

Keeping Up With Science

By Science Service

'Dosing' of Oil Wells Produces Salts That Ruin Refinery Units

NEW YORK. — Widespread use of acids to boost production from oil wells has brought in its wake a major trouble for the petroleum industry in the form of thousands of miles of ruined pipelines and hundreds of ruined refinery units, petroleum engineers report here.

Salts, 50,000,000 pounds of them, produced largely as by-products of the acid "dosing" of wells, are eating the walls of expensive pressure piping and plugging refinery tubes, exacting a stupendous economic toll, they reveal.

They are in addition lowering the value of residual oils and tars, eating up in waste a considerable portion of the increased income earned by the use of the acid process which increases the wells' yield.

Greater even than the cost of replacement parts and labor is the loss caused by equipment being out of service while repairs are made.

Petroleum engineers are turning increasing attention today, however, to this problem and report a number of desalting methods.

Methods of Removing Salts.

Heat, pressure and the addition of fresh water remove some of the salt from commercial crude oil, increasing the life of piping and refinery equipment greatly at a low cost. A Michigan installation, described in Petroleum Technology by Dr. Gustav Egloff and a group of petroleum engineers of the Universal Oil Products company, reduced the salts in the incoming crudes from 220 to 5 pounds per thousand barrels.

Incoming oil was mixed with about 10 per cent of water, then heated to 250 degrees under a pressure of 60 pounds. The salt removal, 212 pounds for each 1,000 barrels of oil handled, reduced corrosion from a continual cause of breakdowns to a very minor maintenance factor.

Chemicals to break up the shell of emulsion which protects brine globules from the surrounding oil have been used with some success. Once this protective coating is destroyed, water particles settle out of the mixture very rapidly, carrying the salt with them. Different chemicals are needed in each oil-producing area, and the search for a general desalting chemical agent, suited to all types and mixtures of oil coming to a refinery, is still going on.

Electrical desalting, in one plant, decreased the salt content of the crude oil from 200 to 8 pounds per 1,000 barrels. This particularly corrosive crude oil, from an Arkansas field, was mixed with water, then subjected to an alternating potential of 16,000 to 32,000 volts.

Supersonic Waves Break Solids by Vibrations

PORT HURON, MICH.—Supersonic waves—sounds too shrill in pitch to be heard by the human ear—will soon be used to break up solid particles into new degrees of fineness.

Sound's new use has been developed from research of Dr. Karl Soellner of the department of agronomy at Cornell university. He found that high-frequency sound waves not only make sediments, gels and precipitates disperse—as previously had been known—but also that certain solids having a laminated structure could be broken into fine bits by the intense vibrations created.

Materials on which the supersonic waves work well include graphite, mica and stearite. As soon as production changes are completed, colloidal graphite will be made of much finer particle size and longer suspension than has heretofore been available to industry.

Ears Reveal Paternity, Says a German Scientist

FRANKFURT-on-the-MAIN, GERMANY.—Possibility of determining a child's paternity from the shape of his ears appears in a report from Dr. Thorar Quelprud of University Institute for Heredity and Race Hygiene. The shape of the human ear, Dr. Quelprud says, has a number of personal peculiarities which appear well-developed in the infant. Left and right ears of the same person are often markedly different, so Dr. Quelprud examined both ears in his study of 5,000 persons. Twin and family studies, including studies of fraternal and identical twins, were made to determine hereditary characteristics. Shape, length and breadth of ear, height of concha, length and form of ear-lobe, helix and tragus, length-breadth-index of the ear, scapha and other characteristics were investigated.

Severe Tests Give Top Rating to New Type Of Concrete Block

CHICAGO—A new type concrete masonry block has received a "top" rating after severe fire, water and pressure tests in the Underwriters' laboratories here. The eight-inch thick wall was given a 3½-hour fire classification—a rating of half an hour longer than any previous eight-inch wall of concrete masonry units has been able to secure.

A laboratory inferno was the testing ground for the new hollow building block. A specially designed furnace was built which burned 10,000 cubic feet of gas an hour—as much as a small city.

For four hours the 11 by 10 foot experimental wall of blocks was subjected to fire. In the first five minutes the wall reached a temperature of 1,000 degrees Fahrenheit. At the end of one hour the exposed face was up to 1,700 degrees; at two hours, 1,850 degrees; and at the completion of the test a temperature of 2,000 degrees Fahrenheit was recorded.

Wall Remained Intact.

All this while great hydraulic jacks were pushing down on the wall with a pressure averaging 175 pounds to the square inch.

At the end of the four-hour ordeal, the wall was removed from the fire blast and its incandescent face was washed with a stream of cold water, from a fire hose, under a water pressure of 45 pounds to the square inch.

