ARCHAEOLOGY

"King of the World" Unknown for 2500 Years

➤ EVER HEAR of King Ayadara?

Neither has anybody else, apparently, for the past 2,500 years or more. Yet in his time Ayadara was a combination of Hitler and Hirohito — or at least he fancied himself as such, for he was formally addressed as "King of the World."

The only trace of this pompously titled universal monarch, the only thing that tells us he ever existed, is a curved strip of bronze, dug up in pre-war days at Tell en-Nasbeh in Palestine by the late Prof. William F. Bade. It is about as thick as a penny postcard, less than half an inch wide, and represents about a third of a circle a little over six inches in diameter. When found it was crusted with oxide, but when it was finally cleaned up it disclosed a clean-cut but fragmentary inscription in the cuneiform writing of ancient Assyria. Style of the characters indicates a date perhaps between 800 and 600 B. C.

Several noted archaeologists labored over the short message on the ancient bit of bronze, states Dr. C. C. McCown, director of the Palestine Institute of Archaeology, finally evolving several possible translations. One of them addresses a dedication "to Ayadara, King of the World, for the preservation of his life. . . ."

The exact spot at which this dedicated fragment of metal was found was the bottom of a pit that had once been a cistern, in an obscure garrison post on the frontiers of Palestine.

And that is all we know about one who was once styled King of the World.

Science News Letter, January 9, 1943

INVENTION

Two War Inventions by Men in Armed Services

➤ TWO INVENTORS now in the armed services, one an officer in the Army, the other an enlisted man in the Navy, have received patents on devices of military value, on which they have relinquished rights, royalty-free, to the government.

Capt. Harry E. Mikkelsen, formerly of West Point but now stationed at Camp Breckenridge, Ky., was awarded patent 2,304,841 on a device useful in training young artillery officers. It is customary to save costly ammunition by doing most of the practice shooting on a miniature range, using regular gunsights and laying mechanisms, but firing small-caliber ammunition. In Capt. Mikkelsen's device, compressed air is used instead of gunpowder, further reducing costs and also avoiding fouling the barrel.

Sailor-inventor Richard B. Comstock offers what he calls a diving faceplate for shallow-water work, for patent 2,304,798. It consists of an oval frame, deep enough to cover a man's face, with a sponge-rubber cushion around the edge to make a water-tight contact, a glass window to see through, and straps to hold it firmly in place. A hose connection at the top supplies fresh air; foul air passes out of a pair of water-excluding valves at the bottom. The inventor states that for all depths less than 50 feet this simple apparatus does away with the necessity for wearing the costly, cumbrous, copper-helmeted regulation diving suit.

Science News Letter, January 9, 1943

ENGINEERING

No Shortlived Vehicles After the War Predicted

➤ TRUCK operators will never again be satisfied with shortlived vehicles after their experiences during this war of getting more miles out of trucks and tires than were ever supposed to be in them. This prediction was made by William J. Cumming, chief of the Vehicle Maintenance Section of the Office of Defense Transportation, at a recent meeting of the Society of Automotive Engineers in New York.

Trucks of the future, he further predicted, will be so designed that full-sized operators can drive them and mechanics who are neither contortionists nor expert at puzzles can efficiently service them. They will be designed for use rather than for looks, with parts accessible, and for safety rather than streamlined for speed. Substitute materials now used to conserve more critical materials will, many of them, still be used because of superior qualities and less weight. The new trucks will be better, lighter, cheaper, and last longer.

Tires may be improved somewhat, but already they "are better than we thought. We simply did not know how to use them," Mr. Cumming said.

Fuels will also be improved, and the engines will be more economical. Altogether he foresaw an efficiency of highway transportation never before dreamed of.

Science News Letter, January 9, 1943

IN SCIEN

PHYSICS

Suggestions for Reducing Wear of Wire Ropes

➤ SUGGESTIONS for prolonging the useful life of wire rope for elevators and maintaining safety for passengers, have just been issued by the National Bureau of Standards. They were compiled by John A. Dickinson, chief of the Bureau's safety codes section.

Decreased elevator service, either by running fewer cars or by establishing skip stops, may be advisable, the report indicates. Lack of lubrication, unequal tensions, poor brake-setting, unduly high speeds with sudden stops, and other factors were cited as reasons for rapid wear of the wire ropes.

Methods for checking and correcting these items are discussed to meet an emergency need brought on by scarcity of replacement materials.

The suggestions represent views of the executive committee of the American Standard Safety Code for Elevators, Dumbwaiters and Escalators.

Science News Letter, January 9, 1943

RESOURCES

New Type Ceramic Grate To Bring Fireplace Back

➤ FLICKERING flames of the fireplace will cheer at least a million additional American homes this winter because of ceramic grates, the WPB Conservation Division announces.

Because of the ban on cast-iron grates, engineers were faced with the problem of developing a non-metallic grate. They came through with clays and other heat-resistant materials, fired and hardened at extremely high temperatures, which will save 30,000 tons of cast iron.

Fuel shortages have brought the fireplace back to many family circles. Wood, coal or charcoal may be burned in the new grates. By burning coal in the fireplace, substantial savings can be made in the fuel normally used, officials of the WPB Conservation Division point out, yet permitting an equal degree of comfort.

