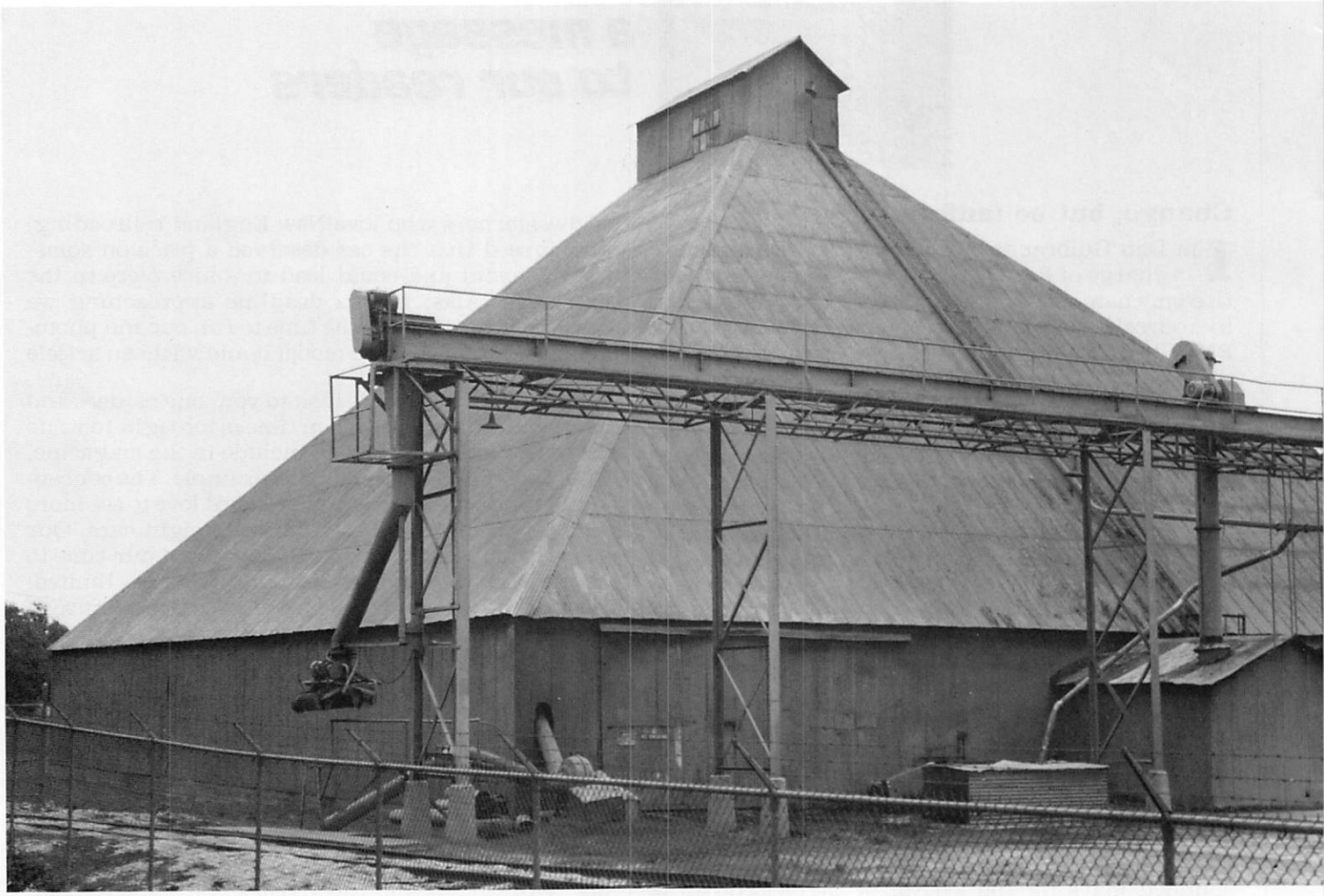
Cotton Oil Mills



A cottonseed storage shed at the Anderson and Clayton cotton oil mill in Richmond, Texas. These unique buildings feature low walls and high, steep-angled roofs which match the shape of seedpiles. The overhead conveyor is used to load rail cars with seed.

You can easily recreate this industry and its unique buildings and traffic for boxcars, hoppers and tank cars on your layout using the author's space-saving ideas

BY CYRIL DURRENBERGER
PHOTOGRAPHY BY THE AUTHOR

Cotton is a cash crop that has been grown in the southern states for over a hundred years. At first the lint (fiber) was the only real product, but later it was found that the cottonseed had many uses beyond simply being seed for the next crop. Cottonseed contains a high-quality, edible oil that has been extracted for many years. The oil is used to make shortening, salad oil and margarine; it is also an additive for soap, paint and some lubricants.

The cottonseed is separated from the lint at a cotton gin, but some of the lint sticks to the cottonseed. This lint must be removed prior to extracting the oil, or much of the meat will stick to the lint-covered hull and some of the oil will not be recovered. First the seed is run through "saws" to remove as much of the lint as possible. Frequently the seeds pass through three sets of saws. The lint, sometimes called linters, is cleaned and baled, then stored. The lint from the seeds has short fibers, but it is used to make rayon, plastics, film, paper, batting, felt and other products. Lint is shipped from the plant in boxcars.

