

MUSEUMS

Smithsonian Institution Has Real Old Cable Car

RELIC of the good old days when Dad (or even Granddad) was a boy, a real cable car has been added to the Smithsonian Institution's collection illustrating the evolution of transportation. The city of Seattle is the donor.

The cable car, says Carl W. Mitman, Smithsonian head curator of arts and industries, was characteristic of a quaint phase of mass transportation in the transition period between the slow horse car and the then new and then unreliable electric trolley car.

It may seem silly, to oldsters, to explain how the cable car worked but for young people Mr. Mitman explains that the cable railway was simple in operation but cumbersome and costly. An endless cable pulled by steam power at the end of the line moved between the tracks just below street level. Beneath the car was a mechanical gripping arrangement that grasped this moving cable like a hand, so that the car was pulled along at the same speed as the cable. The grip could be disengaged by the "gripman" by a lever device, so that the car could be stopped at will by allowing the cable to slip through the mechanism.

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ARCHAEOLOGY

1200 B.C. Portrait Gives Ancient Idea of Jehovah

WHAT did Jehovah, God of Israel, look like—as people of the Old Testament pictured him?

Biblical Israelites ventured no real portraits. Other nations might surround themselves with statues of their deities, or engraved pictures, or bas-reliefs. But the ten commandments forbade graven images. And even though Israel gave in to temptation to make a golden calf, and even though some Israelites had a weakness for clay figurines of heathen goddesses, there was no known attempt to portray Jehovah.

Special interest, therefore, is aroused by discovery of a portrait which gives the modern world a fairly good idea of how the ancient world visualized Jehovah. The portrait is a bas-relief from the twelfth century B.C., unearthed at Ras Shamra in Syria, where a Canaanite city stood.

French archaeologists, directed by Prof. Claude Schaeffer of the French

National Museums, are finding ruins of Ras Shamra a veritable treasure city for evidences of lost history.

The bas-relief shows the deity El, mentioned in the Old Testament as a name for absolute Deity, and later, Prof. Schaeffer says, becoming God of Israel under the name of Jehovah, or Yahveh.

The Canaanite sculptor has carved a striking profile of a venerable, stern-faced individual wearing a beard and dressed in ankle-length costume and high peaked headdress. He sits stiffly on a high, richly ornamented throne with a footstool. Facing is the small king of the city, devoutly holding up his scepter and a pitcher containing some offering.

Portraits of El have been known before, but none of so early a century, which pictures El at the very time when the Israelites were fighting for their promised land under Yahveh's guidance.

The bas-relief is unfinished. Enemies invading Ras Shamra from overseas rudely interrupted life in the Canaanite city. This portrait of El was buried in the sculptor's wrecked home, to wait 3,000 years for a public showing.

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SAFETY

Battle-Scarred Work Shoes Testify for Safety Work

See Front Cover

ELOQUENT testimony for safety measures among industrial workers are the battered shoes pictured on the cover of this issue of the SCIENCE NEWS LETTER. They are five out of 150,000 safety shoes, 75,000 pairs, worn last year by the workers of the Bethlehem Steel Company. The toes tell their own story. In each case something heavy dropped upon the shoe, and in each case the worker escaped with no injury or only a minor one. An inner cap of steel on these safety shoes will bear up under terrific impact.

An analysis of accident reports at one of the larger Bethlehem plants indicates that 18 years ago, when safety shoes were practically unheard of, injuries to toes or feet accounted for nearly half of the "lost-time" accidents. Of 213 such accidents that occurred in a year's time in this pre-safety shoe era 83 were to toes. Last year, when practically all workers wore safety shoes, there were only seven accidents of this description. Bethlehem's Director of Safety gives safety shoes the major credit for this striking reduction in toe injuries, typical also of the experience in other plants.

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IN SCIENCE

INVENTION

Remote Control "Cannon" Increases Oil Recovery

FIFTEEN gun barrels, firing .30 caliber bullets through an oil well casing hundreds of feet below the surface, promise to increase oil production in many fields where several rock strata bear oil. During drilling, each oil stratum encountered is recorded on the well log. Later, when the well is cased to the bottom, the cannon is lowered to the level of each oil stratum, and fired, punching holes in the casing to let in the oil from that bed.

Controlled electrically from the well head, this cannon may be lowered as much as two miles below the surface, and fired when it is opposite any desired rock bed. Accurate revolution counters tell the operators exactly how far below the surface the cannon is at any time. Using this method, many oil sands can be tapped by one well, saving the almost prohibitive cost of drilling one well for each oil horizon, or waiting until one horizon has stopped producing, then pulling part of the casing, until the next higher one is exposed.

Science News Letter, March 5, 1938

ENGINEERING

Head of Carnegie Tech. To Receive Lamme Medal

AWARD of the 1937 Lamme Medal is to be made to Dr. Robert E. Doherty, president of the Carnegie Institute of Technology, the American Institute of Electrical Engineers has announced.

The medal, to be presented at the June convention of the Institute in Washington, D. C., has been granted for Dr. Doherty's "extension of the theory of alternating current machinery, his skill in introducing that theory into practice, and his encouragement of young men to aspire to excellence in this field."

