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- The efficiency of this all-mechanical operation has been proven on Cal-Turf Farms in Patterson, California, and it can solve the problem of quick and economical harvesting of sod for all turf farmers.

For more information please contact:

THE JOHN NUNES MECHANICAL HARVESTING CO.

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The Cover

Michigan's Department of State Highways has been doing an excellent job in maintaining newly planted trees on the



state's highway rights-of-way.

This particular operation is on Interstate-96 near Lansing. Once the landscape contractor's guarantee period of 90 days expires, tree survival becomes the responsibility of the Department.

Trees on this 11-mile segment were watered continuously for 3 months beginning July 1, 1967. Each tree received about 10 gallons monthly. Work was done by regular road maintenance forces, augmented by seasonal workers. A 1000-gallon truck mounted tank with pressure pump and 1½-inch fire hose with fog nozzle proved to be a practical approach for watering the young plants.

District Maintenance Engineer Joseph Badaluco reports that, "We use a 1½-inch hose because a 1-inch garden hose would be too slow. Pressure on our pump is kept to a minimum and the fog nozzle breaks up or disperses the heavy stream of water we would get with a regular nozzle on a 1½-inch hose."

Besides watering, trees were sprayed with insecticide and fungicide. Spray work was handled by a specially trained district forestry crew, using a Roto-Mist sprayer.

This year plants are being handled by this specialized crew. Maintenance includes fertilizing, watering, spraying, and some cultivating during this second year. Badaluco anticipates that trees will need only limited maintenance during 1969 which will be the third growing season on the site. In the cover picture is Dan Stump, Lansing, a student doing summer work with the Department.

WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

July 1968

Volume 7, No. 7

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The horticultural student training program of Cleveland Public School System, featured this month in WTT, is an eye-opener. It is the only major attempt we know of where local industry members in the vegetation care field have helped sell a comprehensive training program for their future help.

Some 350 high school students are now being exposed to the vast scope of non-crop horticulture, and the opportunities it offers for careers. Further, they are getting practical vocational training, and they are getting the chance to earn money on part-time jobs within the industry. The Cleveland program goes beyond the 3-year high school vegetation care curriculum and offers a 2-year technical school for post-high schoolers. This is a step beyond what can be expected of many metropolitan school systems.

But the vocational high school training is within the scope of more than half the high school districts of the nation. Even though only a small

percent of high school students who take these courses go on to college or enter the horticultural industry's labor market, the effort will be of countless value to the vegetation care industry.

Among these values is the fact that more young adults will have an appreciation of efforts to add and maintain green areas in our cities. They will understand the value of the non-crop horticultural industry. And they will have some technical knowledge in caring for their own future home lawns. This, in itself, is a plus for the industry.

For many young people, high school training will help them find a vocation. Some will be choosing careers in an area in which they had little interest or background prior to their vocational high school training in the field.

Funding for many schools will be a problem. But federal and state monies for such training are available. Only impetus for such a program is needed. Vegetation care industry businessmen can get this job done. It can do much to aid the future help problem which the industry will surely face.

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In Brief: Mechanization today is providing automation to tree maintenance and tree removal programs. In this article John Buckley outlines views of arborists regarding equipment expenditures. He presents case histories of three groups who have moved in the direction of automation.

Automation

Modern Tree Trimmers Ride to Work . . . all the way to the tree top

BY JOHN R. BUCKLEY

Pitman Manufacturing Company

LIKE roots of the sturdy Oak, the roots of automation likewise have journeyed many an

avenue before reaching the tree trimming industry. It was inevitable, however, that new methods would prevail to economically expedite tree maintenance and tree removal programs within park departments, municipalities, utilities and similar areas.

Today's modern trimming crew, usually three men instead of the former complement of six or more rides all the way to the job, right up to tree-top heights, in modern, truck-mounted aerial units equipped with hydraulic and/or pneumatic power at the bucket(s) for operating cutting and pruning tools.

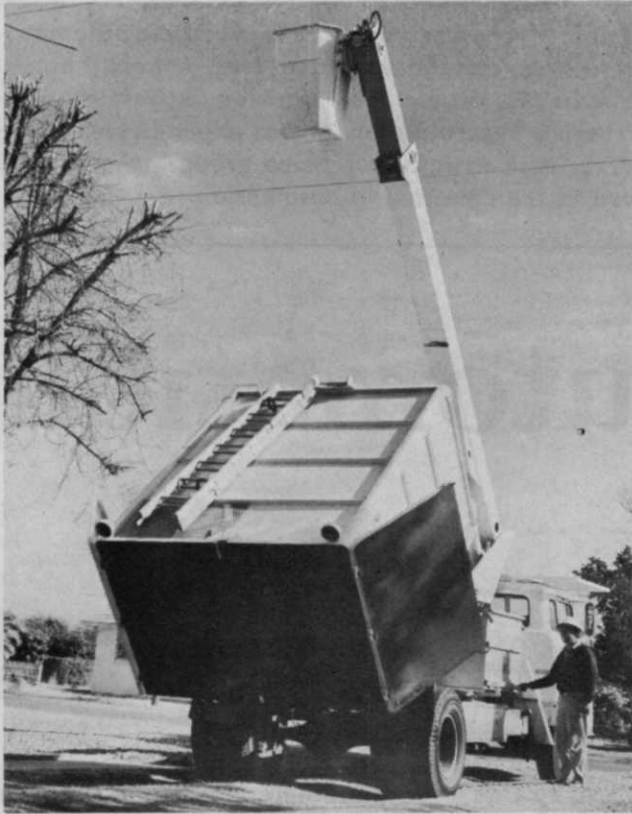
Moments after arriving at the job site, a 2-man crew is airborne and ready to trim. Aiding their efficiency is the aerial unit, which has all but eliminated non-productive set up time. Moreover, these innovations are adding safety to a once hazardous occupation.

