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MEXICO, D. F.

Abril 7 de 1931.

Sr. Gral. de Div.  
Plutarco Elías Calles.  
P r e s e n t e .

Muy respetable amigo:

Adjunto a la presente tengo el gusto de remitir a usted un re  
corte del "Literary Digest", referente a una máquina automáti  
ca de nueva invención, para cortar la caña de azucar, limpiar  
la y picarla, para acarrearla entonces a los trapiches.

Como verá usted, en el recorte explican que dicha máquina ha-  
ce el trabajo de 200 hombres cortadores de caña y he pensado  
que podría serle a usted de utilidad saber de la existencia -  
de la misma, si bien creo que convendría que investigara si -  
el nuevo invento es tan práctico y económico como dicen, pu-  
diendo usted enviar a uno de sus expertos de "Mante" a exami-  
nar el equipo, viéndolo trabajar para cerciorarse de su utili-  
dad en la práctica.

Sin otro asunto de momento y deseando que el recorte que acom-  
pañó le sea útil, con muy sincera estimación soy de usted af-  
mo. amigo y atto. S. S.

*J. S. Portillo*

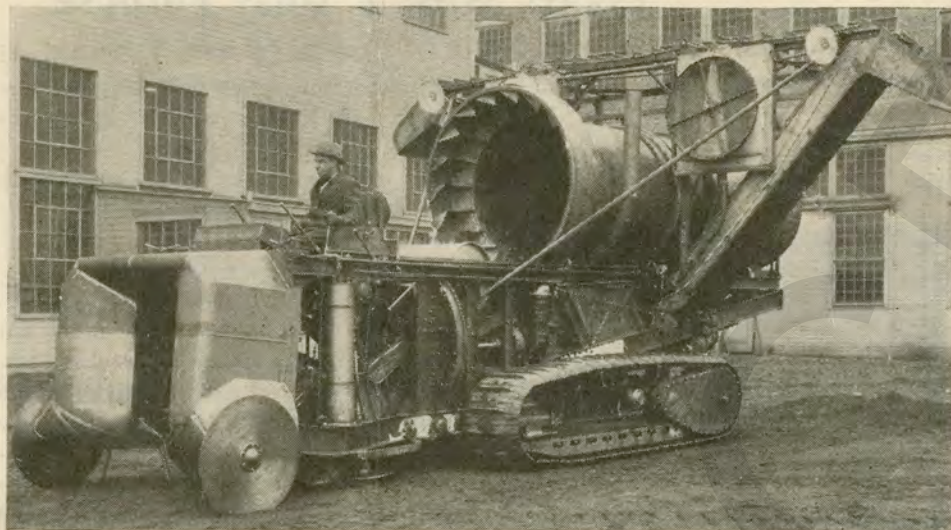
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## Harvesting Sugar-Cane by Machinery

**A** NEW MECHANICAL HARVESTER, recently set to work on Florida sugar plantations, may prove a boon to sugar-growers in much the same way as the combination harvester has to the Western wheat-farmer.

The Southern planters already see in imagination the Ever-



Does the Work of 200 Sugar-Cane Harvesters

The new machine which is expected to "revolutionize the world's sugar-cane industry."

glades pouring tons of raw sugar into future refineries at Miami.

What this revolutionary machine is like and how it works, we are told at length by the Florida papers. Says *The Tribune* (Tampa):

"A new era in sugar-cane harvesting dawned in Florida to-day.

"Seven huge harvesting-machines, each designed to cut 500 tons a day, took to the undulating fields of the Southern Sugar Company in the Everglades, near here, for the first time in the history of the industry, and eight more similar harvesters are to be put to work shortly.

"Capable of doing the work of 200 hand-laborers, sugar men say they expect the harvester to do for the cane-growers what the combine has done for wheat-farmers in the Middle West.

"P. G. Bishop, receiver for the sugar company, estimated that with the harvesters in operation, the company could reap a net profit of \$1,500,000 from this year's crop.

"Sugar-company officials said it would take until May to complete harvesting the huge crops with the machines which were perfected after fifteen years of experimentation.

"Turning on its own axis, the machine is driven by two gasoline-engines mounted on an endless track. Cane is thrown into a steel maw by two rows of steel mandibles, which flip out and gather in the stalks, and then disappear into the throat of the machine. The cane then goes on a conveyor, and as it vanishes, a rotating chopping-knife, mechanically timed, cuts the cane leaves and tops into small pieces.

"From the choppers, the cut cane is elevated to two large rotating-drums, moving in opposite directions, through which powerful blasts of air are forced, blowing leaves, tops, and rubbish out of the rear of the machine.

"The cane falls into another conveyor and is lifted overhead into a wagon drawn alongside the machines, which, equipped with lights, can be operated also at night.