The Lamme Medal was founded by a bequest from the late Benjamin G. Lamme, chief engineer of the Westinghouse Electric and Manufacturing Co.

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E FIELDS

AVIATION

Airplane Skis Streamlined For Landings on Snow

CANADIAN airplanes operating in snowy regions now have streamlined skis, thanks to aerodynamic research in the laboratories of the National Research Council of Canada.

With the coming of winter's snows, wheels and floats of airplanes are replaced with skis to allow the planes to taxi over snow drifts. Conventional airplane skis were a disadvantage in the air because they have an air resistance of three times that of the wheels.

Wind-tunnel research, in which artificial gales were blown against various designs of skis, enabled government engineers to perfect skis that offer less drag than the wheels that they replace.

Science News Letter, March 5, 1938

PSYCHOLOGY

Poor Arithmetic Students Can't Name Own Fingers

COUNTING on your fingers to do sums is generally considered bad form—baby stuff which arithmetic teachers do their best to eradicate. Now psychiatrists find that inability to count on the fingers, or to recognize different fingers, which must amount to the same thing, is linked with inability to do arithmetic. This finding and all its implications were reported by Drs. Alfred Strauss and Heinz Werner, of the Wayne County Training School at Northville, Mich., to the American Orthopsychiatric Association.

Finger agnosia is the technical term for the condition. In testing for it, the examiner touches one of your fingers and asks you to name the finger touched. Or he may ask you to touch your third finger, or your fifth finger. The test, continued along these lines, showed that boys who were poor at arithmetic, although they were good at reading, could not recognize their fingers. Boys who were good at arithmetic, though poor at reading, had no trouble in recognizing their fingers.

Ability to recognize different fingers

is probably part of what is called the body schema, meaning "a sort of diagram of our physical selves existing in our minds," the psychiatrists explained. Examination after death of patients who had had finger agnosia, or inability to recognize their fingers, showed injury to the part of the brain where this diagram of the physical self is probably made.

In their report the psychiatrists stated that they do not believe the finger agnosia is the only cause of inability to do arithmetic. It may be a symptom of a disturbance in the number concept and both this symptom and the arithmetic inability may be due to the same underlying condition.

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ENGINEERING

Tips on Tires Useful To Average Motorist

HERE are some important tips on tires recommended at the meeting of the Society of Automotive Engineers for use by operators of large fleets of buses and trucks, whose yearly investment in tires outranks that of the average motorist a thousand to one. They apply also to passenger cars.

1. If you wish to increase the non-skid life of your tires from 15 to 30 per cent., keep them at the proper inflation by weekly checkups. Running even four pounds below proper pressure on the tires of a passenger car may mean as much as 16 per cent. loss in tread-wear.

2. When the tread wears smooth get a complete retread job. By this you can obtain from 70 to 80 per cent. of the original mileage, said J. E. Hale of the Firestone Tire and Rubber Company. For a tire with a tread life of 20,000 miles retreading should bring the total mileage up near 35,000. Taxicab companies do this regularly and expect their tire casing to be retreaded at least two or three times. The cost of a good retread job is about half the cost of the original tire.

3. Realize that high speed driving cuts tire mileage. Rubber is much less resistant to wear when warm than when cold. A 4-ply tire on a medium priced motor car has the air temperature in the tube increased by something over 70 degrees when traveling 65 miles an hour, due to the heat generated by the continual and rapid flexing of the tire. In terms of pressure this temperature rise means an increase of 5 pounds per square inch.

Science News Letter, March 5, 1938

AGRICULTURAL ECONOMICS

WPA Takes a Long Look at Cotton-Picking Machines

UNEMPLOYMENT resulting from the possible development of a really successful cotton-picking machine does not look like a really crucial national problem to the Works Progress Administration.

In the first of a new series of pamphlets on changes in farm power and equipment, the moderately optimistic conclusion is reached that "In comparison with the volume of unemployment during recent years, any increase which might result . . . appears to be relatively unimportant—scarcely more than estimated variations in unemployment from one month to the next in 1936."

Indeed, the authors of the new publication, Dr. Roman L. Horne, agricultural economist, and Dr. Eugene G. McKibben, agricultural engineer, even see an eventual net gain to society.

They remind us: "Although the plight of the unfortunate people displaced should not be minimized, neither should concern for their future obscure the fact that picking cotton by hand is slow and tedious work. In the long run, society will gain by any reduction in the man-hours required to produce a given quantity of cotton."

At present, and for the immediately foreseeable future, mechanical cotton pickers will have to fight the existing economic and social setup for every acre they gain. The machines in their present stage of development are costly to build. In their operation they reduce the value of cotton harvested about 12 per cent. by gathering too many leaves and other forms of trash. They also leave about 5 per cent of the cotton unpicked.

Machine picking requires large fields on level land. Much of the cotton is already raised on level land in Mississippi Delta country, along the Gulf Coast, and in Texas; but most of the landholdings are small. To make the necessary mergers of plantations, or the assembling of small farms into large cooperatives will require the overcoming of much inertia and many traditions—both of them powerful forces for conservatism in the rural South.

The present study is recognized as being only preliminary. Government economists are now preparing to conduct a longer, more intensive survey. The results of this new study will probably not be ready for publication in less than two years.

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