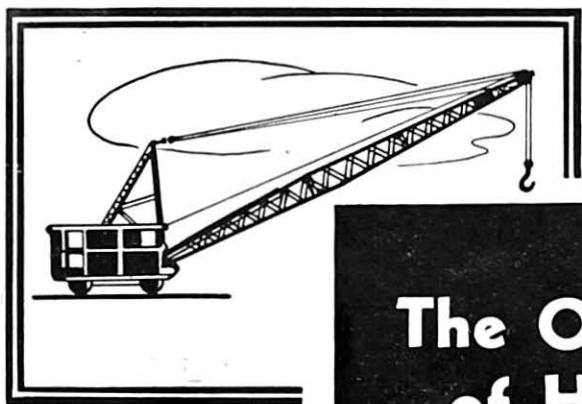


THE OPERATION OF HOISTING
APPARATUS.



The Operation of Hoisting Apparatus

OCCUPATIONAL HAZARDS TO YOUNG WORKERS
REPORT NO. 7

UNITED STATES DEPARTMENT OF LABOR
Division of Labor Standards
Child Labor and Youth Employment Branch

CHILD-LABOR SERIES NO. II

— OCCUPATIONAL HAZARDS TO YOUNG WORKERS

Report No. 1.—The Explosives-Manufacturing Industries. Children's Bureau Publication 273. 1942.

Report No. 2.—Motor-Vehicle Drivers and Helpers. Children's Bureau Publication 274. 1941.

Report No. 3.—The Coal-Mining Industry. Children's Bureau Publication 275. 1942.

Report No. 4.—The Logging and Sawmilling Industries. Children's Bureau Publication 276. 1942.

Report No. 5.—Woodworking Machines. Children's Bureau Publication 277. 1942.

Report No. 6.—Radioactive Substances. Children's Bureau Publication 286. 1942.

Report No. 7.—The Operation of Hoisting Apparatus. Child Labor Series No. 11. 1946.

Copies of any or all of these reports may be obtained on request from the Child Labor and Youth Employment Branch, Division of Labor Standards, U. S. Department of Labor, Washington 25, D. C.

LETTER OF TRANSMISSION

UNITED STATES DEPARTMENT OF LABOR,
DIVISION OF LABOR STANDARDS,
October 1, 1946.

HON. L. B. SCHWELLENBACH,
Secretary of Labor.

SIR: The report transmitted herewith, on the occupational hazards to young workers involved in the operation of hoisting apparatus, is the seventh in a series of investigations conducted under the child-labor provisions of the Fair Labor Standards Act of 1938 by the Industrial Division of the Children's Bureau. This report was made available in mimeographed form in May 1946 by the Children's Bureau. It served as the factual basis for Hazardous Occupations Order No. 7, which was proposed by the Chief of the Children's Bureau on May 23, 1946, and on which a public hearing was held on June 25. The order was issued on July 11 by the Chief of the Children's Bureau and became effective September 1, 1946. This order has the effect of raising the minimum age from 16 to 18 years, in establishments covered by the Fair Labor Standards Act of 1938, for employment in occupations involving the operation of power-driven hoisting apparatus, including elevators, cranes, derricks, hoists, and high-lift trucks. It is quoted in full in the appendix of the report.

Acknowledgment is due to employers and safety experts cooperating in the investigation. Especially helpful were studies made by the Air Technical Service Command and the Safety Branch, Office of Industrial Relations, Navy Department, and reports of State labor departments. Special thanks are accorded to the following technical advisers who reviewed a preliminary draft of the report, made valuable suggestions, and aided in the formulation of the order:

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William L. McFetridge, president, International Union of Building Service Employees, Chicago, Ill.

Jennie Mohr, Women's Bureau, U. S. Department of Labor, Washington, D. C.

P. J. Morrin, president, International Association of Bridge and Structural Iron Workers, St. Louis, Mo.

John M. Roche, director, Industrial Division, National Safety Council, Chicago, Ill.

Harry L. Sain, superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus, Ohio.

J. C. Wheat, Industrial Brownhoist Corporation, Bay City, Mich., and chairman, Section Committee, American Standard Safety Code for Cranes, Derricks and Hoists.

Samuel Wolchok, president, United Retail, Wholesale and Department Store Employees of America, New York, N. Y.

