

DENTISTRY

Lime Drop Candies Cause Tooth Decay

LIME drops, lemon drops and similar acidified hard candies can cause tooth decay, Drs. Edward S. West and Frederick R. Judy of the University of Oregon Medical School reported to the Federation of American Societies for Experimental Biology.

Hard candies are often acidified with citric acid, they pointed out. When these dissolve in the mouth the resulting acid solution causes erosion of the teeth and actually dissolves some of the tooth mineral.

The Oregon scientists described experiments in which they mounted teeth in rubber stoppers, with wax to protect the roots, and bottles fitted to the stoppers. The bottles contained solutions of candies in water and in saliva. After 24 hours a 40 per cent. solution of lime drops in saliva had dissolved 10 milligrams of tooth enamel mineral. While 10 milligrams is not a very large amount of material, loss of it from a tooth would seem enough to result in a cavity and a session at the dentist's.

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ARCHAEOLOGY

Art Error Gave World Strange Idea of Cherubs

SAY "cherub" to the average person and he thinks of wise-eyed infants with Cupid wings. He knows many a cherub like that in religious paintings—Raphael's Sistine Madonna, for example.

And yet, real cherubim in the Bible were never angelic babes. Making them so is an art error.

It seems that Renaissance artists, like other people of their day, had no idea what a Biblical cherub was. So, they borrowed winged Cupid from Greek and Roman art. And so lovely is the result that no archaeologist would want to substitute an authentic cherub for a Raphael one.

Nevertheless, archaeologists now and again try to remind the public that cherubs of ancient Bible lands were fantastic winged animals with human heads.

Thus, a new and non-technical archaeological journal, "The Biblical Archaeologist," starts its first number with latest views on the cherub question.

Prof. W. F. Albright of Johns Hopkins University, one of the editors, says that actual appearance of Old Testament cherubim—plural of cherub—was for-

gotten before the time of Christ.

Josephus in the first century A. D. wrote: "No one can tell what they were like."

But we can tell. Archaeologists have found in Assyrian ruins many stone bulls with wings and human faces. In Egypt are found sphynxes with lion body and human head, but wingless. Palestine, says Prof. Albright, favored a winged lion type.

Their use? In Assyria they guarded gateways, and a winged bull might weigh 40 tons. In the Bible, the Ark of the Covenant was guarded by up-raised wings of golden cherubim. The thought of deity enthroned or riding on these mystic creatures was also familiar in Bible lands, and is mentioned in Old Testament books.

Cherubim symbolized virtues in living creatures—the eagle's swiftness, strength of the ox, the lion's kingly power, and the wisdom of man.

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METALLURGY

Inventors Add Soap For Stainless Silver

TWO British inventors added soap and other chemicals to a silver electroplating bath and found that the silver plating they produced, unlike that resulting from ordinary methods, needed no polishing to brighten it up, a patent granted to them reveals.

Considerable economies, through elimination of the labor of polishing and through saving precious silver that is rubbed off and lost in burnishing, result from the new process, Alan R. Powell and Emyr C. Davies of London declare in specifications filed with their patent, No. 2,113,517.

The addition of soap and chemicals such as carbon bisulphide, a compound used in many industries as a solvent, produces a plating which is hard and bright, they declare.

When a soap is used, they state in the patent specifications, the amount required depends on the nature of the soap, but should be sufficient to produce a permanent lather when the solution is shaken. Through a complex reaction of the soap and other chemicals present, the silver is deposited on the object being plated in the form of "almost sub-microscopic crystals" with a fine-grained structure. The patent is assigned to an English firm, Johnson, Matthey and Company of London.

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IN SCIENCE

MEDICINE

Cosmetic Cream May Affect Sex and Cause Cancer

BEWARE of Endocrema, a cosmetic with a menace.

The *Journal of the American Medical Association* has broadcast a warning against a widely advertised beauty product. (April 9)

Serious changes in the genital and reproductive organs of women; changes in the breasts; possible disorganization of the menstrual cycle; potentiality of the production of cancer—these are the fearsome possible consequences that indiscriminate use of Endocrema may bring, the medical journal states.

Endocrema is applied by many women to the face, neck, arms and hands every night. The purchaser is cautioned on the label against omitting treatment for a single night if the best results are to be obtained.

From many sources comes scientific evidence that serious harm may follow the persistent use of this product. It contains estradiol, a hormone.

About one-fifth of the amount of this ointment, which is applied nightly by many women, was rubbed daily on the back of the neck of spayed female rats, young normal male rats and normal male guinea-pigs for periods of from two to twenty-one days.

Prof. Carl R. Moore of the University of Chicago finds that this amount of Endocrema (1) induces an estrous reaction in castrated female rats in forty-eight hours; (2) maintains normal uterine weight in such rats; (3) induces growth of mammary glands in normal male guinea pigs, and (4) exerts profound degenerative changes in the testes of normal young rats.

Contrary to the manufacturer's claim, the substance may be absorbed from the skin and may thus exert systemic effects, says the medical journal.