The cleaned seeds are cracked in the huller and then the hulls are separated. The hulls are sent to a storage building where they are loaded in bulk in rail cars (covered hoppers starting in the 1950s) or sacked for shipment. The meat is sent to the expeller where it is flaked and cooked with steam for about an hour. The cooked meat is then pressed to remove the oil. The oil is filtered and pumped to storage tanks. The oil is shipped in railroad tank cars or in tank trucks. The remains of the meat is called cake, which is usually ground and formed into pellets. The pellets can be loaded in bulk in rail cars or sacked. The hulls and pelletized cake are used for animal feed.

Fig. 1/Flow Diagram for Cotton Oil Mill

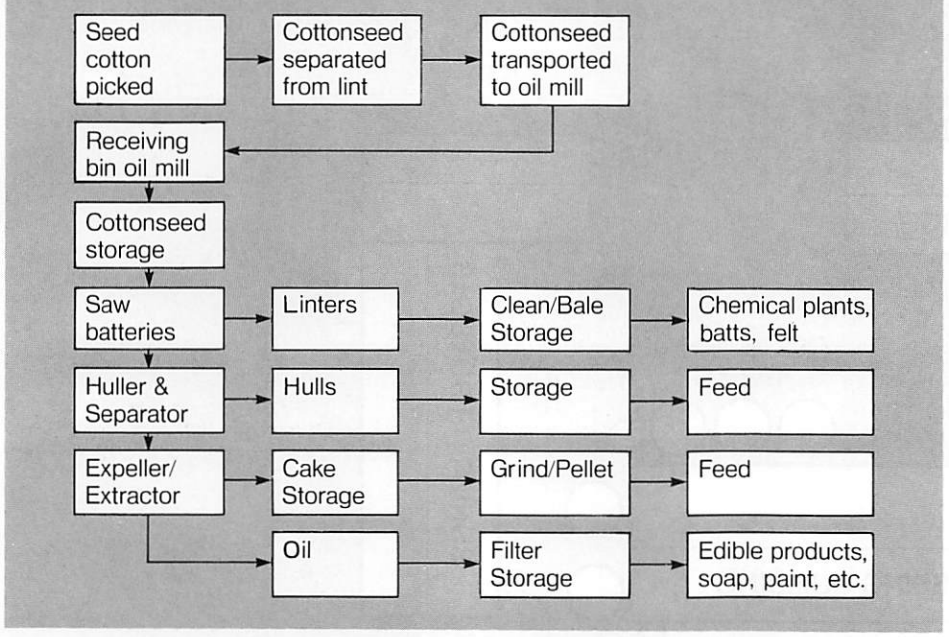


Figure 1 is a flow diagram that illustrates the procedures used to process the cottonseed. A companion article on cotton gins appears in the February 1987 issue of PM and explains the process of separating the cottonseed from the lint. Let's look at two typical cotton oil mills. The first mill is smaller and is located at Elgin, Texas, at the junction of the MKT and SP railroads. Figure 2 is a plot plan of the oil mill and shows the location of all the structures. There is the receiving bin, where the cottonseed is dumped from trucks, and two storage buildings. One storage building has slanted side walls while the other has short walls and a high roof with a sharp angle. These shapes are to better cover a pile of seed with a minimal size for the covering shed. There is a process area where the saws and oil extraction process are located. The cake is stored in a building and the oil is stored in tanks. The cyclone is a recent device used to control air pollution from the facility. An office and scale complete the complex. This industry is served by two railroad tracks. In times past, cotton oil mills could receive the seed in boxcars, but today most is delivered in trucks. The meal is shipped in covered hoppers and the oil is shipped in tank cars.

The second cottonseed oil mill is owned by Anderson and Clayton and is located in Richmond, Texas, on the SP; its layout is illustrated in Fig. 3. This oil mill began operation in 1925, so some of the buildings there are old. The structures are basically similar to the first mill with the storage buildings having short walls and high,