The powers under which hazardous occupations orders are issued under the child-labor provisions of the Fair Labor Standards Act were transferred from the Chief of the Children's Bureau to the Secretary of Labor by the President's Reorganization Plan No. 2, effective July 16, 1946. The duty of investigating and reporting on occupations particularly hazardous for young workers is among those delegated by the Secretary of Labor to be performed by the Division of Labor Standards through its Child Labor and Youth Employment Branch (formerly the Industrial Division of the Children's Bureau). This report is, therefore, now published as a bulletin of the Child Labor and Youth Employment Branch of the Division of Labor Standards. The Child Labor and Youth Employment Branch is under the direction of Beatrice McConnell, who, as Director of the former Industrial Division, was administratively responsible for the studies on which this and the six previous reports on occupations hazardous for young workers were based.

The investigation was made and the report prepared in the Research Section of which Elizabeth S. Johnson is in charge, by Sheldon W. Homan, safety engineer. The statistical material on industrial injuries was developed by Miriam Noll, specialist in accident statistics.

Respectfully submitted.

VERNE A. ZIMMER, *Director.*

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APPENDIX I. DEFINITIONS OF CRANES, DERRICKS, AND HOISTS

The principal types of cranes, derricks, and hoists are those defined by the American Standard Safety Code for Cranes, Derricks, and Hoists. This report of investigation covers all these types as well as other and similar types not defined in the code.

The principal types of apparatus covered by the American Standard Safety Code for Cranes, Derricks, and Hoists are defined as follows:

Types of cranes

Cantilever gantry crane.—A gantry crane in which the bridge girders or trusses are extended transversely beyond the crane runway on one or both sides. Its runway may be either on the ground or elevated.

Crawler crane.—A crane of the locomotive-crane type mounted on a tractor frame instead of on a railroad car, using tractor or caterpillar belts, or treads, for locomotion in any direction.

Gantry crane.—A crane similar to an overhead traveling crane, except that the bridge for carrying the trolley or trolleys is rigidly supported on two or more movable legs running on fixed rails or other runway.

Hammerhead crane.—A rotating counterbalanced cantilever equipped with one or more trolleys and supported by a pivot or turntable on a traveling or fixed tower.

Ingot-pouring crane.—An overhead traveling crane used for pouring molten metal into ingot molds.

Jib crane.—A fixed crane consisting of a vertical member supported at top and bottom, from which extends a horizontal revolving arm carrying a trolley.

Locomotive crane.—A crane consisting of a self-propelled car operating on a railroad track, upon which is mounted a rotating body supporting the power-operated mechanism together with a boom capable of being raised or lowered at its head (outer end), from which end is led a wire rope for raising and lowering a load.

Motor-tractor crane.—See crawler crane.

Motor-truck crane.—A crane of the locomotive-crane type mounted on a motor-truck frame or rubber-tired chassis.

Overhead traveling crane.—A crane on a pair of parallel elevated runways, adapted to lift and lower a load and carry it horizontally parallel to, or at right angles to, the runways, or both; and consisting of one or more trolleys operating on the top or bottom of a bridge, which in turn consists of one or more girders or trusses mounted on trucks operating on the elevated runways, with its operation limited to the area between the runways.

Pillar crane.—A fixed crane consisting of a vertical member held in position at the base to resist overturning moment, with constant-radius revolving boom supported at the outer end by a tension member.

Pillar jib crane.—A fixed crane consisting of a vertical member held at the base, with horizontal revolving arm carrying a trolley.

Pintle crane.—A crane similar to a hammerhead crane, but without a trolley, and which supports the load at the outer end of the cantilever arm.

Portal crane.—A gantry crane without trolley motion, which has a boom attached to a revolving crane mounted on a gantry, with the boom capable of being raised or lowered at its head (outer end). Portal cranes may be fixed or mobile.

Semi-gantry crane.—A gantry crane with one end of the bridge rigidly supported on one or more movable legs, running on a fixed rail or runway, the other end of the bridge being supported by a truck running on an elevated rail or runway.

Semi-portal crane.—A portal crane mounted on a semi-gantry frame instead of a gantry frame.

Storage bridge crane.—A gantry crane of long span usually used for bulk storage of material, with the bridge girders or trusses rigidly or nonrigidly supported on one or more legs. It may have one or more fixed or hinged cantilever ends.