Great clouds of steam obscured the wall. Snapping and crackling noises were heard as the wall underwent its rapid cooling and contraction.

The wall remained intact after this whole series of destructive actions. Architects and engineers examining it later expressed amazement at the slight effects of the severe treatment.

Temperatures recorded on the unexposed surface of the wall during the tests resulted in the prized 3½-hour classification. This rating can be increased to a four-hour classification when such walls are surfaced with three-quarters of an inch of gypsum plaster.

Greater fire protection at a lower cost is the objective of the research which developed the building blocks.

Head-Hunter Doctors Are Good Bone Setters

WASHINGTON.—Doctors of the Jivaro head-hunting tribe on the Amazon are good bone setters, and use casts of chicle—basis of chewing gum—to hold broken bones in place.

What a family doctor's life is like in this tribe, famed mainly for its head hunting, is reported by Matthew W. Stirling, chief of the bureau of American ethnology, who ventured successfully into their supposedly dangerous communities.

A Jivaro doctor, called a wishinu, has to study one month before he is considered ready to practice, but there are only six kinds of disease spirits supposed to cause most human troubles. He also has to learn to treat cold, fever and dysentery with specific herbs. His rigid code of medical ethics requires him to answer a sick call at any hour of day or night through trackless jungle. If he fails to cure he may be "sued" for malpractice, which in Jivaro legal machinery means he may lose his head or be required to pay the value of the lost patient's life.

Making Forests Too Tidy Is Bad for the Soil

GENEVA.—Don't tidy up forests too much, by removing fallen timber and otherwise clearing the ground, is the advice of a leading Swiss ecologist, Dr. Arnold Pictet. If you clear away all such accumulations of "rubbish" you deprive the forest of much of its biological working capital.

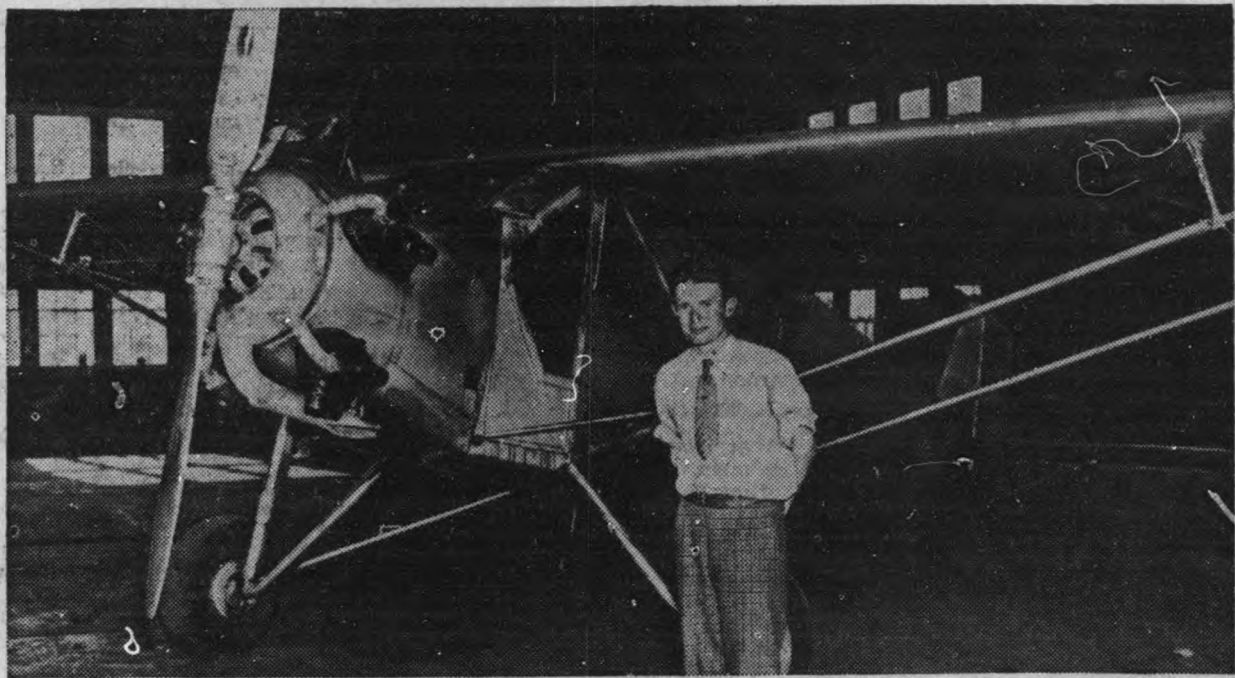
Trees are a soil-exhausting crop, Dr. Pictet points out. They withdraw a large proportion of the soil's original store of nutrient substances and lock it up in their stems. When they fall, the swarming destructive life of the forest floor—insects, worms, fungi, bacteria—unlock these hoards and return the accumulated capital to the soil as humus.

