

CHEMISTRY

Rust Causes Decomposition Of Auto Inner Tubes

RUST which forms on steel auto rims may cause the inner tube to disintegrate, warns Dr. G. Ross Robertson, associate professor of chemistry at the University of California at Los Angeles.

Dr. Robertson pointed out that tubes now last longer than they used to because they are chemically protected against decomposition. However, iron rust next to the tube may still cause trouble.

"In the present emergency," said Dr. Robertson, "motorists would do well to inspect the center of the steel rim, where a line of rust may form adjacent to the inner tube.

"It would be good strategy with older cars to remove all tires, clean and treat the insides of rims with a suitable rust-resistant paint and to give an appropriate dust or powder treatment to the tubes. And this often gives the opportunity to shift tires around to other wheels for balancing their wear."

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AERONAUTICS

Blind Landing of Planes Facilitated by Invention

BLIND LANDING of airplanes is facilitated by a new invention using a low-power low-frequency transmitter, economical in the use of power, and of no aid to enemy planes not equipped with the receiving device.

The inventor, William Lee Clemmer of Monroe, Wisconsin, has been granted U. S. Patent 2,269,437.

The invention enables an aviator to fly into the neighborhood of a landing field at a safe high altitude, say 6,000 feet, and then spiral down until he has reached an altitude from which he can glide onto the field at a safe gliding angle. This, the device makes possible by indicating continuously on the instrument board the angle between the direction of the transmitter and the horizontal.

The accuracy of the instrument is indicated by the fact that at a distance of one-half mile from a transmitter of six watts output on 375 kilocycles, this angle was measured to an accuracy of one-sixth of a degree.

The low-power low-frequency transmitter produces an "induction field" in the immediate vicinity of the antenna.

This is a static field that surrounds the antenna equally in all directions (i.e. not a beam) and stays with it, very little energy being radiated away in the form of waves. Since the intensity decreases rapidly with the distance, it extends, to a measurable degree, only a few miles. It is not subject to the freakish reflections and disturbances of high-frequency radiation.

The pick-up on the plane is actuated only by the inductive effect of this field, not by radio waves. It does not interfere with the use of a high-frequency beam or other means for guiding the aviator to the vicinity of the field, but helps him to land from a high altitude as in a valley between high mountain ranges.

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ENGINEERING

New "Victory" Bikes To Be Ready April 1

FAR-SIGHTED adults have only a short time to order the new lightweight "Victory" bicycles developed by the Office of Production Management, before it was dissolved, in cooperation with the nation's twelve manufacturers.

The new bikes, stripped of gadgets and essential war metals, will go into limited production April 1. About 750,000 will be put on the market. Last year's bicycle total was 1,800,000. So far, 50,000 to 70,000 individual orders for the "Victory" bikes have already been placed. Prices range from \$30 to \$35.

War Production Board officials stress the new bicycles are designed for adults, not children. They are somewhat larger than the old bicycle, although weight is about 20 pounds less. The new bikes resemble English lightweight models which sold for close to \$100 in this country.

"Victory" bicycles are the result of conferences between specialists of the old Office of Production Management and manufacturers. All types of U. S.-made bicycles were studied, part by part, and standards set for parts containing the least war-needed materials. Finally, parts were designed which contain no copper, nickel or other vital materials.

Steel content was reduced by one-half. Tires are 90% reclaimed rubber, 10% crude rubber. Handlebar grips and pedals no longer are rubber, may be wood. There will be no handlebar baskets or compartments, no gadgets.

Manufacturers point out, however, that "Victory" bicycles will be lighter, faster and easier to ride.

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IN SCIEN

PHYSICS

Low Visibility Paint Hides Tanks From Air

TANKS for the storage of gasoline and other volatile liquids, refineries and other vital structures can be made almost invisible to approaching enemy bombers by a new type of low visibility paint, it was announced by Paul L. Hexter, vice president of the Arco Company.

The new paint, although dark in color, has heat deflecting qualities approaching those of aluminum paint, hitherto widely used for keeping oil storage tanks cool, but now unsuitable because it makes these tanks shining targets that can be seen for many miles.

To blend with the surroundings or for camouflage, the tanks can be painted green, tan, black or four intermediate shades. Already in use by the Government, the paint meets Navy specifications for infra-red reflecting powers.

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MEDICINE

X-Rays Cure Most Cases of Acne

X-RAYS lead all methods of treating acne, Dr. R. C. Jamieson, of Detroit, told the American Academy of Dermatology and Syphilology.

He reported that cures range from 85% to 90%, following X-ray treatment. Dr. Jamieson warned, however, that X-rays should be administered only by experts.

"Best results," he said, "are obtained by using X-rays during the latter part of the adolescent stage rather than at the beginning."

Dr. Jamieson also described the use of sulfanilamide in this disease, saying that ". . . patients having large pustular lesions are especially benefited by drugs in this group, as pus formations are more readily controlled by these drugs."

As an aid to treatment, Dr. Jamieson advised elimination of rich foods such as chocolate from the diet. Excessive use of soap, he added, stimulates rather than diminishes the oil secretion of the skin. Use of soaps should be limited to once or twice daily by acne patients, and all soaps should be of the mild, toilet variety.