Tower crane.—A portal crane, with or without an opening between the legs of its supporting structure, adapted to hoist and swing loads over high obstructions and mounted upon a fixed or mobile towerlike gantry. The revolving crane may be supported on the tower by a revolving mast or by a turntable.

Tractor (caterpillar) crane.—See crawler crane.

Traveling jib crane.—See walking jib crane.

Walking jib crane.—A jib crane with the vertical member running on a track, its upper end guided by a parallel overhead track.

Wall crane.—A crane having a jib with or without a trolley and supported from a side wall or line of columns of a building so as to swing through a half circle only. Wall cranes are usually of the traveling type, in which case they operate on a runway attached to the side wall or columns.

Types of derricks.

A-frame derrick.—A derrick in which the boom is hinged from a cross member between the bottom ends of two upright members spread apart at the lower ends and united at the top, the upper end of the boom being secured to the upper junction of the side members, and the side members braced or guyed from the junction point.

Breast derrick.—A derrick without a boom, the mast consisting of two side members spread further apart at the base than at the top, tied together at top and bottom by rigid members, the top held from tipping by guys, and the load raised and lowered by ropes through a sheave or block secured to the top cross-piece.

Chicago boom derrick.—A boom which is attached to a structure, an outside upright member of the structure serving as the mast, and the boom being stepped in a fixed socket clamped to the upright. The derrick is completed with load fall line and boom fall line.

Gin-pole derrick.—A derrick consisting only of a mast, with guys from its top so arranged as to permit leaning the mast in any direction, the load being raised or lowered by ropes leading through sheaves or blocks at the top of the mast.

Guy derrick.—A fixed derrick consisting of a mast capable of being rotated, supported in a vertical position by three or more guys, and a boom whose bottom end is hinged or pivoted to move in a vertical plane, with lines between the head of the mast and the head of the boom for raising and lowering the boom, and lines from the head of the boom for raising and lowering the load.

Stiff-leg derrick.—A derrick similar to a guy derrick except that the mast is supported or held in place by two or more stiff members capable of resisting either tensile or compressive forces. Sills are generally provided to connect the lower ends of the two stiff legs to the foot of the mast.

Types of hoists

Base-mounted electric hoist.—A hoist similar to an overhead electric hoist, except that it has a base or feet and may be mounted overhead, on a vertical plane, or in any position for which it is designed.

Clevis suspension hoist.—A hoist whose upper suspension member is a clevis.

Hook suspension hoist.—A hoist whose upper suspension member is a hook.

Monorail hoist.—A trolley suspension hoist whose trolley is suspended from a single rail.

Overhead electric hoist.—A motor-driven hoist having one or more drums or sheaves for rope or chain, and supported overhead. It may be fixed or traveling.

Simple drum hoist.—A hoist with one or more drums controlled by manually operated clutches, brakes or ratchet and pawl on drum, and control levers, which is operated by hand or by power.

NOTE.—This type of hoist is known to the trade as a contractor's hoist and is usually a portable unit.

Double-drum hoist.—A simple drum hoist having two independent hoisting drums.

Single-drum hoist.—A simple drum hoist having only one hoisting drum.

Single-fixed-drum hoist.—A single-drum hoist with the drum geared directly to the power unit instead of by means of friction clutches.

Triple-drum hoist.—A simple drum hoist having three independent hoisting drums.

Trolley suspension hoist.—A hoist whose upper suspension member is a trolley, for the purpose of running the hoist below a suitable runway. It may be either floor- or cage-operated.

APPENDIX II. INDUSTRIAL INJURY STATISTICS

Table I.—FATAL AND NONFATAL INDUSTRIAL INJURIES CAUSED BY HOISTING APPARATUS,¹ BY INDUSTRY; ILLINOIS

[Based on compensable injuries reported during the 3-year period 1941-43]

Industry	All injuries		Fatal		Nonfatal	
	Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
Total.....	3,928	100.0	119	100.0	3,809	100.0
Agriculture, forestry, fishing.....	11	0.3	.....	.....	11	0.3
Mining and quarrying.....	396	10.1	16	13.4	380	10.0
Construction.....	440	11.2	16	13.4	424	11.1
Manufacturing.....	2,173	55.3	44	37.0	2,129	55.9
Trade.....	371	9.5	13	10.9	358	9.4
Wholesale.....	146	3.7	8	6.7	138	3.6
Retail.....	225	5.8	5	4.2	220	5.8
Finance, insurance, real estate.....	95	2.4	10	8.4	85	2.2
Transportation, communication, public utilities.....	213	5.4	6	5.1	207	5.4
Service industries.....	220	5.8	14	11.8	216	5.7

¹ Chiefly elevators, cranes, and derricks.