Lumbering operations inevitably carry off a good deal of this capital to market. Fire destroys it, not to be replaced for centuries. Fallen trunks, and forest litter generally, can re-invest a part of it in the soil, if only they are permitted to return, as dust to dust.

War on Caterpillars

SYRACUSE, N. Y.—Organisms that cause a deadly disease to tent caterpillars are being cultured at the New York State College of Forestry here, to be released in an effort to control the forest tent caterpillar, which has developed into a major pest. The disease has been known for a long time, but this is the first attempt that has been made to propagate it artificially and use it as a means of forest defense.

Flies Atlantic in Second-Hand 'Crate'



Douglas P. Corrigan, young American aviator who flew the Atlantic ocean in a second-hand, nine-year-old single-motor monoplane which he bought for \$900. Previously making a non-stop transcontinental flight from California to New York, Corrigan took off from Floyd Bennett field and landed at Baldonnel, Ireland, 28 hours and 13 minutes later. Refused government permission for the flight, he left the field saying Los Angeles was his destination. On landing he said he had made a mistake in his direction.

President Inspects Shipyard



President Roosevelt makes a brief inspection of Mare Island Navy Yard, near Vallejo, Calif., before he proceeds over the Golden Gate bridge to San Francisco and thence to the Treasure island site of the 1939 Golden Gate International exposition. Here the Chief Executive is snapped as he greeted Commandant David Worth Bailey.

INSULL PASSES



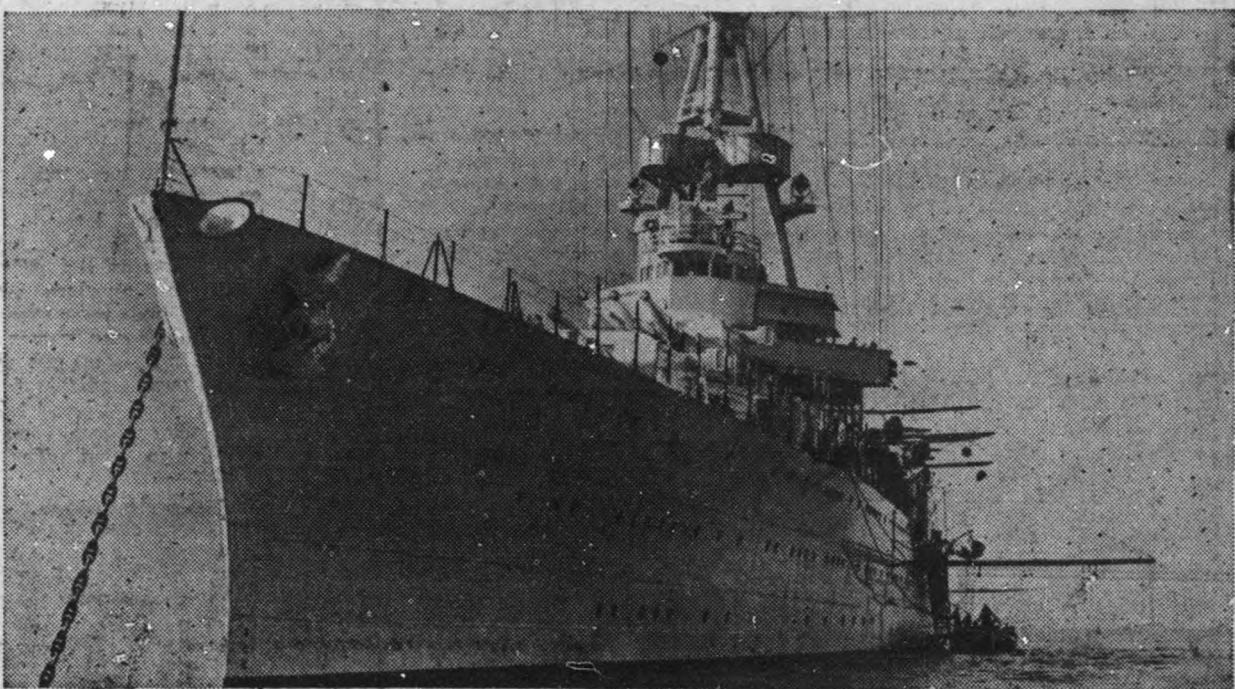
Memories of the Titanic days when he was the utility king of America were recalled in the recent death of Samuel Insull in Paris. The famous Chicagoan passed away at the age of seventy-eight. The utility company empire he erected in his heyday crashed after the 1929 stock market panic, causing the loss of billions to investors. Insull, who came to America as a poor young man, rose rapidly to success. He was secretary to Thomas A. Edison for a number of years before he entered business in Chicago.