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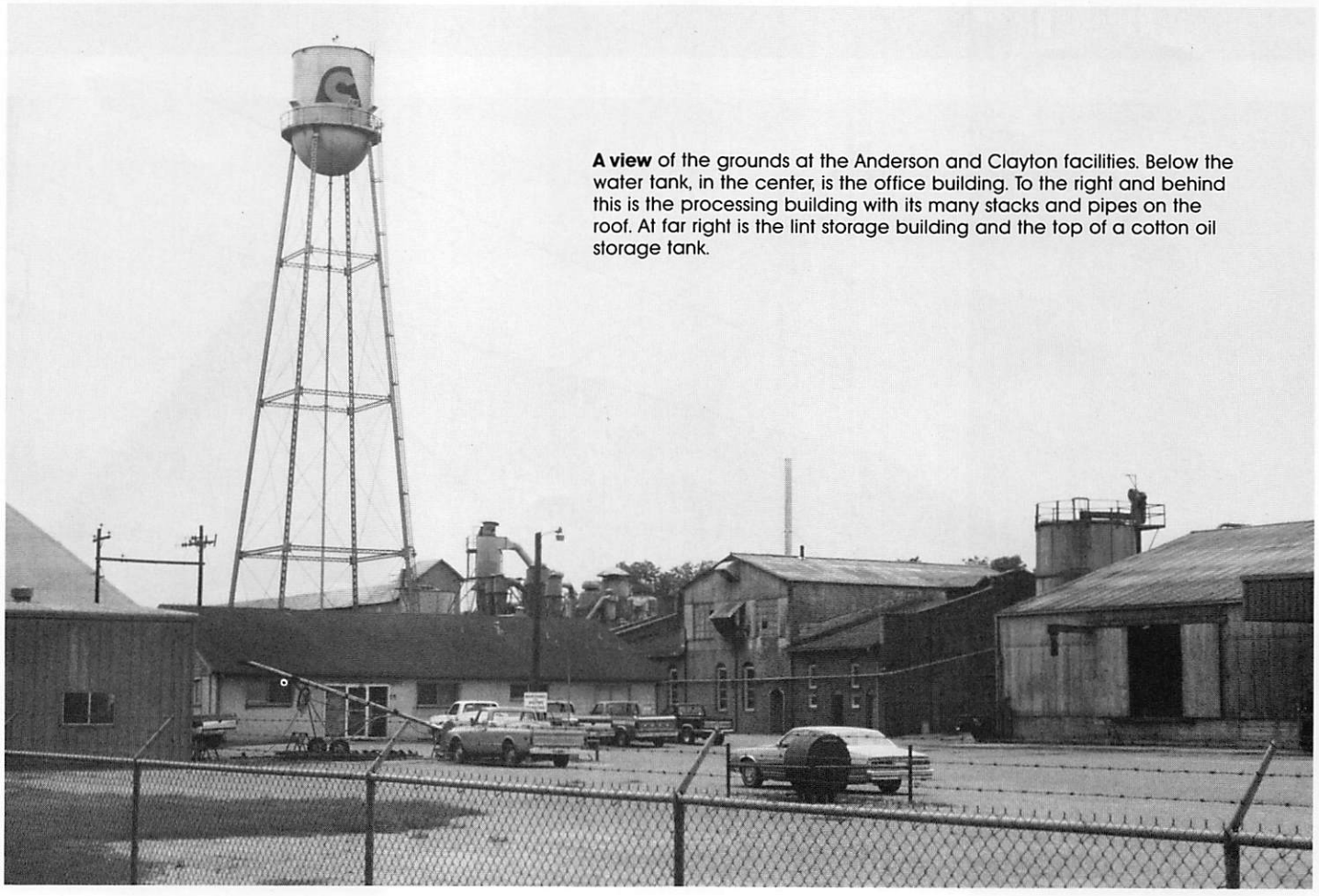