Compiled from annual reports on industrial accidents of the Illinois Department of Labor, Chicago.

Table II.—INDUSTRY AND OCCUPATION OF EMPLOYEES INJURED IN ACCIDENTS CAUSED BY PASSENGER AND FREIGHT ELEVATORS; WISCONSIN

[Based on compensable-injury cases settled in 1941 and 1942]

Industry and occupation	Number of cases	Industry and occupation	Number of cases
Total.....	140	Manufacturing—Continued	
Mining.....	2	Maintenance man.....	1
Millwright.....	1	Millwright.....	3
Minor.....	1	Oiler, machine.....	1
Construction-special trade contractors.....	5	Operator, elevator (freight).....	9
Laborer.....	2	Operator, sewing machine.....	1
Painter, house.....	1	Operator, other or unspecified.....	1
Truck driver.....	1	Painter, house.....	1
Watchman.....	1	Shake-out man.....	1
Manufacturing.....	66	Toggler.....	7
Assembler.....	2	Trucker, hand.....	1
Bottler.....	1	Watchman.....	1
Cheese maker.....	1	Transportation, communication, and other public utilities.....	12
Clerk, file.....	2	Driver, truck.....	5
Clerk, shipping.....	3	Laborer, yard.....	1
Clerk, stock.....	2	Laborer, not elsewhere classified.....	2
Driver, truck.....	1	Mechanic, automobile.....	1
Driver, factory truck.....	2	Mover, furniture.....	1
Filter, pipe.....	2	Operator, elevator.....	1
Foreman.....	1	Warehouseman.....	1
Inspector.....	1	Wholesale and retail trade.....	45
Janitor.....	2	Carver, wood.....	1
Laborer, factory.....	9	Clerk, stock.....	5
Laborer, foundry.....	1	Driver, truck.....	5
Laborer, not elsewhere classified.....	9	Elevator man (construction).....	1
		Furrier.....	1

¹ Of these 146 injuries, 20 were to elevator operators, of whom 5 operated passenger elevators, 11 operated freight elevators, and 4 operated other types of elevators.

Table II.—INDUSTRY AND OCCUPATION OF EMPLOYEES INJURED IN ACCIDENTS CAUSED BY PASSENGER AND FREIGHT ELEVATORS; WISCONSIN—Continued

[Based on compensable-injury cases settled in 1941 and 1942]

Industry and occupation	Number of cases	Industry and occupation	Number of cases
Wholesale and retail trade—Con.		All other industries.....	16
Laborer, construction.....	2	Charwoman.....	1
Laborer, factory.....	2	Janitor.....	2
Laborer, yard.....	2	Manager, building.....	1
Laborer, not elsewhere classified.....	7	Operator, elevator.....	7
Maltster.....	1	Porter.....	2
Mechanic, automobile.....	1	Waitress.....	2
Mechanic, not elsewhere classified.....	1	Other or unspecified.....	1
Operator, elevator.....	3		
Salesman.....	6		
Waitress.....	1		
Warehouseman.....	5		
Watchman.....	1		

Compiled from Statistical Release No. 3123, issued November 20, 1943, by the Industrial Commission of Wisconsin, Madison.

Table III.—COMPARISON OF DISABILITY DISTRIBUTION RATES OF CRANE OPERATORS, CRANE HOOKERS AND RIGGERS, OPERATORS OF DERRICKS AND HOISTS, AND OPERATORS OF PASSENGER AND FREIGHT ELEVATORS, WITH SIMILAR RATES FOR ALL OTHER OCCUPATIONS; WISCONSIN

[Based on compensable-injury cases settled during the 3-year period 1941-43]