Astor Kin Sells Golf Balls



Francis Ormond French, impecunious father-in-law of John Jacob Astor, III, who was refused unemployment relief and a WPA job recently, is shown selling a customer a pair of golf balls for a quarter at a golf driving practice range at Brighton, Mass., where he secured a job. French is paid \$5 a day and 50 per cent commission on all golf balls he actually sells.

Cruiser Is President's Vacation Home



The cruiser U. S. S. Houston, which President Roosevelt has used for his South American vacation. President reviewed the navy's massed fleet in San Francisco harbor before starting.

Star Dust

- ★ Children of Stars
 - ★ A Break for Nancy
 - ★ Goodman's Cornetist
- By Virginia Vale—

SOME day when you youngsters are grown up, and see by the papers that Ellen Powell is going places with this or that young man, you'll know how the old-timers feel when they read that Sue Vidor has been going about with Buddy Armstrong.

You'll probably say, "Why I remember when that girl was born—way back in 1938! Her mother was a well-known movie star, Jean Blondell, and her father was a movie star, too—Dick Powell, and a master of ceremonies on the radio, too. But, of course, you don't see them in pictures now."

And it seems like yesterday that Sue Vidor was playing that tiny little piano, and her handsome young parents were standing there, smiling at her. Her mother was a famed movie actress—Florence Vidor, who retired to marry Jascha Heifetz, the violinist. Sue's father is King Vidor, the director.

And, speaking of the passing of time, when she started work recently on "Three Loves Has Nancy," Janet Gaynor also started out on her twelfth year of making movies. Few others have stayed at the top for so long. Which reminds me that in "Tropic Holiday," the new Martha Raye-Bob Burns comedy, one of Bob's scenes is a burlesque of the one in "A Star Is Born" in which Fredric March swam out to sea to his death. People who liked the Gaynor-March hit picture won't care for that.

Having fought with Columbia and had her contract bought off, Grace Moore departed for Paris, where she will start right in making pictures again. She'll do both a French and an English version of "Louise." And, as French pictures are rarely up to the United States standard, she probably won't like the result.

Nancy Kelly, aged seventeen, has been booked to play the heroine in "Splinter Fleet," and a lot of people in Hollywood are asking who she is and where she comes from and why she should be given so important a



Janet Gaynor

HELPS HIS PUTTS



There is nothing orthodox about Leo Diegel's style of golf play as witness his "standing-sitting" putting style, demonstrated at the recent Professional Golf association's meet at Shawnee-on-Deleware, Pa. Diegel says his stance is the "most accurate method in the world. It isn't pretty to look at, I'll admit, but it's sound."

Jiffy Crochet Cloth You'll Be Proud Of



Pattern 6634.

A 58-inch cloth done in a jiffy on a big hook with two strands of string! You can make this design in three smaller sizes, the smallest 26 inches. Pattern 6084 contains instructions for making the cloth; an illustration of it and of stitches; materials needed; photograph of section of cloth.

To obtain this pattern, send 15 cents in stamps or coins (coins preferred) to The Sewing Circle, Household Arts Dept., 259 W. Fourteenth St., New York, N. Y. Please write your name, address and pattern number plainly.

Oriental Citizens

The naturalization of Chinese and other Orientals is not permitted in the United States, but those born in this country are citizens on the same terms as any other natives of the United States.

The Fourteenth Amendment to the Constitution provides that "all persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the state wherein they reside."

NERVOUS?

Do you feel so nervous you want to scream? Are you cross and irritable? Do you feel those dizziness to you?
If your nerves are on edge and you feel you need a good general system tonic, try Lydia E. Pinkham's Vegetable Compound, made especially for women.
For over 40 years one woman has told another how to go "smiling thru" with reliable Pinkham's Compound. It helps nature build up more physical resistance and thus helps calm quivering nerves and lessen discomforts from annoying symptoms which often accompany female functional disorders.
Why not give it a chance to help YOU? Over one million women have written in reporting wonderful benefits from Pinkham's Compound.

Right Actions
The only correct actions are those which require no explanation and no apology.—Auerbach.

courting blindness

Is what you are doing when you neglect twitching, watery, bloodshot, sore eyes, Leonard's Golden Eye Lotion cures nearly every eye disease. Cools, heals and strengthens.

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GOLDEN EYE LOTION
MAKES WEAK EYES STRONG
35¢ at all druggists
New Large Size with Dropper—30 cents
S. S. Leonard & Co., New Rochelle, N. Y.

Quiet Providence
Providence is noiseless as it is irresistible.—S. C. Logan.

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SHOW-WHITE PETROLEUM JELLY

MAGIC REMEDY
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