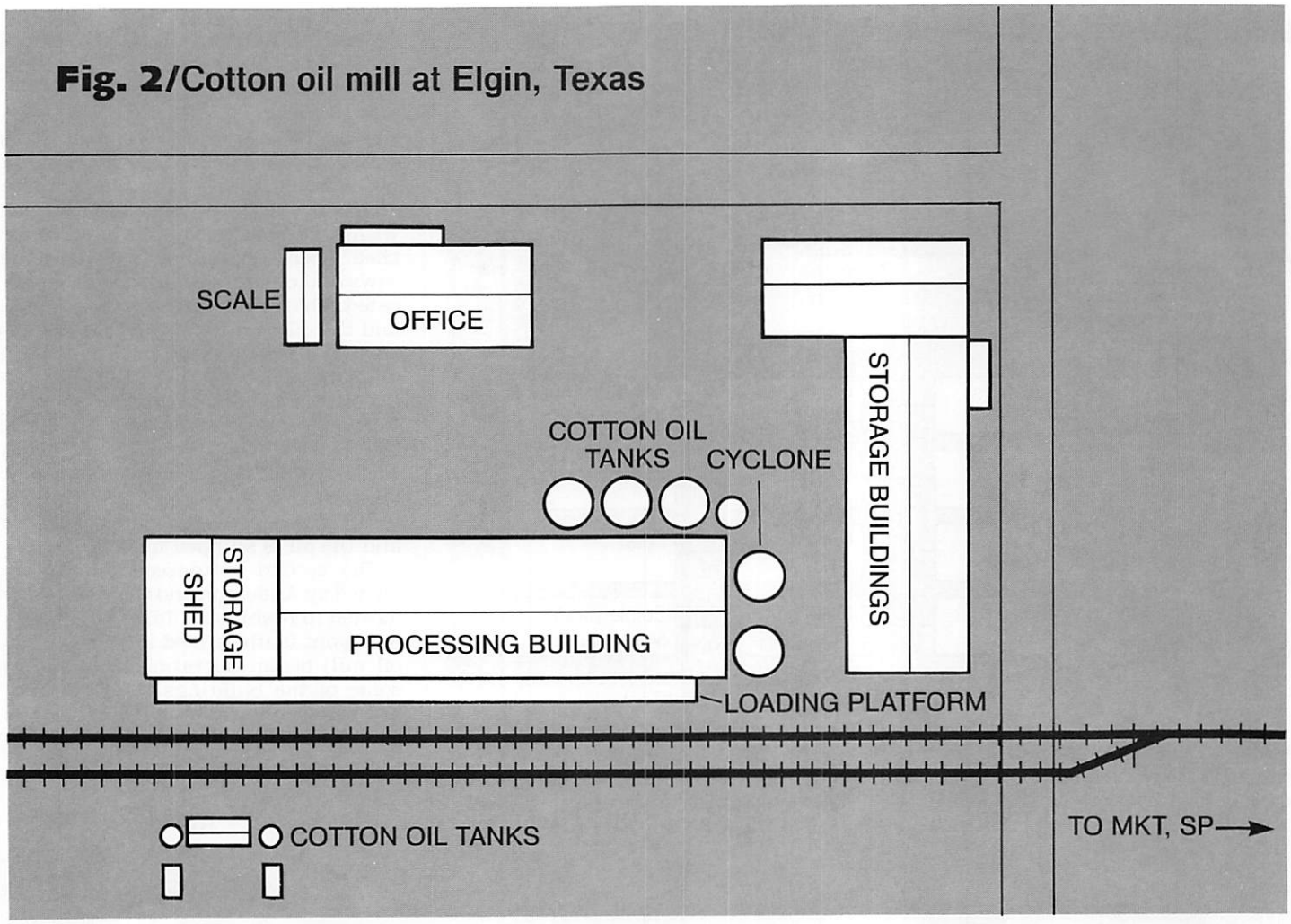
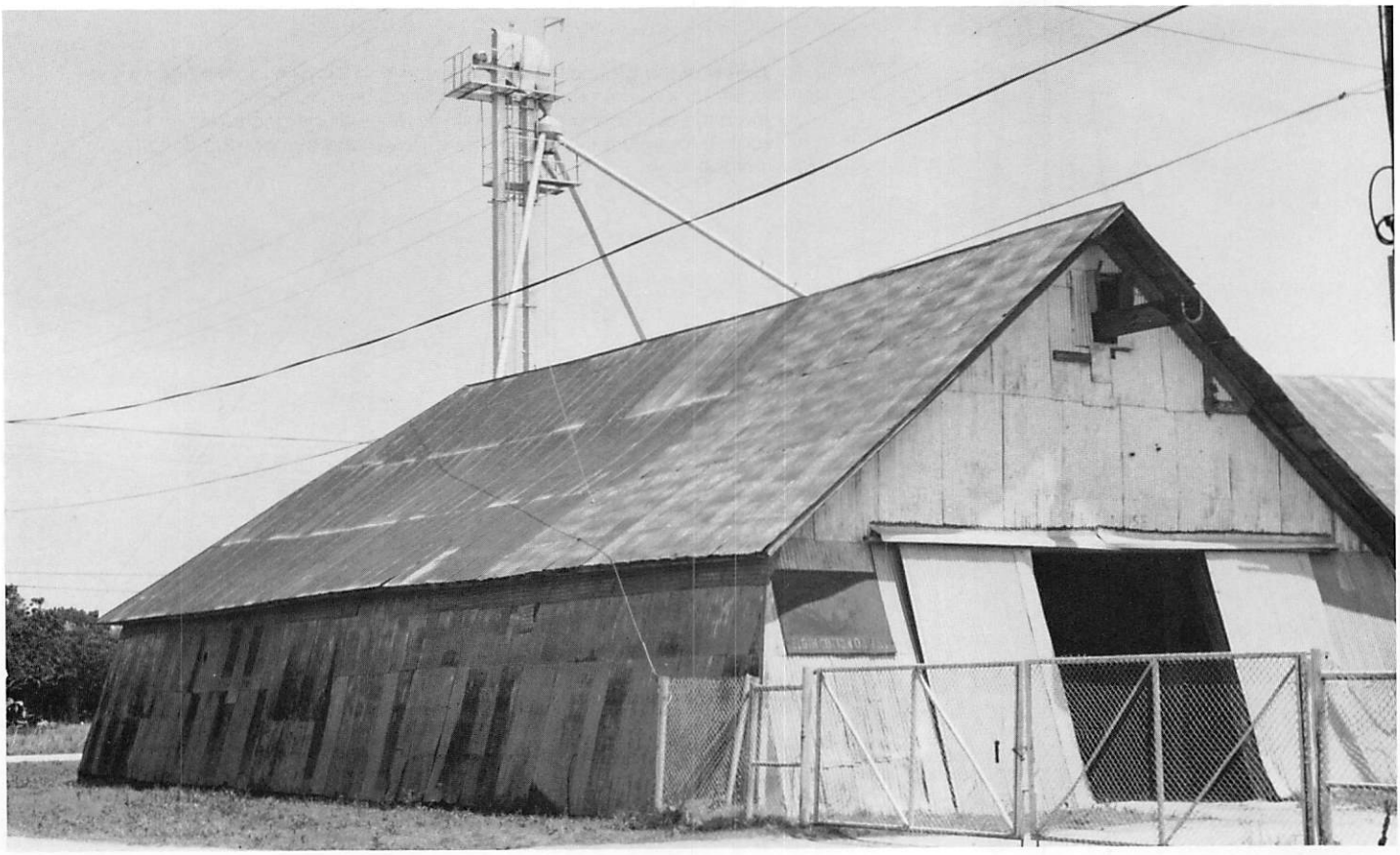


