

LONGEVITY'S MYSTERY

SEEKING THE FORCE THAT CAUSES ALL PHYSICAL ACTIVITY.

Longevity in Men and Animals—Conditions Upon Which Life Depends—People of Short Stature Who Are Short Lived—Rapid Development a Menace.

In a paper read by Dr. Carleton Simon, the President of the Hundred Year Club, at its annual meeting, he said:

Longevity depends upon: 1, vital energy; 2, physical condition of various organs; 3, expenditures, physical, mental and generative; 4, recuperation and repair.

The first, that of vital energy, or the essential principle of life, is a mystery that requires solving. In the words of Huxley, it is the law of nature when working through organized matter. It is not soul, for that is a spiritual, intangible thing. Vital force is material. It is a condition and a priority that overreaches in importance all other studies. A great many scientific experiments have lately been undertaken which may throw new light upon this fascinating subject. We are upon the eve, the threshold, of a marvelous discovery that lays bare this wonderful power that sits behind the throne of all physical activity.

To illustrate this wonderful basic principle of life I desire to call your attention to certain facts beyond dispute: In Liberty County, New York State, a short time ago, a gentleman in digging for a well upon a hill dug into thirteen feet of earth, when solid rock was reached. Seventeen feet of this rock was blasted away, and at the very last blast, thirty feet from the surface of the earth, incased in solid rock, enclined, was found a frog alive. This is authentic and is duly attested by witnesses. This frog must have been entombed for over 30,000 years, alive, and, aside from the marvelous fact of the solitude of the ages, entombed alone. What marvelous force must be behind it to hold and stay decay!

The stoppage of circulation is death. This seems true when applied to human life. When applied to amphibious life this does not hold true, for the frog may be frozen solid, every drop of his blood frozen; thaw him out and he is still alive. This is also true of many fishes.

The study of ordinary laws, now known and apparent, in answer to the question of longevity, is directed to laws of economy which are compensatory. These have been studied, experiments and researches extending into all parts of the biological world have been made, and my general deductions are the following:

Structural quality of size seems to be significant in value as a guide to longevity in animals and plants. It would seem as if the initial impulse of inherent vital energy, upon which all life depends for its causation, was so abundantly inherited as to be over and above that used up in resisting disease and decay, and that such surplusage of vital force, having no other use, gave impetus to growth and increased structural strength.

Rapid development presages rapid decay. Rapid growth also produces immature development. That which implies quick construction also implies less intricate structure. When applied to life it means less organic development. In short, early reproductive capability is the rule to a short life. It is the rule in nature's realm that small organization, great or early reproduction power and short life are allied. Nature in this way seems to take care of its various species, for animals that are short lived are enabled to propagate more in order to reproduce rapidly that which time so quickly removes.

A few striking examples will bear out this fact in the animal and vegetable kingdoms:

- Mammalia:
 - Elephant—Extreme age, 200 years. Feecundity, one birth at a time.
 - Greenland Whale—Extreme age, 350 years. Feecundity, every few years.
 - Rabbit—Extreme age, eight years. Feecundity, seven litters per year; average, eight in a litter.
 - Cat—Extreme age, eighteen years. Feecundity, several litters per year; average, four per litter.
 - Fish:
 - Pike—Extreme age, 267 years. Feecundity, unknown. (Size of one mentioned by Yarrell weighed 350 pounds, and was nineteen feet long.)
 - Herring—Extreme age, four years. Feecundity, countless thousands yearly.
 - Oviparous animals:
 - Ostrich—Extreme age, 120 years. Feecundity, few eggs yearly. Sun performs in hot climate the function of sitting in six weeks.
 - Dove—Extreme age, ten years. Feecundity, almost continuously. Sits upon eggs ten days.

Plants: The Sequoia gigantea in California measures ninety-nine feet in circumference and is 300 feet high; age per rings, 430 years.

Very many annual and biennial delicate in strength, small in size, living only one or two years.

The rule of large organic structure and late life holds good when applied to the human race. Our centenarians were not all large men; some were only of medium stature; some below it. Still, the rule of organic structure, as found in animals, will be borne out in the human family. Not essentially when viewed in a single example, but truly so when the rule is applied to the class they sprang from collectively. It is the order of the species we must study, not an isolated specimen, but it is only by an average that the fact becomes pronounced.