Occupation	Disability distribution of compensated cases						
	Number			Percent			
	Total	Death and permanent total	Permanent partial	Temporary	Death and permanent total	Permanent partial	Temporary
Total.....	82,686	444	6,966	75,276	0.5	8.4	91.1
Crane operators ¹	180	3	16	161	1.7	8.9	89.4
Crane hookers and riggers.....	303	4	61	298	1.1	16.8	82.1
Derrick and hoist operators.....	44	1	6	37	(?)	(?)	(?)
Elevator operators.....	106	.....	5	101	.....	4.7	95.3
Freight elevators.....	77	.....	5	72	.....	(?)	(?)
Passenger elevators.....	29	.....	.....	29	.....	(?)	(?)
All other occupations.....	81,993	436	6,878	74,679	0.5	8.4	91.1

¹ Includes all types of cranes.

² Percent not shown where base is less than 100.

Compiled from statistical releases of the Industrial Commission of Wisconsin, Madison.

Table IV.—DISABILITY DISTRIBUTION AND AVERAGE NUMBER OF DAYS LOST PER INJURY FOR ELEVATOR INJURIES, COMPARED TO ALL OTHER CAUSES; OHIO¹

[Based on lost-time industrial injuries reported during 1943]

Cause of injury	Number of injuries				Disability distribution per 100 injuries			Days lost	
	Total	Fatal	Permanent	Temporary	Fatal	Permanent	Temporary	Total number	Average number per injury
Total.....	73,987	1,006	2,706	70,275	1.4	3.6	95.0	9,340,601	126.2
Elevators ¹	407	11	13	383	2.7	3.2	94.1	83,205	204.0
All other causes ¹	73,580	995	2,693	69,892	1.4	3.6	95.0	9,257,336	125.8

¹ This table excludes injuries in mining industry.

Compiled from the 1943 Annual Statistical Report, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus.

Table V.—DISABILITY DISTRIBUTION AND AVERAGE NUMBER OF DAYS LOST PER INJURY FOR INJURIES CAUSED BY HOISTING APPARATUS, COMPARED TO ALL OTHER CAUSES; OHIO

[Based on lost-time industrial injuries reported during 1943]

Cause of injury	Number of injuries				Disability distribution per 100 injuries			Days lost	
	Total	Fatal	Perma- nent	Tempo- rary	Fatal	Perma- nent	Tempo- rary	Total num- ber	Average num- ber per injury
Total.....	73,987	1,006	2,706	70,275	1.4	3.6	95.0	9,340,601	126.2
Hoisting apparatus ¹	725	31	85	609	4.3	11.7	84.0	243,057	335.3
All other causes ²	73,262	975	2,621	69,666	1.3	3.6	95.1	9,097,544	124.2

¹ Injuries due to elevators, and to hoists in mining industry, are not included in this table.

² Excludes all injuries in mining industry.

Compiled from 1943 Annual Statistical Report, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus.

Table VI.—DISABILITY DISTRIBUTION AND AVERAGE NUMBER OF DAYS LOST PER TEMPORARY TOTAL INJURY IN CRANE ACCIDENTS, COMPARED TO ALL OTHER CAUSES, 1941

[Based on experience of 11 shipyards, 1941]

Cause of injury	Disability distribution							Average days lost per temporary total injury
	Number of injuries				Percent distribution			
	Total	Death and permanent total	Permanent partial	Temporary total	Death and permanent total	Permanent partial	Temporary total	
Total.....	3,066	15	102	2,949	0.5	3.3	96.2	17
Cranes.....	101	3	8	90	3.0	7.9	89.1	30
All other causes.....	2,965	12	94	2,859	0.4	3.2	96.4	(¹)

¹ Not reported.

Compiled from Bulletin No. 722 of the Bureau of Labor Statistics, U. S. Department of Labor, Washington.

THE OPERATION OF HOISTING APPARATUS

Table VII.—FORK-LIFT INJURIES TO CIVILIAN EMPLOYEES OF AIR TECHNICAL SERVICE COMMAND

(Based on injuries reported during the 17-month period January 1944-May 1945)