"Sugar men say the harvesters, with knife-fitted disks, can cut the stalks close to or under the ground, thus utilizing the butts, which have high sugar content. Heretofore, the hand method of harvesting left the stalks in the ground. The saving made possible, they said, would pay for the operation of the machines."

**F**URTHER particulars and predictions are broadcast by the *Miami Daily News*, as follows:

"As with the harvester, gin, weaving-machines, washing-machines, draft animals, so it now is with cane.

"For the first time in its history it is being commercially harvested by machine. Just as the combines slash their way through the wheat fields of the Northwest, seven newly perfected cane-harvesters, the first ever used commercially, have begun the gigantic task of harvesting \$4,000,000 worth of sugar-cane from 20,000 acres of rich, black Florida Everglades muck-land. Within a week eight more machines will be in operation, a total of fifteen in all, each doing in a day the work of about 200 cane-cutters with the traditional machete.

"It may seem hard to believe that the machine does it better, but one need merely see the even distribution of the stripped leaves and other debris in the fields gone over by machines, utilized as mulch, then note the uneven piles of lengthy stalks and leaves left by hand labor, to realize this.

"Hand labor ties up innumerable wagons, these on the field for hours and days, while the cane is stripped and cut into lengths after harvesting. The machine also cuts up the cane into short lengths suitable for the mill, upon arrival there. Hand labor necessitates another operation after the mill is reached.

"The machine, which it is predicted will revolutionize the world's cane-sugar industry, is the invention of Ralph S. Falkner of Australia, and is the result of nineteen years' continuous research and experiments. Under an arrangement with Falkner, the Dahlberg interests built one of these machines last summer, and tested it out on the Southern Sugar Company's properties here, where more than 150,000 acres of the Florida Everglades are being reclaimed for sugar production. As a result, Dahlberg had Allis-Chalmers Company of Milwaukee build fourteen additional machines in order to harvest this year's crop, and these are now being placed in operation."

## The Deadly Home

**H**OME IS A DANGEROUS PLACE, remarks *The Ohio Health News* (Columbus).

More than half the deaths due to falls, in Ohio during the first ten months of 1930, occurred in the home, where safety should begin.

Fifty per cent. of the fatal falls were among persons past middle age, which would indicate that educational campaigns for safety must be emphasized in the home, among citizens in this age group. It goes on:

"Many falls were contingent upon poor illumination and ill-designed stairways, or due to falling out of bed, in bathtubs, from stepladders, over chairs, from porches, on loose cars and out of windows.

"Many of the falls were preventable, including a large portion due to personal carelessness; but a large number influenced by inherent faults of mechanical or structural defects.

"Death records filed with the State Division of Vital Statistics during the past sixteen years, showed 35 per cent. increase in the number of deaths from falls, of which 52 per cent. were males and 48 per cent. females. In 1914 there were fifty-eight males and forty-two females in every 100 fatalities. Male deaths continued to predominate each year until 1922, when women took the lead. It is interesting to note that deaths from this cause among women have increased more rapidly than male deaths until, in 1929, analysis of every 100 fatal falls showed fifty-one women and forty-nine men. This percentage is significant in view of the fact that population percentages are fifty-one male and forty-nine female.

"The first ten months of 1930 developed records of 1,209 deaths due to falls, with 609 in the home, 142 in industry, and 205 in the streets, around the premises, and in public places. In 251 reports, the place of accident was not indicated.

"Cause of the accident was given on 196 records as falling down-stairs; on fifty-five as falling from ladder or scaffold; on sixteen as falling from or over chairs; thirteen persons fell from trees and died, and twenty-five tripped over carpets or rugs in the home. On 904 records this detail of the accident was omitted."

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## Larger Enlargements

**P**HOTOGRAPHIC ENLARGEMENTS of almost unlimited size may now be made from the tiniest negatives. This has been rendered possible by a chemical "smoothing out" of the tiny grains or scales hitherto inherent in the sensitive emulsion with which films are coated.

Among the results are that very small original negatives are as good as large ones, so that space for filing may be greatly reduced, and incidentally that in "photographing sound" for the talkies, ten times as many vibrations can be recorded, extending the range of the "talkies" to the highest soprano voices. We read, in the *New York Times*:

"Negatives less than a half-inch square were enlarged into photographic prints forty-eight times their size, yesterday, in the laboratory of Dr. Miller Reese Hutchison, inventor, by a new method of film processing. This promises to exert a potent influence on the photographic and motion-picture industries.

"Heretofore, the enlargement of pictures has been limited to three and one-half diameters of the original negative, except in cases where extremely fine texture, slow-acting film or plates were used. In the process announced by Dr. Hutchison, even with the coarsest and fastest film used, the enlargements can be carried to unprecedented figures to produce prints clearer and more detailed than the tiny originals.