Thus we have nations of small stat-

ure who are short lived. These I have divided into three groupings.

Group "A"—Races smallest sized men and women and short lived: Eskimo, Mongul, Burmese, Siamese, Japanese, Javanese, Koriakites, Bengalese, Malay, Hottentots.

Group "B"—Races moderate sized men and women and longer lived: Chinese (South race), Georgians, Arabs, Turks, Syrians, Egyptians, Italians, Spaniards, French.

Group "C"—Races largest sized men and women and longest lived: Chinese (Tartar race), Scandinavians, English Russians, Finns, Bulgarians, Irish, Scotch, Germans.—Albany Argus.

Practical Economy.
It is a pity so many people "shy" at the word economy—those at least who are well provided with this world's goods—and that, merely because they choose to think it synonymous with stinting, though this is not the real meaning of the word. In the same way plenty is often looked upon as waste, yet there is a vast difference between the two. But the amount of waste that goes on even in the best regulated households where the mistress and servants have not set their minds on fighting against it is incredible; waste, not always willful, certainly, or likely to cause the favored ones any serious discrepancy in the year's total, though it is never desirable, and becomes a positive danger for such as have to reckon their weekly expenses pretty closely. For every housewife, of high or low degree, there is a duty which should stand pre-eminent, viz.: that of checking waste in order to provide her establishment with the maximum of comfort with economy—that economy which implies order, regularity, cleanliness and daintiness, according to her means, and without allowing of countenancing carelessness and indifference, which often go a long way to make everybody discontented whilst they materially increase the difficulties of home bookkeeping.—Philadelphia Ledger.

Our Railroad Kings.

A railroad president and a United States Senator were talking about Government ownership of railroads.

"I believe," said the Senator, "that it would be a good idea for this Government to buy and operate all the railroads in the United States."

"Well," replied the railroad president, smiling significantly, "if the Government has the money to pay for 200,000 miles of railroad, with an aggregate capitalization of nearly \$5,000,000,000, I can point out the shop where most of the goods can be bought."

"The shop?" echoed the Senator, inquiringly.

"That is what it amounts to, Senator. There are seven or eight men that control all the railroads of the United States, and most of them can be found in New York City on any business day."

"Who are they?" the Senator asked, eagerly.

"Propounded in Wall Street, or in any assemblage of well-informed railroad men, this question will invariably elicit mention of these names: J. Pierpont Morgan, W. K. Vanderbilt, E. H. Harriman, George J. Gould, William Rockefeller, Jacob H. Schiff, James J. Hill, A. J. Cassatt."

—Ainslee's Magazine.

Testing Fireproof Stairs For Flats.

In Frankfurt, Germany, official tests have been made of fireproof stairs for apartment houses. Fires fed with a material which gave forth an intense heat were built in the yard of one of the fire department houses, and over these fires the stairs were placed. The longest resistance was shown by the stairs which had a covering of plaster, and it was found that they could be used twenty-five minutes after the fire was started. The stairs covered with fireproof paint were made of so many different materials and of such varying strength that no definite results could be arrived at, but they were serviceable after five or ten minutes in the heat. Of the stairs of wood and not covered with fireproof paint, those of oak withstood the fire the longest.

Defends Newspaper Reading.

In his attitude toward the daily press Lord Kelvin presents a curious contrast to Bishop Creighton, whose ignorance of journalism has been referred to in this column. To an interviewer who asked him whether he read a great deal Lord Kelvin a little while ago made the rather startling reply that he had not read a book for thirty years. "I read nothing but the daily papers. Well, perhaps that is an overstatement; it may not be thirty years, but it is a long time. Of course, I am continually referring to books, but I have not the time for steady reading, except the daily papers, and I feel especially bound in crises of our history to study the course of events." Compare this with Mr. Balfour's statement: "I never read the papers!"—London Chronicle.

An Automatic Ticket Machine.

Recent experiments by railway officials in Bern with an automatic ticket machine, invented by a Swiss, have given entire satisfaction, says a Bern correspondent. The machine is similar to the ordinary automatic machines, but the glass cases contain the tickets on which are printed the names of the stations and the price of the ticket. By dropping in the right amount and pulling a handle the ticket is set free. The machinery is so well constructed that an insufficient sum of money or any base coins will not work the spring, and there is no danger of the purchaser losing the whole amount.

