum in the background with a few pounds of slaked lime and about 600 oz. of mercury that had been cleaned with nitric acid. The drum was rotated about 5 or 6 hours with a piece of shafting in the drum. The drum was then discharged into the 4-foot pan in the foreground (called a mechanical batea). The pan overflowed a galena (lead ore) product that contained silver and about $75 per ton in gold. This was sent to a smelter. The product retained in the pan was mercury and amalgam -- gold partly dissolved in mercury. The man in the foreground was cleaning the amalgam. The amalgam was retorted (distilled) to recover the mercury for reuse. The gold remained as a spongy mass that was charged into a crucible for melting.

1-15. [Man, left, preparing to tip furnace.] (no. 30)

Oil-fired melting furnace. Inside was a crucible similar to the one in the foreground. In front of the furnace was a mold on a movable stand. When the gold melted, the furnace was tipped forward to allow the liquid gold to pour into the mold. In the mold the gold cooled to form a dore (pronounced doe-ray) brick. This was sent to the mint where it was refined to remove silver, copper and other metals.

INVENTORY OF ORIGINAL NEGATIVES

Negatives stored in freezer in Vault

Series 1: **Box 10** of 10

PCA97-1: 1-15 Copy negatives made from prints in PCA 97-1, created by Trevor Davis. Housed in freezer with PCA 97.