Type of accident	Total				Operator Injured		Others injured	
	Both sexes		Male	Female	Male	Female	Male	Female
	Number	Percent distribution						
Total.....	252	100.0	215	37	63	20	152	17
Material falling from lift.....	25	9.9	21	4	4	3	17	1
Operator confused in gear shift.....	3	1.2	2	1			2	1
Caught between or struck by objects while loading or unloading.....	44	17.5	36	8	6	1	30	7
Driving over material or depressions.....	12	4.7	7	5	4	5	3	
Hit by moving fork lift.....	31	12.3	25	6	2		25	6
Collision with other vehicle.....	13	5.2	11	2	6	2	5	
Lift boom failing to clear doorway.....	2	.8	2		2			
Unattended lift rolled down incline.....	4	1.6	4		3		1	
Loading or unloading lift, improperly stacked material fell.....	8	3.2	8		2		6	
Riding or standing on forks.....	26	10.3	25	1			25	1
Material falling from lift due to overloading.....	20	7.9	17	3	15	3	2	
Improper loading arrangement.....	12	4.7	12		1		11	
Injured while getting on or off lift.....	4	1.6	4		4			
Using lift instead of other proper equipment.....	2	.8	2		2			
Person falling from lift.....	1	.4	1				1	
Caught between objects struck by lift.....	2	.8	2				2	
Struck against objects while loading.....	2	.8	2				2	
Injured while repairing or adjusting lift.....	11	4.4	11		1		10	
Unsafe operating position.....	2	.8	2		2			
Improper operation (view obstructed, failing to turn off motor, etc.).....	21	8.3	17	4	8	4	9	
Walking without looking, ran into lift.....	1	.4	1				1	
Lift ran off ramp, overturned, etc.....	4	1.6	3	1	3	1		
Improper parking.....	1	.4		1				1
Operating defective lifts.....	1	.4		1		1		

Compiled from unpublished table prepared by Air Technical Service Command.

Table VIII.—DOUBLE AND TREBLE LIABILITY CASES OF ILLEGALLY EMPLOYED MINORS INJURED BY ELEVATORS, AMONG COMPENSABLE CASES SETTLED IN 1944; WISCONSIN

Industry	Occupation	Age	Sex	Cause	Injury	Disability ¹	Penalty ²	Compensation paid	
								Normal	Increase
Canning.....	Factory laborer.....	16	M	Caught by platform.....	Amputated great and lesser toes.	PP	T	\$611.49	\$1,222.98
Bakery.....	Wrapper operator.....	17	M	Caught in gate.....	Cut hand.....	T	T	7.47	19.19
Leather garments.....	Packer.....	16	M	Caught by platform.....	Fractured toes.....	T	T	54.11	108.22
Printing and lithographing.....	Sorter.....	17	F	do.....	Fractured foot.....	PP	T	376.25	752.50
Hardware.....	Stock clerk.....	16	M	do.....	Broken large and 2d toe.....	T	T	74.86	149.72
Heavy machinery.....	Packer.....	15	M	Caught in gates.....	Fractured great toe.....	T	T	40.32	80.64
Renting refrigerator cars.....	Laborer.....	16	M	Fell down hoistway.....	Bruised side.....	T	D	10.08	18.72
Wholesale dry goods.....	Sweeper.....	15	M	Caught by platform.....	Bruised toe.....	T	T	-----	5.96
Wholesale liquor and food.....	Laborer.....	14	M	do.....	Bruised foot.....	T	T	103.74	207.48
Variety store.....	Stock clerk.....	16	M	do.....	Fractured toe.....	T	T	72.52	145.04
Variety store.....	do.....	17	M	Struck by load on elevator.	Bruised back.....	T	D	2.10	9.16
General store.....	Salesman, inside.....	17	M	Caught by platform.....	Bruised legs.....	T	D	37.70	37.70
Hotel.....	Elevator operator.....	17	M	Fell down hoistway.....	Fractured ankle.....	T	T	165.76	331.52
University.....	Janitor.....	17	M	Caught by platform.....	Cut foot.....	T	T	30.33	60.66

¹ PP=permanent partial disability; T=temporary disability.

² D=double compensation; T=treble compensation.

Compiled from Statistical Release No. 3159 Issued by the Industrial Commission of Wisconsin, Madison.

APPENDIX III. HAZARDOUS-OCCUPATIONS ORDER NO. 7

JULY 11, 1946.