Over 3,000,000 of the American population are said to be in annual need and actually receive some kind of charitable assistance.

A VERY COSTLY TARGET

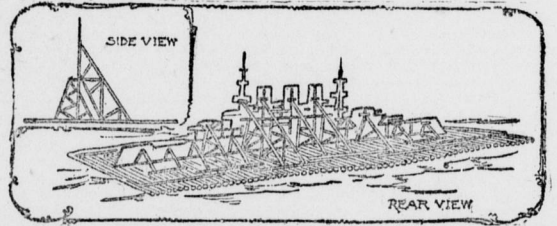
Reproduction of a War Ship That Will Cost a Fortune to Be Used as a Mark.

Our naval experts are making ready to test a new gun and a new explosive in very elaborate fashion. No old war ship being available, the Brooklyn Naval Yard has received orders to make a dummy vessel, at a cost of \$50,000 or \$75,000, the side of which is to be an actual duplicate of an actual man-of-war.

This costly target, says the New York Journal, will be used to test one of the new twelve-inch rifles such as are now being installed on our latest battleships.

Upon this floating target will also be trained the new Gathman torpedo gun. One shot from this frightfully destructive weapon will blow the dummy war ship into splinters.

Naval officers are now discussing the question of what all it would be if the armor were of the finest quality if a shot striking it should drive it bodily into the side of the ship or so strike and injure it as to permit large quantities of water to enter. It is thus evident that the quality of the armor is only one element of the resisting power of the ship's side.



FLOATING TARGET SHOWING FULL SIDE OF A BATTLESHIP.

Armor must be held and supported by suitable framing like that forming the ship's hull and of sufficient strength so that it shall at least resist any serious injury until the armor is actually pierced through and through, and in the latter case the damage to the framing should be local only.

The special point that it is hoped to settle in the coming test with the big target is to note how a shot from the torpedo gun will affect the ship's side about the water line. For a considerable portion of her length a ship's side is protected by a belt of armor extending from three feet above to four and one-half feet below the water line.

The upper portion of this armor is fourteen inches thick down to a point one foot below the water line, below which it decreases to seven inches at the bottom. The armor is bolted to an elaborate system of framing forming the portion of the hull. It is the efficiency of this framing that is to form the object of the coming test. For this purpose the target is now being designed by Captain Capps. It will represent part of the side of the battleship Iowa.

All this structure and wall of armor when complete will be mounted on a big float and towed out to sea off Sandy Hook.

When viewed broadside on it will look like a small section of the battleship Iowa. But looked at from behind or from either end it will present the curious form shown in the diagram. Several years ago the French Government built a dummy representing the complete side of a war ship as a floating target. Our new target is modeled after that.

The Gathman gun which is to be trained on this miniature enemy has a huge barrel with an eighteen-inch bore, but the gun is shorter and lighter than our twelve-inch naval guns. It has just lately been completed at a cost of \$65,000 at the Bethlehem (Penn.) iron works, and is to hurl gun cotton shells.

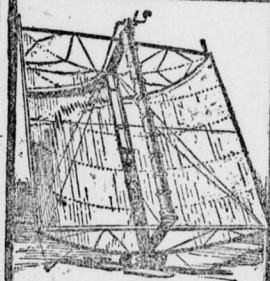
One shot from the Gathman gun is expected to sink the biggest war ship afloat.

Twice a year, in the first week in April and October, the Chinese carry food to their dead.

Driving an Engine by Light of Sun.

People in Los Angeles are much excited over the apparent success of the machine recently built there by Boston capitalists to harness the rays of the sun and make them work a steam engine.

They have built a huge "sun mo-



tor," which pumps up water for irrigation purposes. The sun motor looks like an inverted umbrella, consisting of a reflector thirty-three feet six inches across the top, lined with rows of small mirrors. These reflect the sunlight, concentrating it upon a small boiler in the center, in which steam is generated.

This, after all, is only a modification of the huge sun motor built by Ericsson and set up in Boston, many years ago, the boiler in that case being a long tube running longitudinally with the mirror. Whether the heat from the sun can compete with the heat from coal, from an economical standpoint, is, however, doubtful. On a cloudy day the sun motor would have to go out of business altogether.