"The inventor came on the discovery as a result of being cramped for space in which to file more than 35,000 negatives.

"Failing in his attempt to apply sensitive chemicals to them without causing the scale which prohibits enlargement, by a simple chemical process he eliminated the scales without damaging the negatives, and turned them out as smooth as glass.

"Among the most important results is the possibility of widening the range of sound which may be recorded on a motion-picture film. It has hitherto been impossible to get more than 4,000 sound-vibrations photographed to the foot and have them distinct enough to be reproduced at high speed.

"Eliminating the scale from the films has made it possible to record more than 12,000 vibrations to the foot. Thus high soprano voices will be made available to the talking moving-picture."

r. Hutchison described the action as follows:

The sensitizers on films and plates are in the form of scales, visible in the film unmagnified, but on enlargement they sort the details.

The simple expedient of flattening out the scales after the picture has been taken is the basis of the new process, and is done chemically before the sensitizers are made solid by the hypo bath in the development-room.

"It might appear that I have simply evolved a method of keeping my files in miniature; but I find that a question which has baffled the engineers of the motion-picture industry has been solved.

"We have recorded more than 12,000 voice vibrations each second in this laboratory, and have had perfect reproduction of the highest notes in music in a standard projection machine run at the proper speed."

**D**R. HUTCHISON explained that his process and the chemicals used cost less than 25 cents for each 100 feet of film treated and that the action was instantaneous. No special apparatus or film is necessary. Further:

"Among other uses to which the processed film may be put is in the production of a tiny camera. A camera small enough to be utilized as a dress-shirt stud will produce pictures which

should be better than those now made by the most expensive and detailed professional equipment.

"In detective and espionage work such photography is in great demand, and travelers often miss the best records of unusual happenings because they have not at hand the necessary elaborate pictorial equipment, he pointed out.

"He also said that he had designed a camera which would make 1,000 exposures on a one-eighth-inch film, without reloading, and which can be held in the hollow of one hand."

## Lights with a Dual Purpose

**T**HE ARTIFICIAL LIGHTS OF THE FUTURE will kill two birds with one stone—they will not only furnish illumination, but their radiation will be health-giving, even as are the rays of the sun.

This hope is editorially extended to us by an editorial in *Power Plant Engineering* (Chicago). The result, we are told, is to be brought about by the use of ultra-violet rays.

Quartz mercury arc lamps, potent radiators of ultra-violet, have been used by physicians for many years, but only recently, lamps of a similar nature, safe for public use, have been made generally available. One is shown in the illustration. The transformer, which is essential for its operation, is located in the base of the standard. Says the magazine named above:

"The latest efforts have been toward producing lamps that simulate sunlight. Lamps of this kind are already available, and, while they have been sold primarily for purposes of home treatment, they are beginning to be considered as sources of general illumination.

"There can be no question that the illuminating-engineer of the future will design lighting installations with the view of not only enabling us to see but also of keeping us healthy. From such artificial sunlight, no less benefit is to be expected than from midsummer sunlight—much more, in fact, than is obtained from summer sunlight in smoky cities and from winter sunlight everywhere in middle and higher latitudes.

"Particularly in industry where workers are required to spend most of the daylight hours indoors and in offices where the biological effectiveness of natural light is practically lost, this type of lighting will prove of immense benefit."



Courtesy of the General Electric Company, Cleveland, Ohio

### Light and Health

At the same time are afforded by a floor-lamp that sheds illumination while it also gives off ultra-violet rays.

## The Meuse Valley Fog: Science's Verdict

**T**HOUGH the scientific commission charged with the investigation of last December's "poison" fog, in Belgium, has not made a formal report, some of its findings are probably anticipated in an article recently published in the *Manchester Guardian*, by Chairman Melland of the British National Smoke Abatement Society, who visited Belgium and interviewed a member of the commission. Says Mr. Melland:

"As regards the cause of the tragedy, the outstanding point seems to be that in Liège, with its population of three-quarters of a million, where the fog was also very dense, nothing abnormal happened. The fog was intense, but clean, for in Liège, as in most continental towns, there is practically no smoke. All the abnormal deaths occurred in the towns on the banks of the Meuse between Liège and Huy, a distance of about twenty miles. In this area there are probably sixty different kinds of industrial establishments, notably zinc and other foundries. Sulfur dioxide was given off by some of these processes; also hydrofluoric acid and, probably, small quantities of arsenic compounds. It is difficult to decide otherwise than that the gaseous fumes from the industrial chimneys, imprisoned in the fog, were mainly responsible for the casualties."