

CLOCK WOUND BY AIR PRESSURE HAS BEEN RUNNING SINCE 1916 WITHOUT HUMAN AID

For time and eternity, or for as long as the sunshine and air pressure varies, owing to fluctuations of temperature, a clock invented by the Swedish agriculturist and landowner, Theodor Dieden, theoretically is destined to run without stopping. It was started on Nov. 7, 1916, and has now been running uninterruptedly for nearly 15 years without having been wound up or in any way adjusted by human hands.

In theory this is a demonstration of perpetual motion, but in actual practice the clock will stop, of course, when the machinery is worn out, the Christian Monitor's Stockholm Correspondent writes. The inventor does not anticipate the cessation of operation for possibly years to come.

"Perpetual motion, in theory, has always intrigued me," Mr. Dieden states. "One day, as I stood looking at a barometer, I realized that I was watching the play of one of the forces that is perpetual and omnipresent—a force

of nature dependent on barometric changes and therefore exceedingly weak, but useful in some such delicate mechanism as that of a clock.

"I have applied this basic theory to my invention. My reason for suggesting that a clock like mine might keep on running for centuries, is that there is very little wear; the mechanism operates at a very slow speed and the energy consumed is almost negligible. In fact, the effect is somewhat less than one millionth horsepower.

"To put this more concretely, a row of clocks like this, placed side by side around the equator, would not consume more energy than that consumed by an ordinary household sewing machine. A chain in the mechanism takes four years and seven months to make a single revolution."

The mechanism of the clock is simple. There are seven communicating metal boxes placed one above the other, and below them there is a

reservoir for adjustment and the equalization of the air pressure. The metal used is silver plate, one seventh of a millimeter thick. This whole elastic system is filled with air of 755 millimeters pressure at 8 degrees centigrade (about 46F.) and then is hermetically sealed.

With the rise of air pressure or the fall of the thermometer, the metal boxes are pressed together, the wheels move and in this way the clock is being wound up constantly. Through the use of a reservoir the supply of energy for the wheels is always even and unaffected by sudden changes or fluctuations of the source. Consequently the clock can keep correct time.

This clock stands in the home of the inventor, who lives on a large estate, Carlslund, not far from Orebro in Central Sweden. This large estate has been the scene of other pioneering ventures. The first gas plant in Sweden, for instance, was started here, and here also illumination by electricity was first successfully tested in Sweden.

A clock that has successfully run for nearly 15 years without being wound is news in Orebro. But in the historic university town of Lund, in Southern Sweden, also possesses a

clock that commands attention. In the majestic Lund Cathedral, stands the venerable timepiece that is running despite the fact that it was first wound up more than five centuries ago! Seven years ago it underwent a thorough reconstruction.

One of World's Oldest

This astronomical clock, the "horologium mirabile Lundense," is one of the oldest clocks in the world. It is acceptedly the oldest clock in Sweden. And while dealing with superlatives, and one might also add that it is one of the politest clocks in the world, because of its record for saying "tack, tack" through the centuries. To explain: In Sweden, it is good form to say "tack, tack" (tack)—a twofold "thank you"—no every occasion, and even the clocks conform to the practice.

On the Lund horologe, the dial itself is the vault of heaven, and the earth is the center. Around it wanders the three hands representing the Sun, Moon and Stars.

The lower part of the clock contains the calendar with indicated leap years, the calendar month, date and day in the week, the fixed and movable feasts, the new moon, the year as numbered both in the solar and lunar cycle with

the corresponding epochs, the date of Lent, Easter and Whitsuntide—all these points and more indicated for 200 years, beginning with 1923, when the mechanism was reconstructed on the lines of the original timepiece.

The Lund horlog contains also many of the external adornments that every clock of importance in the middle ages had to possess. At Lund the climax of events come every day at high noon. Then the two equestrian figures on the top of the horologe exchange sword cuts. The trumpeters that guard the Virgin play "In Dulci Jubilo," a hymn mentioned as early as 1361 by the mystic Henry Suse, and thought to have been the hymn originally played by this timepiece.

A door opens to the left of the Virgin and the Magi—symbolizing the world with its three continents. Europe, Asia and Africa bow as they pass, their servants following, but not permitted to partake in the salutation. Procession and chorals of this type are commonplace in historic clocks throughout Europe.

In this instance the religious symbolism is overshadowed by the comprehensive picture of the astronomical system of the universe as conceived during the middle ages.

JACK MINER WANTS GRANT RENEWED

The following circular letter urging the renewal of the Federal Grant in aid of Jack Miner's bird sanctuary has been forwarded to all members of Parliament:

Dear Honorable Federal Member:—It was in 1904 father conceived the idea of starting the bird sanctuary system to protect birds and save them from extermination. This met with the approval of not only the conservationists and bird lovers but also had the whole hearted approval of the hunters, as it not only helps this generation of hunters but saves the birds from extermination for generations to come.

The Sanctuary grew far greater than our expectation and naturally it has cost father tens of thousands of dollars to maintain same with little Government assistance until two years ago, at which time the Government gave father a \$5,000 grant and the same last year, but remember, father added equally the same amount to the grant from moneys raised by his lectures and donations from wealthy friends.

Now Parliament is about to meet again at Ottawa, will you kindly do your part by seeing the proper authorities, urging them to help pass the grant again this year? Take into consideration that this Sanctuary has been an example to the world, even Russia has copied the system for bird protection. Our neighbors, United States, voted unanimously laying aside eight million dollars in one year to establish sanctuaries copied off this system. I feel confident our Canadian Government will continue the 5,000 grant because it is simply beyond our personal means and ability to raise this money. Take into consideration that we also give our own land for sanctuary purposes. Father is giving his whole life, time and ability, and we three boys help him continually, at times even engaging three extra men at our own expense.