Perhaps at Los Angeles, which is in the sunny land, more sunny days will be found than anywhere else on earth. In these latitudes there would be many days in the year when such an engine would be altogether useless, while a coal engine would be always reliable.—New York Herald.

Fire Making Machine on Exhibition.

In the American Museum of Natural History can be seen some new and interesting household utensils from the Arctic regions.

They belong to a hitherto unknown race of Esquimaux dwelling on a bleak and supposedly uninhabited island in the north end of Hudson Bay. These people have been termed a lost tribe from their primitive condition and mode of life. The most remarkable feature about them is the fact that they stand to-day at the very beginning of culture, literally living in



the stone age. They know nothing of the use of metals, and they possess not a single article of modern manufacture that has been introduced into America since the landing of Columbus.

One of the most startling objects found among their effects was a crude and primitive fire drill, used to start a flame. This ancient method of producing fire by friction is the same that was used a thousand years ago. A stick of wood swiftly turned in a slot under a steady pressure produces a cone of dust, which gradually springs into a blaze.—New York Herald.

TO GAIN TERRITORY

It Was Found Necessary To Move a River.

Kingston, Jamaica, April 4.

The following statement of the causes leading up to the recently developed boundary trouble between the republics of Hayti and Santo Domingo and of the present condition of affairs is furnished by persons just returned from the island: What is known as the Dominican republic, or the republic of Santo Domingo, was once a province of the republic of Hayti. In 1844 the internal troubles and state of anarchy which then prevailed (as a result of the revolution which overthrew the government of President Boyer, after twenty-five years in office) facilitated and was the cause of the secession of the eastern portion of the island, which then proclaimed its independence. The existence of the new republic was recognized by the Haytian government in 1874. The question of the delimitation of the frontiers arose naturally from the fact that the territory of the Dominican republic is not, and never has been, defined. The incident that has recently occurred at Pitohtob, on the northern frontier, and which greatly endangers the friendly relations of the sister republics, is considered by the Haytiens to be premeditated provocation on the part of the Dominicans. The Haytien posts established in that district to put down smuggling and brigandage from over the border have had to defend themselves against the repeated attacks. By mutual consent the river Massacre, which divides the Dominican province of Dajabon (or Laxavon) from Haytian territory has for a long time been provisionally accepted by this government as the natural boundary of the two states. All the country on the right bank of the river was acknowledged to belong to Santo Domingo, while the country on the left bank was regarded by both governments as Haytian territory.

And hereby hangs a funny and interesting tale. The Dominicans a year or two ago conceived a brilliant idea. Knowing that nature sometimes makes rivers in the tropics change their courses it occurred to some people residing on the right bank of the stream that they might add considerably to Dominican territory if they could manage to effect a deviation in the bed of the Massacre. And no sooner thought than attempted. Huge boulders and trunks of trees were repeatedly rolled into the river. This, the Haytiens say, with the knowledge and connivance of the Dominican government. But up to the date of the commencement of the present troubles all such attempts to improve upon nature proved unavailing. For the Haytiens on the left bank discovered the little scheme, and time after time removed the obstacles in the river before damage was done. However, within a couple of weeks ago, a remarkable thing happened. The Haytien soldiers at Pitohtob, situated on Haytien territory on the left bank of the Massacre, retired to rest one night. When they awoke next morning they looked in vain for the river. The bed over which the water had previously flowed was dry. Investigations followed, and it was found that the river was flowing over a new channel some miles to the west. Of course the Dominicans discovered, not that the river had changed its bed in the course of a night, but that the Haytien soldiers had transferred some substantial buildings some miles into the interior of San Domingo in the space of a single setting and rising of the sun. The Dominican representatives appeared immediately on what was Haytien territory the day before and called upon the Haytien officer to remove his position to the other side of the river. The Dominican officer who made the demand expressed the indignation of his government at the contemptible action of the Haytiens. The Haytiens, however, refused to withdraw their post, calling instead upon the Dominicans to restore the river to its original bed. Then the trouble commenced. There was a clash of arms. The Haytiens had the upper hand, and so the Dominicans agreed to have the whole matter decided by arbitration. Meantime, however, the Dominicans are quietly preparing for war, and there is a strong feeling in Hayti that there will be a clash of arms before the question of arbitration is settled. The Haytien troops along the frontier have been reinforced and are now quietly awaiting the coming of the Dominicans to force them back across the river.—Philadelphia Times.