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CE FIELDS

PUBLIC HEALTH

Lamps for Disinfecting To Get A.M.A. Approval

ULTRAVIOLET lamps to be used for disinfecting the air in hospitals, nurseries and operating rooms will, if they meet with certain requirements, be given the approval of the American Medical Association, it is announced.

The use of ultraviolet light for disinfecting the air in industrial plants, barracks, school rooms, assembly halls, refrigerators and so on is considered outside the province of the A.M.A., so lamps destined for such use will, apparently, not be considered for acceptance at present.

The same applies to use of ultraviolet light for disinfection of solid objects, such as drinking cups, combs, brushes, shaving utensils, shoes, and toilet seats. Ultraviolet light is considered by A.M.A. authorities an "uncertain means" of sterilizing such objects.

A direct hit on the germs by the ultraviolet light is necessary to kill the germs, it is pointed out in this connection. This would be difficult to accomplish on the edge of a drinking cup. Germ-killing ultraviolet rays, moreover, do not penetrate easily, so that fingermarks or other contamination might absorb enough of them to prevent complete sterilization of dishes and the like.

Requirements which ultraviolet lamps for sterilizing air in hospitals and nurseries must meet to gain A.M.A. acceptance appear in the *A.M.A. Journal* (Jan. 24).

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PUBLIC HEALTH

Living Outdoors To Be Taught in New Course

IF AMERICANS are ever bombed out or otherwise driven from their homes, there is no need for them to suffer as Europeans all the way from Norway to Greece have suffered, Prof. E. L. Palmer of Cornell University feels. He is therefore offering a new course of study specifically designed for the war emergency, to train leaders in the art of living out of doors in any kind of weather and

with a minimum of personal discomfort.

Dr. Palmer states: "The course is primarily to develop leadership in order to provide for the health, comfort, and safety of the population in times of stress if forced to live under adverse conditions resulting from possible destruction of homes through air raids or similar war-time disasters."

The subject matter deals directly with the practical problems of shelter, warmth, and food at times when the individual is faced with the barest living essentials. Evacuees from the towns of France, Spain, Russia, and England have been confronted with similar problems numberless times in recent years. It is not wholly conjectural that bombings and disruption of transportation would place similar conditions on parts of this nation.

Map reading, the use of the compass, value of wild plants as food, weather predictions, and similar aspects of outdoor living will be included.

The work will be presented out of doors for three hours one afternoon each week throughout the spring term. Also required will be several over-night trips under winter conditions without the use of permanent shelters and without regard for prevailing weather conditions.

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ENGINEERING

Rubber Tread For Tractor Makes It More Comfortable

REPLACING the clanking steel of the tractor tread with rubber not only reduces noise and vibration, but makes for quick and smooth transportation along the highway when that becomes necessary, and saves gas.

This was pointed out in a paper presented at the meeting of the Society of Automotive Engineers by Robert Mayme and H. W. Delzell of the B. F. Goodrich Company. Development of the rubber track, he said, was started about ten years ago by C. W. Leguillon, manager of the Machine Development Department of the Company.

Three types of rubber treads were discussed. The first is called a "continuous band track" because it is made in a single continuous piece. This type is light and particularly suitable for high speed operation.

In another type the steel treads are replaced by separate rubber blocks. This is for heavier duty and less speed.

A third inexpensive type, still in the experimental stage, is particularly designed for farms and industrial use.

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PSYCHOLOGY

Once Childless Couple Have Own Baby After Adopting

AN AMAZING story of how a childless couple were finally able to have a child of their own after they had decided to adopt a baby is told by Dr. Douglass W. Orr of the Menninger Clinic, Topeka, Kans. (*Psychosomatic Medicine*, October).

Such happenings are not new, but Dr. Orr suggests that this case is unique because the wife's pregnancy appears also to have been affected by her decision to give up her job. "This decision," Dr. Orr writes, "enabled her . . . to turn toward and accept her basic femininity."

Not infrequently a childless wife becomes pregnant some time after adopting a child. Some psychologists believe the supposed "sterility" was really caused by an unconscious opposition to childbearing. This opposition disappears with the adoption and rearing of a child. Deep psychological barriers are lowered, and the machinery of pregnancy is enabled to function.

Dr. Orr's case is somewhat different. Here the wife recalls "that even while talking to social workers at the child placement agency she expressed the hope that she might become pregnant later . . . she even joked . . . about other couples who had adopted a baby and then had a child of their own."

The wife's apparent previous inability to bear a child was traced by psychoanalysis to her own childhood. Her father had wanted a boy. To grant this wish as far as possible, the mother brought her daughter up to be tomboy. She was made to wear tailored clothes, her boyish figure was praised, and she was encouraged to express her athletic abilities.

Because of this, Dr. Orr continues, the young girl came to believe "she could not have a child because she was not enough like a woman, and she had no confidence that she could care for a child if she were to have one."

This state of mind carried over into married life because her husband encouraged her to work. To her this meant "you must go on being like a man."

This belief that she was too masculine, the psychoanalysis indicated, kept her from becoming pregnant.

However, when husband and wife decided to adopt a child, she was encouraged by her husband to stop work. Her resignation, Dr. Orr concludes, "enabled her better than ever before to turn toward and accept her basic femininity."

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