Take into consideration the money the Government rightly spends in game warden's salaries in order to protect birds, and we challenge them all to show more ducks, geese and swans being protected and cared for, so they cannot be exterminated, and allowed to go north to breeding grounds and increase. Think of how much food the increase amounts to and is eaten by Canadian each fall. It would take a good many \$5,000 to buy the increase which this Sanctuary is the direct means of producing for America. When has the Government spent this amount of money and been paid larger dividends?

Take into consideration, money spent in building museums and for their upkeep in Canada, and our country would be barren without them—yet, after spending hundreds of thousands of dollars along this line, you only have dead stuffed specimens to look at, why hesitate in helping maintain our Sanctuary by giving father at least \$5,000 grant where birds are alive, not only for this generation but generations to come?

From a tourist standpoint the Government rightly spends hundreds of thousands of dollars in National Parks and their upkeep and it gets good returns, as millions of dollars are left in Canada by tourists; but what park in Canada is better known the world over than father's Bird Sanctuary, and we leave it open to the public during the first twenty days of April, except Sundays, when birds are at their best, and employ three men to show visitors which have numbered as high as 13,000 in one day.

Dear member, I know Government has to be careful in its expenditures of funds, but certainly our work is a national asset. Will you upon arrival at Ottawa see proper authorities and support this grant? The last two years' grants went through without a voice of objection and with highest praise and the only criticism we heard from members, who came here in early April except Sundays, when the place was open to public, that Government should bear the entire expense and pay us for our labors and use of land, but we only are asking for the usual grant as was given us the last two years.

Thank You,
Yours Truly,
MANLY F. MINER.

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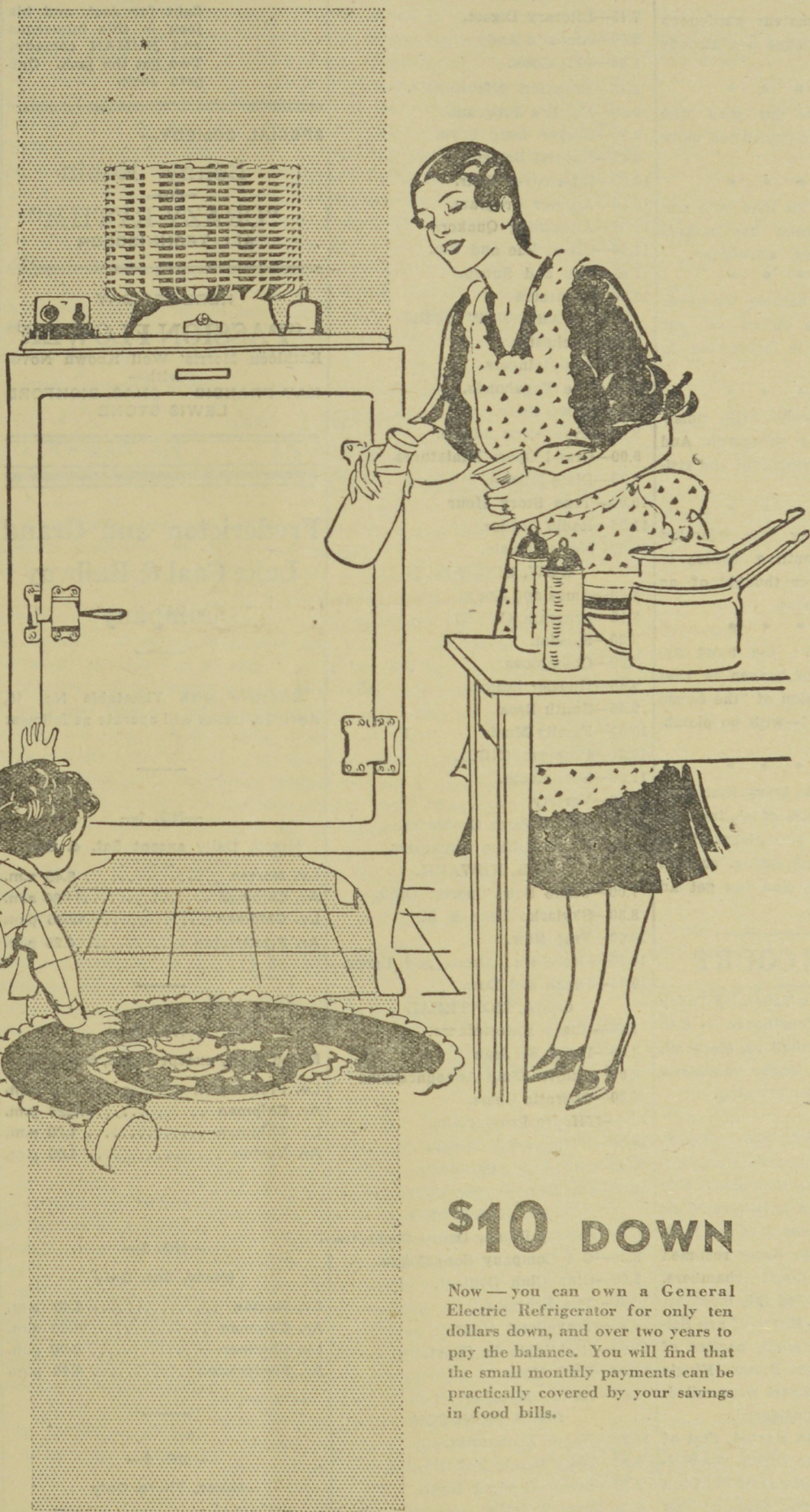
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