A view of the grounds at the Anderson and Clayton facilities. Below the water tank, in the center, is the office building. To the right and behind this is the processing building with its many stacks and pipes on the roof. At far right is the lint storage building and the top of a cotton oil storage tank.

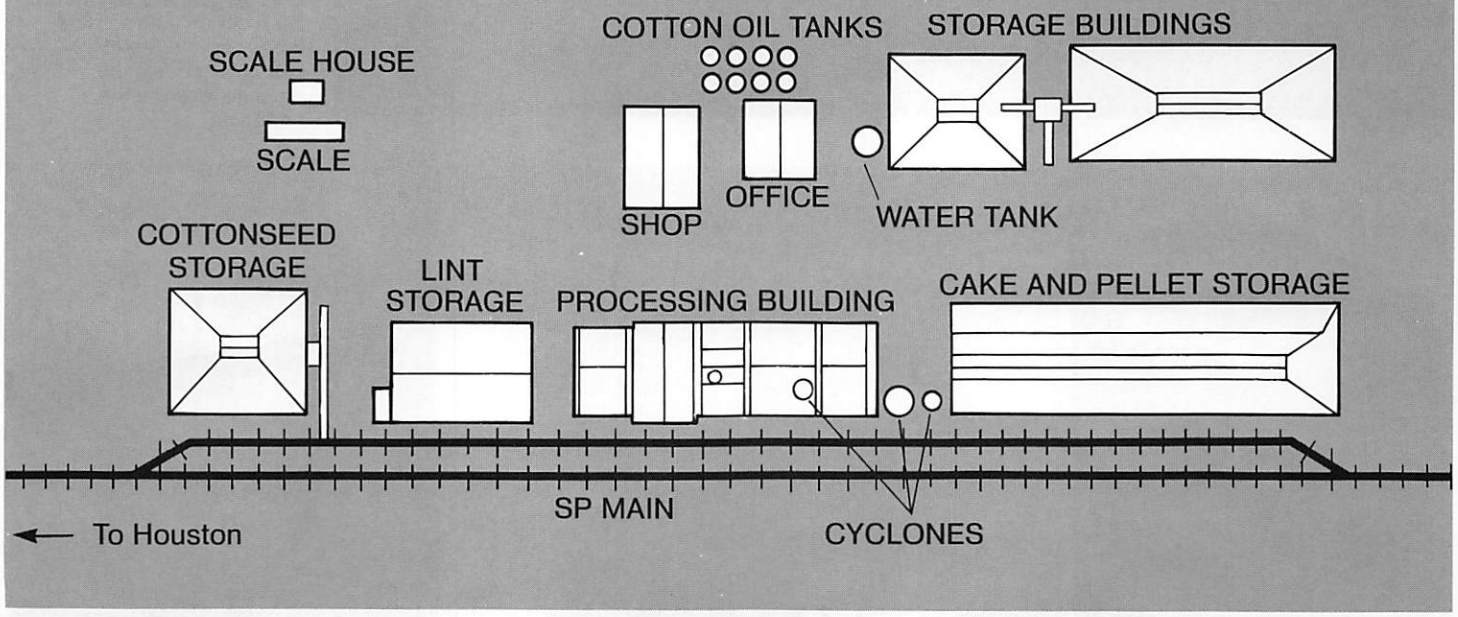
Fig. 2/Cotton oil mill at Elgin, Texas

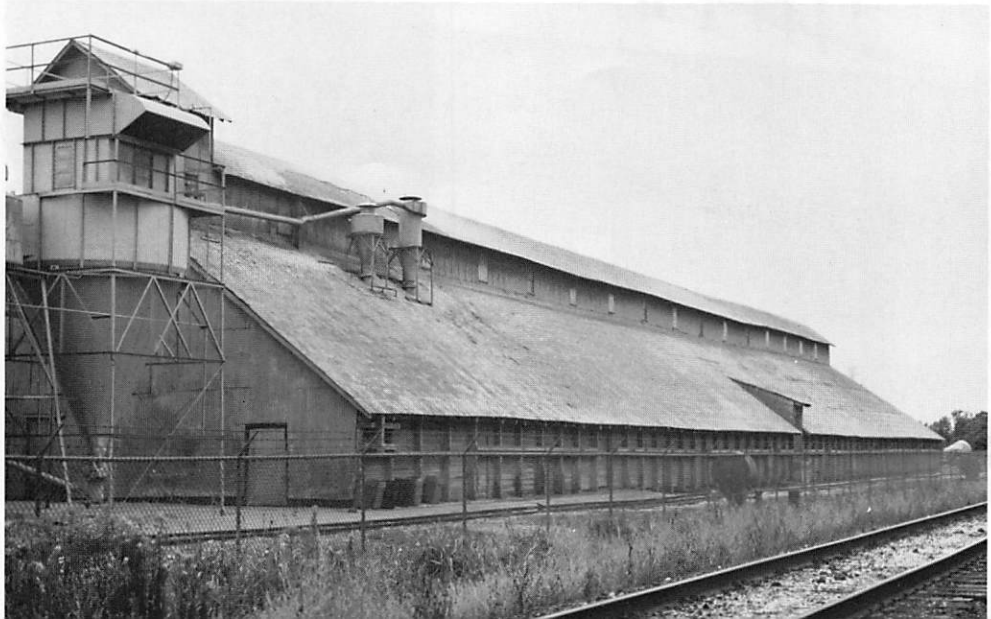




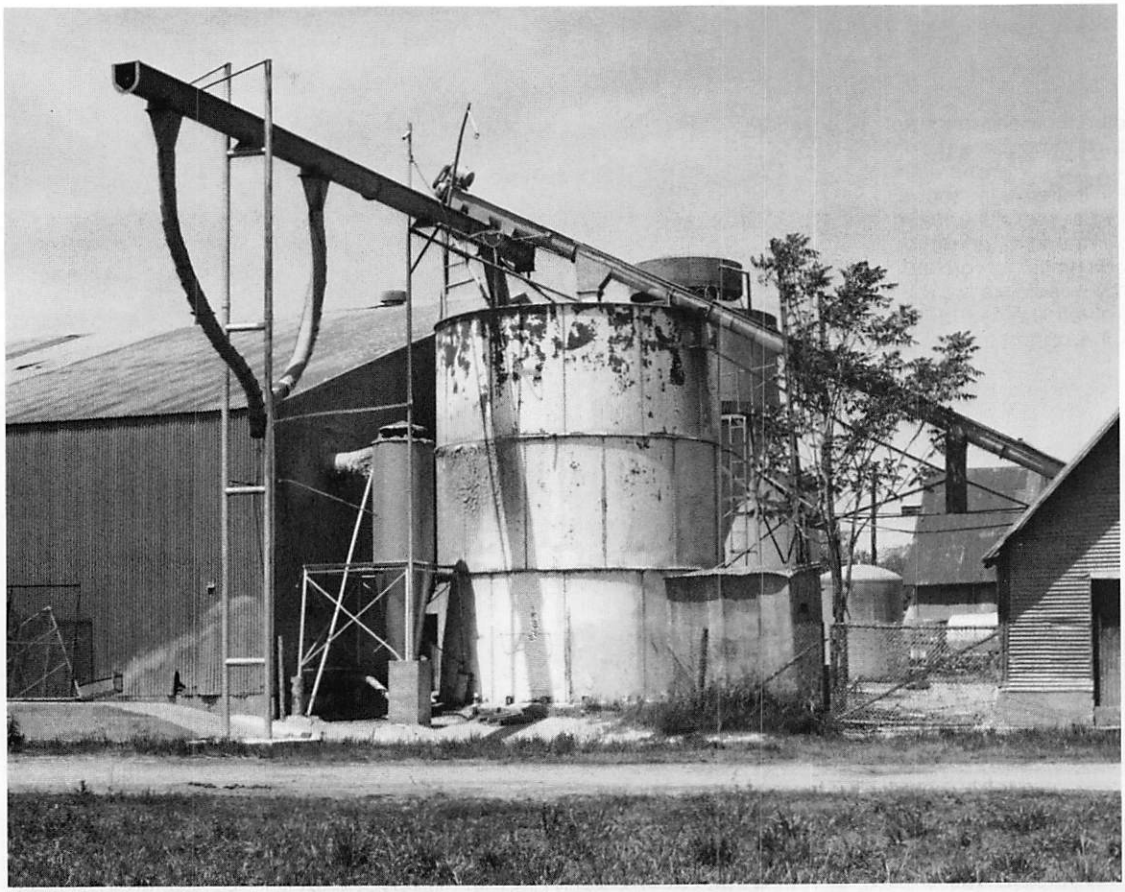
Opposite page below: The small cottonseed storage shed at the Elgin, Texas, cotton oil mill. Though the building looks as if it is about to fall down, the slant in the walls is a construction feature; this design better fits the shape of a cottonseed pile. **Right:** An end-view of the large storage shed at the Elgin mill shows the screw conveyor and spout used for loading rail cars. In the foreground, next to the building and hidden by weeds, are two railroad tracks. In the background, at left, the roof of the small storage shed pictured on the opposite page is visible.