Science News Letter, January 9, 1943

CE FIELDS

PHYSICS

Show-off Cyclist Depends On Principles of Physics

➤ WHEN RIDING a bicycle, how is it possible for you to guide it without touching the handle bars? This question on the mechanics of cycling is answered by Prof. Arthur T. Jones of Smith College, Northampton, Mass., in the *American Journal of Physics* (December).

When the cyclist shifts his weight and that of the bicycle to one side, two twisting forces make the path curve. The handle bars turn because the front assembly—wheel, fork, and handle bars—turn on an axis that is not straight up and down. This axis prolonged meets the ground in front of the point where the wheel rests on the ground. When the bicycle leans, the ground pushing upward on the bottom of the wheel turns the wheel just as a caster turns. This is the first twisting force. There is also a small twisting force due to the spin of the wheel, which aids in turning it. This is a gyroscopic effect like that which causes the gyroscopic compass to turn to the north.

Science News Letter, January 9, 1943

PHARMACY

Deadly Nightshade Is Harvested in U. S.

➤ FIELDS of belladonna, the drug called deadly night-shade, have been harvested by American farmers for the first time to replace former imports from central Europe.

Yields are good and quality is satisfactory, the U. S. Department of Agriculture reports, the average content of active constituents being almost twice the U. S. Pharmacopoeia standard.

Medicines are prepared from belladonna leaves, roots, or the potent white crystals extracted from them.

Physicians often prescribe them for such uses as relaxing asthmatic spasms, drying and dilating the bronchial tubes and to relieve pain. Belladonna liniment or plaster has long been used for relief of neuralgic or rheumatic pain and in the form of suppositories for painful hemorrhoids. Eye specialists use it extensively to facilitate examinations because it paralyzes the adjustment mechanism of the eye and dilates the pupil.

The name, bella donna, itself means "beautiful lady," referring to its use by the women of old Italy to dilate the eye pupils, giving them a more alluring luster.

Although some of the drug has been grown in this country for many years, the main source has been central Europe. But in 1940 the Bureau of Plant Industry anticipated a shortage, planted the drug for seed and has since bought seed from other sources.

This was distributed last spring to growers and between 400 and 500 acres were harvested this fall in Wisconsin, Pennsylvania, Virginia, Tennessee, Ohio and other states.

Supplies are adequate at present to meet military and civilian needs, the Agricultural Research Administration of the Department of Agriculture estimates.

Only a small acreage is needed to supply the nation, and growing drug plants is a highly specialized business, drug specialists of the Bureau of Plant Industry warn.

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GENERAL SCIENCE

Enemy Prisoners To Have Scientific Reading Matter

➤ SCIENTISTS who are prisoners of war in Britain will receive from their British colleagues outside the barbed wire copies of scientific journals, reprints and other reading matter that will enable them to keep their trained minds alive until peace brings them the opportunity to return to their homelands and take up again the constructive work from which dictators' commands tore them away. In *Nature* is a notice of the formation of a small organization for this purpose.

An appeal is issued for contributions of back issues of scientific publications; for most of the imprisoned scientists have not had a chance to see results of British and American research that have come out since the war began, so that there is a good deal of lost time to be made up.

Leader of the movement is John R. Baker, who lives in the country near Oxford. He states that the work of supplying scientific reading matter for British prisoners of war in enemy hands has been carried on for some time by the British Red Cross and the Order of St. John of Jerusalem.

Science News Letter, January 9, 1943

MEDICINE

Heat-Caused Clots May Be Cause of Death in Burns

➤ DEATH which follows severe burns may be due to formation of protein clots, medically known as emboli, in the capillaries, or very small blood vessels, Dr. Herman Kabat and Dr. Milton Levine, of the University of Minnesota and the Anderson Institute for Biological Research, report (*Science,* Nov. 20).

The protein clots are apparently a fine precipitate of fibrinogen which form when blood plasma is heated. Fibrinogen is the chemical parent of the substance which clots blood when it is shed. It is the size of the particles rather than their chemical constitution, however, which bears the toxic properties, the scientists found.

Blood serum and heated plasma apparently do not contain the toxic substance believed responsible for the deaths following burns. Measurements of subskin temperatures in scalds had previously shown that temperatures of 55 to 65 degrees Centigrade (131 to 145 degrees Fahrenheit) are reached and maintained for several minutes. When plasma is heated to this temperature, the fine precipitate of fibrinogen forms.

Science News Letter, January 9, 1943

PHYSICS

Electron Bombardment Improves Tinplate Making

➤ OVER half the tin formerly used in tinplate manufacture is now being saved by war development of the electrolytic plating method, H. C. Humphrey, of the radio division of Westinghouse Electric and Manufacturing Company, declares (*Electronics,* Jan.).

Electricity crackling through a metallic solution causes a thin coating of tin to be deposited on sheet steel. But this method was not completely satisfactory until research coupled electronic generators with it for induction heating. Tinplate bombarded by electrons in this method is raised to a high temperature. The tin reflows into a smooth surface free from pinhole defects, eliminating or greatly reducing the possibility of corrosion and food contamination.

Production is speeded by the unit, permitting reflow of tinplate strip on production lines at the rate of 500 feet per minute. Production in the near future, Mr. Humphrey predicts, will be speeded up to 1,000 feet per minute.

Science News Letter, January 9, 1943