Oil Versus Coal

Product of the Texas Field May Come Into Use for Fuel.

Ex-Gov. Hogg of Texas, believes that the discovery of oil in such bountiful quantity in that commonwealth will revolutionize the fuel question of the whole world. He says that the manufacturers of this country and Europe have not yet come to a sense of a realization of what the wonderful oil discovery and development in the Beaumont fields means to them. The problem that now confronts the oil producers of the new district is what shall they do with the oil.

United States, Mexico, the West Indies, South America and Europe at a cost so low that no other fuel can be used in competition for steam purposes. Fuel oil from wells in the Beaumont field can be piped into the seaboard at Port Arthur and run into tank steamers at a total cost of production and transportation not exceeding ten cents a barrel, and as three and one-half barrels of oil are equal to one ton of coal for steam purposes, this is equal to the delivery of coal at the seaboard at a cost of thirty-five cents a ton.

CUBA IS HAPPY

Her People Want Uncle Sam's Protection to Gain Riches.

Gen. Wood, military governor of Cuba, is in Washington. He says everything is harmonious in the island and it is prospering. What is wanted is the repeal or reduction of the sugar tax now in force by the United States. With the former granted Cuba would embark on a career of unprecedented prosperity.

As public affairs go they are in such a condition that they could be turned over to the Cubans on forty-eight hours' notice. Every position not held by a Cuban has one just below it held by a Cuban who thoroughly understands his American superior's duties.

The tranquil condition of Cuba can best be understood by the fact that Gen. Wood's home is only protected by a single Cuban guard, and one could journey all over the island without molestation as well as in the United States. Highway robberies are not unknown in Arizona or New Mexico, and perhaps on a tour through twenty towns of Cuba they may occur, but they are a rarity.

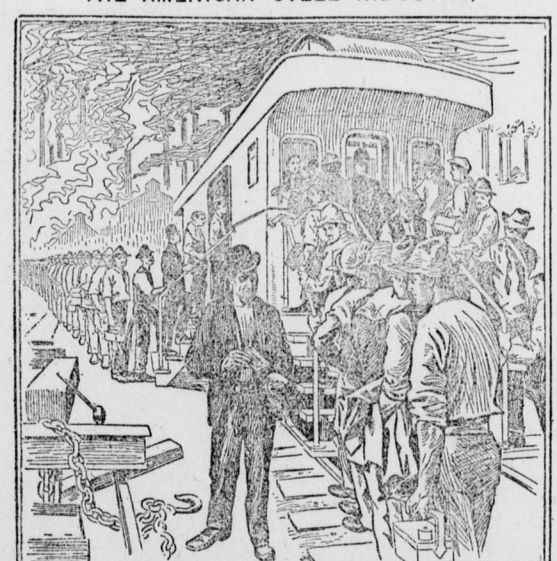
In the Pinar del Rio and Puerto Principe provinces no troops are stationed, and but 4,200 throughout the entire island. The people appreciate the change of the last ten years. Two years ago last January we were issuing 200,000 rations, today not any, except in the hospitals. There are 180,000 children enrolled for the public schools when at that time there were but few. Of these children 132,900 attend school,

of which there are 3,300, and Havana 3,800 teachers. The streets of Havana and other cities are clean, and there has been no case of yellow fever in the former city since March 5.

Fine and Costly Leather.
The finest and most costly leather that is used in this country for manufacturing purposes is known in the trade as piano leather. This leather, so called because it is exclusively employed for covering piano hammers, is in its raw state an American product, being the skin of the gray deer, which are found only in the vicinity of the great Northern and Western lakes. But as American tanners have not acquired the art of properly curing the skins, they have to be shipped to Thuringia, Germany, to be tanned before they can be used by the manufacturers of piano actions. The German tanners have agents in the West, who collect the deerskins from the Indians and half-breed hunters. When the skins are returned to the United States as finished piano leather they cost the piano manufacturers from \$15 to \$20 per pound. The world's supply of this valuable and very necessary material is monopolized by a family of tanners who own and operate six or seven establishments in Germany, the largest of which are located at Thuringia.—Washington Star.

An awkward boy is a chip off the old stumbling block.

THE AMERICAN STEEL INDUSTRY.



THE PAY-CAR AT THE HOMESTEAD WORKS. —From Harper's Weekly.