Today's tree trimming crew requires a sizeable investment in modern equipment. Progressive departments have made this investment in order to meet rising workloads with basic work forces. The few hundred dollars



Progressive utility on west coast is using 40 units such as this mechanized package, above. Two-man unit includes aerial lift mounted on standard truck chassis, 41-foot Pitman Hotstik aerial unit with insulated aerial device. Chipper, mounted on truckbed, blows chips directly into special trailer.

With trimming completed, left, crewman uses aerial device to go aloft and apply coating to freshly cut boughs.



Easy to operate, this Salt River Project-designed chip box eliminates 6 to 8 trips per day to unload brush.

once sufficient to outfit a crew with a pickup truck loaded with saws, shovels, ropes and axes, has multiplied into several thousands of dollars for an aerial unit with a full complement of labor-saving accessories. However, the results of these totally mechanized crews, more than justify the expenditures.

Units Replace Climbing

The machine credited with mechanizing the tree trimming industry is the aerial device. Although there are many types, the 2 most acceptable for tree trimming seem to be the truck-mounted, hydraulically-operated, articulating (elbow) boom type with one or 2 personnel buckets at the tip of the boom; and the telescoping boom, also truck-mounted and with a similar personnel carrier. Most popular working heights of aerial units for tree trimming range from 35 to 50 feet. Being safety conscious, the majority of tree trimming officials insist on insulated booms when writing specifications for a unit. This insula-

tion, (or non-conductive feature of the boom and buckets) isolates the trimmer from a phase to truck ground should the boom accidentally come into contact with a live power line. Other fail-safe features of these units

include safety valves, commonly known as check valves, which prevent the boom from dropping should a break occur in a hydraulic line. In such instances (which are extremely rare) oil is trapped in the lift cylinder and the boom cannot drop.

Once the truck has been positioned and the trimmer has raised himself to working height by using boom function controls located at the bucket, he simply removes a power saw or pruner from a holder at the side of the personnel bucket and begins to trim. The cutting tools, chain saws, long-reach pruners and power knives, are kept in specially designed holders on the boom and in scabbards on the bucket. All are within easy reach.

Although the most acceptable power source for tools is the hydraulic power of the unit itself, many users have equipped their units with pneumatic power as well. Their argument in favor of the dual power source is that productivity is not lost should a malfunction occur in one of the systems. The power source for the pneumatic tools is found in

Salt River Project group incorporated telescoping aerial device, dumpbox, and brush chipper into one unit to provide crews with total mechanization.



a compressor usually mounted on the truck deck.

Brush Disposal Automated

As with trimming, automation has found a firm foothold in the area of brush disposal. It has done so in the form of brush chippers which are small, compact machines usually no larger than a mobile air compressor. Innocent looking as they are, when in operation they become screaming monsters with an insatiable appetite for limbs and branches.

Today, 2 methods have gained acceptance when brush chippers are used in trimming programs. The first includes a chipper as an integral part of the trimming crew. In this arrangement, the chipper is mounted onto the aerial unit truck or is towed behind it. The chips are blown into a dump box (also mounted on the truck) or into a separate chip box truck that serves one or more crews. This method, generally accepted as the most efficient, allows brush to be chipped while the trimming is in progress.

The alternate system provides a separate disposal crew with chipper and chip truck. When this system is used, the trimming crew piles brush at curbside for a disposal crew, which often serves as many as 4 or more trimming crews.

Studies supplied by various chipper manufacturers show that the modern chipper reduces brush to 1/15 of its original volume. This eliminates as many as a dozen trips to the disposal area. This is a common daily practice when brush has to be loaded upon trucks. Most chippers can accommodate logs up to eight inches in diameter.

The Why of Mechanization

With today's tree trimming industry aiming at total mechanization, many cost-conscious tree men are finding that results justify expenditures. Their reasons

can be summed up in the following points:

- (1) With labor demanding a premium wage in today's market, productivity must increase. It is impossible to increase efficiency with antiquated tools.
- (2) Paying a premium wage does not overcome the general shortage of qualified workers. Modern equipment enables 3-man crews to obtain the same

systematic trimming programs scheduled on a continuing basis.