Endocrema is manufactured by Hires-Laboratories, Inc., New York; it bears the approval of the Good House-keeping Bureau.

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E FIELDS

DOCUMENTATION

Machine for Reading Microfilm Is Patented

THE compact, portable reading machine for reading books and documents recorded on microfilm developed under the auspices of Science Service, the non-profit institution for the popularization of science, was patented last week.

Covering several basic features of the machine, Patent No. 2,113,578 was granted to Lt. Rupert H. Draeger, United States Navy surgeon.

The reading machine was developed as part of Science Service's sponsorship of the movement to spread use of microphotographic methods of document and book recording and reproduction, which resulted in the formation of the American Documentation Institute. In use in many libraries throughout the world, microfilm permits recording of an entire book, for example, on but a few frames of motion picture film. Its advantages are extreme compactness—an advantage much to be desired as library after library finds bulky periodical and book files piling up faster than space can be found for them.

The machine is essentially a projector which enlarges and throws on a translucent screen an image of the film. Slightly larger than an office typewriter and costing less, it enables rapid reading of the rolls of film. Pages are turned by a hand crank on existing models, although Lt. Draeger previously patented an automatic page selector.

Lt. Draeger also received Patent 2,113,580 on an adjustable film gate for the machine. Lt. Draeger's patents are being handled by the Chemical Foundation in the public interest.

Science News Letter, April 23, 1938

ARCHAEOLOGY

Digging Shows Why Rome Failed in Ancient Britain

ONCE again the past teaches a lesson in conquest and its results.

Archaeological investigation in England is revealing what written history

has never explained: How and why Rome failed to Romanize barbarian Britain, 2000 years ago.

Rome failed, says Dr. R. E. M. Wheeler, London University archaeologist, because Rome tried in Britain to introduce too revolutionary an upheaval in a social order. (See review, p. 276)

Rome brought a pattern of city life which was new to the Britons because it centered around commerce. Excavations show that the Britons had their own cities. But the civilized Briton was bucolic. He drew on the nearby countryside for food and for the stone, iron, clay, bone, and horn that made weapons and household gear. Rarely did these prehistoric Britons import foreign luxuries. Their trade was petty.

Came the Romans, and they set about improving these people. Native towns that resisted were stormed and dismantled, as has been recently shown by digging at Maiden Castle. Disarmed townsmen remained to rebuild their houses and become Roman subjects.

The Romans introduced foreign craftsmen to teach the natives to build in the Roman way, and foreign capital to develop resources of the country.

By the middle of the second century, says Dr. Wheeler, London and Verulamium "shone brightly on the provincial landscape." Britain had acquired central heating, dust-proof floors, bath suites.

But, "little more than a century later the bubble had burst." Another century, and Romano-British cities degenerated into concentrated slums. No prosperous middle class had developed, and without this type the Roman city plan was bound to fail.

Dr. Wheeler sums it up: Rome effected a political and social revolution in Britain, but not the economic revolution to fit it. Romano-British country life succeeded. The cities awaited the middle ages for a come-back.

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ENGINEERING

First Glass Cornerstone Is Laid For World Fair

THE cornerstone for the Egyptian pavilion of the New York World Fair, laid recently, is the first glass cornerstone to be laid in the history of the building construction industry, fair officials declared.

Laid in place amid a colorful setting, the glass cornerstone contains a copper chest in which are mementoes of the occasion. The chest is visible through the glass blocks.

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PHYSICS

May Spot Airplanes With Television Receivers

"ENTIRELY possible" is the scientific verdict of radio engineers at the National Bureau of Standards to British dispatches citing the use of television receivers as "spotters" of airplanes.

While Army officials would not confirm reports that similar methods are being worked out for the military uses of the United States, it was admitted that secret research is underway to test other ways of spotting airplanes than by the present sound detection methods.

Since television broadcasts have been in progress over London it has been noted that when airplanes are flying in the vicinity there are produced "ghost" images in the television receivers. These "ghosts" are caused by reflection of the television waves from the metal airplane surface. Thus the reflected waves arrive at the television receivers at a slightly different time than the ordinary waves. The result is a dual image of the scene being transmitted. The image of the plane itself is not received.

According to British reports the displacement of the "ghost" image has been correlated with the distance of the plane away from the television receivers. A system has been worked out whereby television receivers on England's eastern coast could thus serve as "spotters" for approaching enemy aircraft in time of war.

Whether the plan can be worked out in complete detail and serve a valuable military use is for the future to decide, but in principle the method is an almost exact counterpart of the system of determining airplane altitude by having the plane send down to the ground a beam of radio waves and then having the plane pick up the signals of the reflected waves. This method was announced by Dr. E. F. W. Alexanderson of the General Electric Company in 1928.

For the television case, in contrast, the waves go up, strike the plane, and are picked up by ground receivers. By multiple receivers and methods of triangulation it is believed the altitude of the plane and its approximate direction and distance could be worked out.

In another analogy the television spotting system for planes can be called "upside-down" geophysical prospecting. In geology, metallic masses are located by reflected radio waves.

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