(Code of Federal Regulations, Title 29, Chapter IV)

Section 422.7. Occupations involved in the operation of power-driven hoisting apparatus

(a) *Finding and Declaration of Fact.* By virtue of and pursuant to the authority conferred by section 3 (1) of the Fair Labor Standards Act of 1938¹ and pursuant to the regulation prescribing the Procedure Governing Determinations of Hazardous Occupations;² an investigation having been conducted with respect to the hazards for minors between 16 and 18 years of age in employment in occupations involved in the operation of power-driven hoisting apparatus and a report of the investigation having been submitted to the Chief of the Children's Bureau; a finding and order relating to the employment of minors between 16 and 18 years of age in the said occupations having been proposed for final adoption by the Chief of the Children's Bureau upon the basis of the said report of investigation; a public hearing having been held with respect to the said proposed finding and order; all statements submitted in connection with the said hearing having been carefully considered and minor changes having been made in the proposed finding and order as a result of suggestions made at the hearing; and sufficient reason appearing therefore,

NOW, THEREFORE, I, Katharine F. Lenroot, Chief of the Children's Bureau of the United States Department of Labor, hereby find and declare that the following occupations involved in the operation of power-driven hoisting apparatus are particularly hazardous for minors between 16 and 18 years of age:

- (1) Work of operating an elevator, crane, derrick, hoist, or high-lift truck, except operating an unattended automatic operation passenger elevator or an electric or air-operated hoist not exceeding one ton capacity.
 - (2) Work which involves riding on a freight elevator. (Where employees are customarily transported to their work place at the beginning and end of scheduled work periods in a freight elevator operated by an assigned operator, such riding shall not be considered as work within the intent of this paragraph.)
 - (3) Work of assisting in the operation of a crane, derrick, or hoist performed by crane hookers, crane chasers, hookers-on, riggers, rigger helpers, and like occupations.
- (b) *Definitions.* As used in this order:
- (1) The term "elevator" shall mean any power-driven hoisting or lowering mechanism equipped with a car or platform which moves in guides in a substantially vertical direction. The term shall include both passenger and freight elevators (including portable elevators or tiering machines), but shall not include dumbwaiters.
 - (2) The term "crane" shall mean a power-driven machine for lifting and lowering a load and moving it horizontally, in which the hoisting mechanism is an integral part of the machine. The term shall include all types of cranes, such as cantilever gantry, crawler, gantry, hammerhead, ingot-pouring, jib, locomotive, motor-truck, overhead traveling, pillar, jib, pintle, portal, semigantry, semiportal, storage bridge, tower, walking jib, and wall cranes.
 - (3) The term "derrick" shall mean a power-driven apparatus consisting of a mast or equivalent members held at the top by guys or braces, with or without a boom, for use with a hoisting mechanism or operating ropes. The term shall include all types of derricks, such as A-frame, breast, Chicago boom, gin-pole, guy, and stiff-leg derricks.

¹ Act of June 25, 1938, C. 676, 52 Stat. 1060, U. S. Code, Title 29, Sec. 201.

² Issued November 3, 1938, pursuant to authority conferred by section 3 (1) of the Fair Labor Standards Act of 1938, published in The Federal Register, Vol. 3, p. 2640, Nov. 5, 1938, Procedure Governing Determinations of Hazardous Occupations.

- (4) The term "hoist" shall mean a power-driven apparatus for raising or lowering a load by the application of a pulling force that does not include a car or platform running in guides. The term shall include all types of hoists, such as base-mounted electric, clevis suspension, hook suspension, monorail, overhead electric, simple drum, and trolley suspension hoists.
- (5) The term "high-lift truck" shall mean a power-driven industrial type of truck used for lateral transportation that is equipped with a power-operated lifting device usually in the form of a fork or platform capable of tiering loaded pallets or skids one above the other. Instead of a fork or platform, the lifting device may consist of a ram, scoop, shovel, crane, revolving fork, or other attachments for handling specific loads. The term shall mean and include high-lift trucks known under such names as fork lifts, fork trucks, fork-lift trucks, tiering trucks, or stacking trucks, but shall not mean low-lift trucks or low-lift platform trucks that are designed for the transportation of but not the tiering of material.
- (c) This order shall not justify noncompliance with any Federal or State law or municipal ordinance establishing a higher standard than the standard established herein.
- (d) This order shall become effective on September 1, 1946 and shall be in force and effect until amended or repealed by order hereafter made and published by the Chief of the Children's Bureau.

KATHERINE F. LENROOT,
Chief of the Children's Bureau.