- (5) Safer work methods, a by-product of mechanized equipment, have lowered accident rates in most areas.

Case No. 1

What was once a three-unit fleet of related equipment required for normal tree trimming jobs has been integrated into one



Whittier, Calif., municipality automated municipal tree trimming program by eliminating climbing. In operation is 46' insulated aerial device.

productivity obtained by the 6- to 8-man crews of yesterday's operations.

- (3) In areas requiring physical effort, a worker's productivity decreases with age. Aerial units equipped with tools are resulting in 15 to 20 years of productivity from experienced men who otherwise would be retired to jobs requiring less physical effort.
- (4) Mechanized equipment has eliminated the catch-as-catch-can method of trimming, replacing it with

unit by Arizona's Salt River Project. The former equipment consisted of a trailer-mounted chipper, a brush dump truck and a boom truck, with a crew of 4 men assigned to the operation. SRP found that the independent machines resulted in a variety of problems: (1) the open top chipper truck was responsible for debris being blown into the streets during chipper operation; and, (2) when trimming and chipping were required in congested areas, the limited maneuverability of 3 machines often interrupted traffic flow.



Relocating trees is but one of many jobs handled with Hydra-Lift crane used by Beverly Hills, Calif., Park Department.

To relieve these problems and add efficiency to its trimming operation, SRP, working with Pitman Manufacturing Company, designed a combination chipper-chipbox-and aerial device, all mounted on one vehicle. The 3-in-1 tree trimming package was installed on a standard tilt-type chassis. The aerial unit, a Pitman PELICAN II telescoping boom, was mounted directly behind the cab followed by a brush chipper on the curbside of the chassis. A discharge chute was installed between the chipper and a dump type chipbox was mounted on the rear half of the truck. In the road travel position, the boom stows over the chipbox and is supported by boom rest on the top side of the box. The throat of the chipper blower fits into grooves on the chip box, detaching automatically as the box is raised. A single power-take-off operates both the boom and the chipper.

SRP is achieving its objectives with the new unit. Furthermore it has reduced crew size from 4 men to 2 and has replaced 3 vehicles with one. Economy is obvious.

Case No. 2

Noted for its warm, year-round sunshine, Southern California's

envious climate is not so enviable to local arborists, whose job is keeping park and street trees trimmed. Such is the case at Whittier, California, located a few miles south east of metropolitan Los Angeles. Here, two 3-man trimming crews handle a large percentage of all tree maintenance in the city's 10 parks (60 acres in all) besides maintaining 40,000 to 50,000 parkway trees. These trees, more than 120 varieties, include maple, flowering pears, and canary palms.

As a supplement to their trimming assignments, Whittier's city crews are also assigned to town and park department tree rehabilitation programs, which dictate the removal of diseased and problem trees. Some 500 or more trees are removed yearly, many 100 feet tall.

Mechanization is aiding Whittier crews in expediting tree trimming and tree removal programs with a minimum of manpower. A fully equipped truck-mounted aerial unit complemented by a mobile 16" chipper with a hydraulically raised chip box, has increased productivity of each crew by more than 1/2 the amount realized when conventional methods were used. Key to their successful operation is versatility of equipment.

Whittier's truck-mounted aerial device is a 46 ft. Pitman MO HOTSTIK with an insulated upper boom made of EPOXIGLAS, and an insulating insert in the lower boom which includes a specially designed utility body for housing all tools needed in trimming operations. These tools have specific storage areas in the compartments of the body. Other compartments house safety cones, flags, caution signs, ropes and other related trimming aids.

An auxiliary engine is located on the truck bed for operating the aerial unit and cutting tools. This represents a dual safety feature since the HOTSTIK can also be operated off the truck PTO, providing an optional power source should one system fail.

The EPOXIGLAS boom provides isolation from a phase to truck ground to the trimmer should he accidentally bring the booms into an energized conductor. However, Whittier crews stay clear of distribution lines whenever possible, since the local electric utility has the responsibility of line clearing jobs. Holders on the boom, and a Whittier-designed scabbard on the fiberglass bucket of the aerial unit, keep cutting tools within easy reach of the trimmer during aerial trimming jobs. Once work has been completed, tools are stored in the utility body. Radio-controlled, the aerial unit and crew can be routed to trouble spots on a moment's notice.

While trimming is in progress, 2 groundmen, using a mobile chipper towed by a chip truck, dispose of limbs as they fall. The chip box easily accommodates a day's trimming and without it and the chipper, according to the crew, 6 or more truckloads of brush would result. Serving a useful purpose as a ground conditioner, mulch for hill sides and flower beds, and bridal paths, the chips are considered to be an extra dividend realized from trimming. The aerial unit, when