Fig. 3/Anderson-Clayton cotton oil mill Richmond, Texas



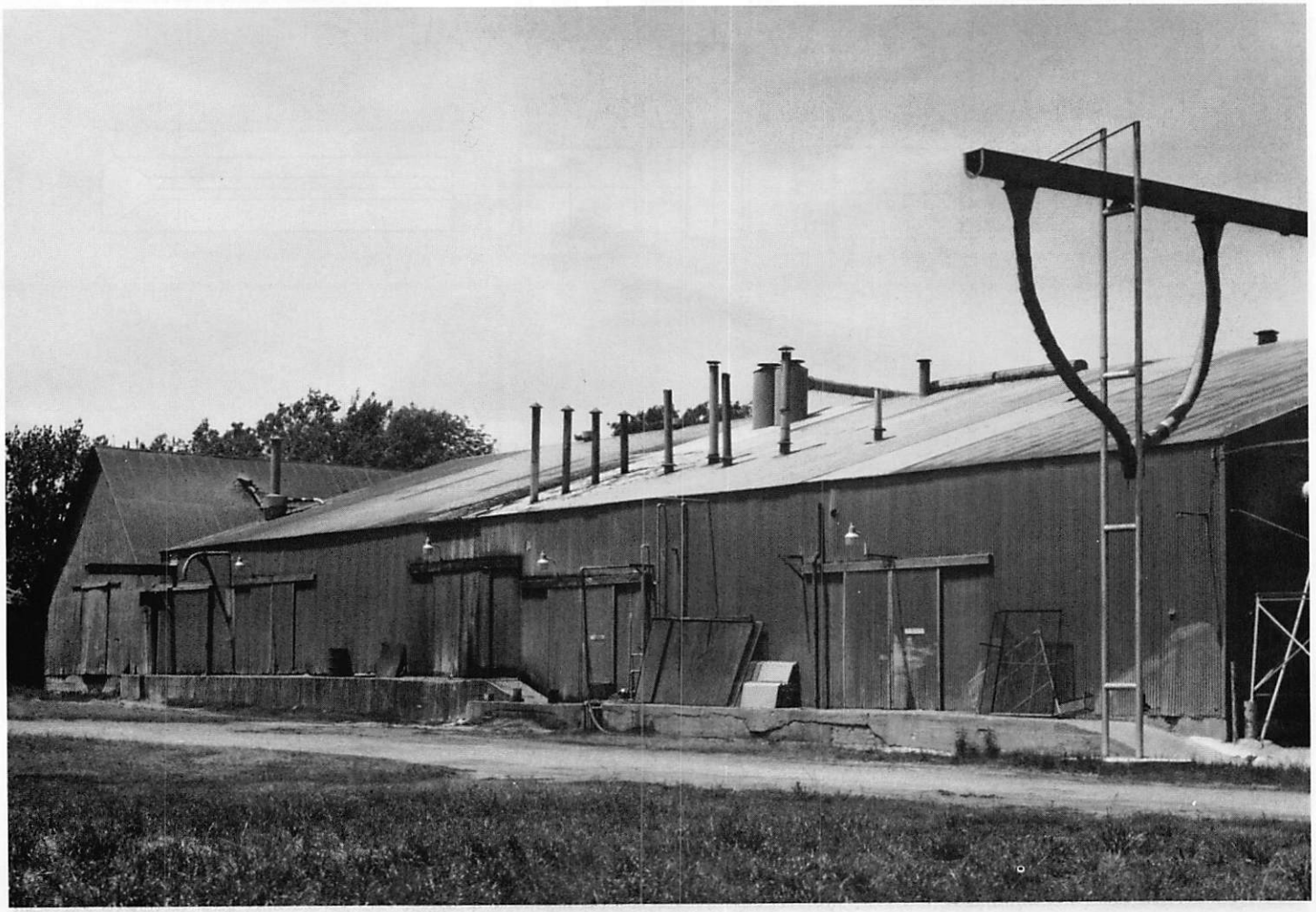


The large cotton oil mill owned by Anderson and Clayton has a number of storage buildings, each of which is used to store a different specialized product associated with cottonseed milling. This long building is used to store pelletized cake, a by-product of the oil extraction process. In the foreground is the SP main line to Houston.



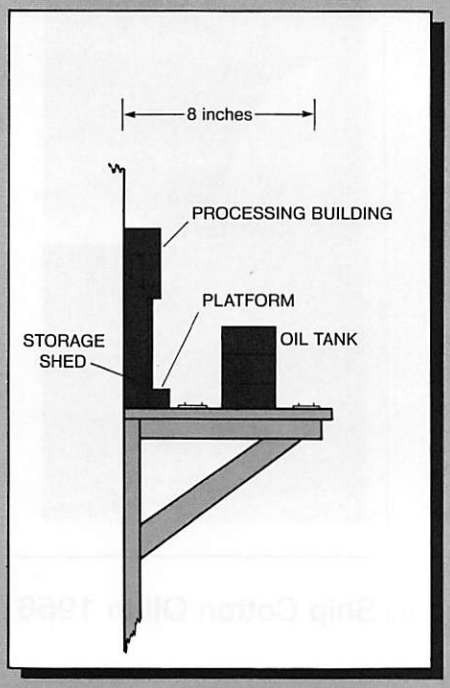
Prior to shipping, cotton oil is stored in tanks such as this one at the Elgin facility. The tank is located adjacent to the processing building (at left), where the oil is produced, and next to the railroad tracks (obscured by weeds) for easy transfer to tank cars.

With a model of a simple corrugated building and the addition of a few key details, it is easy to produce a satisfying replica of a cotton oil processing building like the one shown below from the Elgin mill. Modelers will want to add features such as the vents on the roof, the pipes and the two-level platform to make the structure look like the prototype.



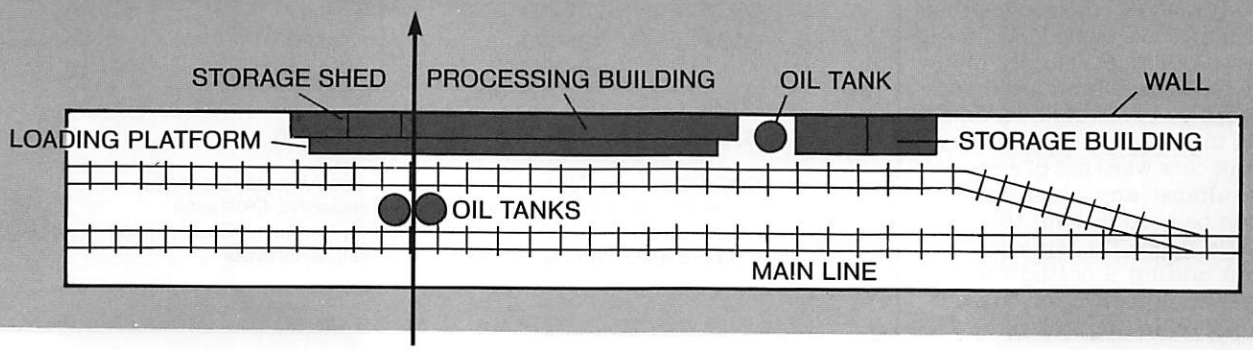
The processing building at the Anderson and Clayton mill is an older brick structure. The large funnel-shaped devices are cyclones which have been added in recent years to control air pollution resulting from the oil extraction process.

Fig. 4/ Modeling a cotton oil mill with flats



Using flats is an effective way to model cotton mills without sacrificing too much space or getting too elaborate in your construction of buildings. In the crossectional view at left, you see that only a small part of the processing building and storage shed are actually modeled; many detail features can simply be painted on the backdrop.

Cross-sectional view



steep roofs. The storage building for cake pellets is wood with a corrugated tin roof. The process building is brick while the other structures are made of corrugated tin.

One effective way to model a cotton oil mill that would not require much room would be to build it with flats, or with partial structures. For example, the first mill illustrated could be modeled by including the end of one of the seed storage buildings, the side of the process building with loading docks and the attached end of the storage building. The oil storage tanks could be added between the spur and the main line, but placed parallel to the tracks so that they do not require much room. Such a treatment would require only about six to eight inches with two spurs. This is illustrated in fig. 4.

In the past, a number of cotton oil mills have owned their own railroad

Table 1/Tank Cars Used to Ship Cotton Oil in 1924

Reporting Marks	Number Series	Capacity (gal)	Total
ACOX	1-960	8,000	724
FCGX	5-25	8,100	5
GOMX	101	5,700	1
	102-103	7,400	2
	201-203	8,100	3
ICOX	600-720		13
LIOX	150-154	8,100	5
SCOX	1-281		
	300-382		
	601-700		396
TCOX	500-595	8,000	
	600-665	6,600	34

ACOX American Cotton Oil Company, New York, New York
FCGX Forney Cotton Oil and Ginning Company, Forney, Texas
GOMX Globe Cotton Oil Mills, Los Angeles, California
ICOX Interstate Cotton Oil Refining Company, Sherman, Texas
LIOX Liberty Cotton Oil Company, Oklahoma City, Oklahoma
SCOX Southern Cotton Oil Company, New Orleans, Louisiana
TCOX Trinity Cotton Oil Company, Dallas, Texas

A standard tank car waiting to be filled with cotton oil on the siding at the Anderson and Clayton mill. In years past, many cotton oil mills owned their own tank cars which were used exclusively for transporting cotton oil.

cars. To give you an idea of the names used and what sort of equipment has been owned by cotton oil mills, I have included some extracts from 1924 and 1956 "Official Railroad Equipment Registers" in tables 1 and 2. The cars included are those that were used exclusively to transport cotton oil. Other companies may have owned cars used to ship cotton oil, and certainly many leased cars could have been used. Your cotton oil mill can own its own small fleet of cars to be used to ship its product. The tank cars were not of a special design, so almost any older type of tank car can be used to haul this oil.

Got a little space on your layout? Think about adding a cotton oil mill that will generate traffic for boxcars, covered hoppers and tank cars.

Table 2/Tank Cars Used to Ship Cotton Oil in 1956

Reporting Marks	Number Series	Capacity (gal)	Total
COCX	201-203	8,000	3
CCOX	125-129	8,000	
	251-259	10,000	12
CUMX	6-9	8,000	4
ECOX	1121-1129	8,000	5

COCX California Cotton Oil Corporation, Los Angeles, California
CCOX Chickasha Cotton Oil Company, Chickasha, Oklahoma
CUMX Cuero Cotton Oil and Manufacturing Company, Cuero, Texas
ECOX Eagle Cotton Oil Company, Meridian, Mississippi