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THE SENILITY OF CIVILIZATION

By Dr. Edwin E. Slosson.

Day by day the newspapers report the excavation of the buried city of Magna Leptis in Tripoli as last year they told us of the excavation of the buried tomb of Tut-Ankh-Amen in Egypt. We receive from these researches the same shock of surprise at the realization there were people so long ago who accumulated wealth and spent it in the pursuit of pleasure even as we do, who cultivated art and learning, and believed, like us, that they had reached the pinnacle of human attainment, and yet that their proud achievements had been so drifted over by the sand of time that their very existence had been forgotten. The resurrection of such entombed civilizations serves for us the same purpose as the ancient Egyptian custom of passing around an image of a mummy at a feast, a memento mori, a reminder that civilizations like men are mortal, and that if we may judge the future by the past, our own will perish too and be forgotten.

Helmolt in his history of the world observes that "It is remarkable that even to the present day every philosopher, who has compared the processes of man's development to the several periods in the life of the individual, has believed his own time to be the age of senility." It has seemed to each successive generation, as it did to Bernard of Cluny in the twelfth century, that "The World is very evil, the times are waxing late." In every previous century, as in ours, there have been those who have expected the world to come to an end within the lifetime of men then living. Humanity has persistently maintained a fin de siècle attitude, regardless of the calendar.

"There is the moral of all human tales,
'Tis but the same rehearsal of the past,
First freedom and then glory - when that fails,
Wealth, vice, corruption, barbarism at last,
And history with all her volumes vast
Hath but one page."

But while all the physicians, who feel themselves called to consider the health of humanity, agree that the patient is in a very dangerous state and likely to pass away at any time, they fail to agree on the diagnosis of the disease leading to the fatal termination. According to some, it is too much selfishness; according to others, it is excessive altruism. Some call the malignant microbe democracy; others call it plutocracy. Some see the danger in nationalism; others in internationalism. The leading prophet of the latter school is Oswald Spengler, who has recently brought into action a 42-centimeter gun in the form of two profound volumes on "The Downfall of Western Europe". His position is shown by the

following quotation:-

"A nation is humanity in living form. The practical result of theories of world-betterment is, without exception, a formless and therefore unhistorical mass. All cosmopolitans and enthusiasts for world-betterment represent fellahen-ideals, whether they know it or not. Their success means the abdication of the nation within the historical sphere, to the advantage, not of world-peace, but of other nations."

Prof. J. W. Gregory of the Glasgow University, thinks like Lothrop Stoddard, that the progress of European civilization has been checked by the rising tide of color. At the recent Toronto meeting of the British Association for the Advancement of Science, he said:-

"During the past half-century the unprecedented increase in the white race has been exceeded by that of the colored people. Increased disparity in numbers means, in a democratic age, an inevitable transfer of power; while the former prestige of the white man has been undermined by his own beneficent rule. Alike in war and peace the personal authority which the white man held in 1900 has undergone a momentous decline."

"White colonists have no chance of permanently occupying land near the overcrowded parts of Asia or accessible to the fast multiplying Negroes of Africa. White merchants may find in these regions profitable trading centers and may for a time rule and administer them; but when white enterprise has subdued the land, built railways and utilized the rivers, the colored man will oust the white from all but the few posts that require experts."

A. J. Hubbard in "The Fate of Empires" considers it a problem of reconciling the interests of the transitory Individual with those of the continuing Race. He puts his point in a neat analogy:- "Life is an entailed estate. It is to the interest of the life tenant to break the entail." The conflict cannot be reconciled by reason, so he concludes that "A true and stable civilization can never be more than a by-product of religion."

Certain psychologists are now working up a series of intelligence tests to measure the gradual onset of senility as the school tests measure the development of maturity of mind. It is time that the social psychologists worked out a system of diagnosis applicable to nations so the development of fatal maladies could be discovered at incipiency, and, if possible, averted.

Wasteful native methods of agriculture are destroying the forests of central Africa.

The British government has denied the use of Stonehenge to a religious sect who wished to make a cemetery of it.

SYNTHETIC COCAINE MADE IN GERMANY

Cocaine has been manufactured artificially by chemical means in the laboratory of Prof. Richard Willstaetter at Berlin. Three different methods have proved successful in the production of cocaine alkaloids, and one of the compounds, named "psicain", is said to be a satisfactory substitute for cocaine in every way. The synthetic compound has the same structure as natural cocaine but opposite optical activity.

The present source of cocaine is the coca tree of South America, whose leaves must be imported at considerable expense. The present discovery, resulting from a sixty year search for a synthetic cocaine, may make a more reliable drug available to the medical profession at a lower price. Cocaine is worth about \$100 a pound but the primary materials used in the preparation of the new compound are not expensive. The synthetic substitutes for cocaine, such as novocaine or procaine, do not form drug habits like the natural cocaine. But if cocaine like that obtained from the leaf can be made in any laboratory it is likely to nullify the laws and treaties against its importation.

FOREST SURVEY SHOWS SERIOUS PAPER PROBLEM

Americans no longer can look upon the cheap daily newspaper as something inevitable every morning and evening. An extensive research just completed by the United States Forest Service has brought out alarming statistics on the depletion of wood pulp reserves in the United States.

American paper requirements now exceed eight million tons a year, or 56 per cent. of the world consumption. Wood constituted 90 per cent. of the raw material from which this is manufactured. In 1922, 9,148,000 cords were required.

American forests today supply only 49 per cent. of this wood. As recently as 1899 they supplied 83 per cent. Of the amount used in newsprint production, the domestic supply furnishes only one-third. Canada supplies the pulp wood for 37 per cent. of our entire paper requirements.

The forests of the older lumber sections of the United States are being cut much more rapidly than they are replaced by new growth. In most regions the original timber supplies have been greatly reduced.

The problem as stated by the Forest Service, is to secure annually from our own forests more than a million cords additional to offset pulpwood imports, approximately five million cords to offset pulp and finished paper imports, and to insure a sufficient growth to supply the needs of the future. It is estimated that a total of about 15 million cords will be required for this purpose by 1950.

Three possible solutions are suggested by the government: First, new or modified pulping processes may increase the number of species available for paper. Pine or larch, it is suggested, may be made to take the place of spruce, fir and hemlock in sulphate-pulp production.

Second, paper manufacturing must be conducted more economically. Reduced pulping waste in the chemical process, re-use of waste paper to a greater extent, and more coordination between the lumber and sawmill industries, must be aimed at.

Only about 45 per cent. of the original wood weight now appears as pulp. Re-use of waste paper has grown to 29 per cent. of our total production, but it can be increased to furnish a much greater contribution than its present 1,850,000 tons a year.

Finally, the Forest Service states, "The main reliance in ultimately meeting our pulp wood requirements must be placed on the growing of timber. The possible margin of growth on our present area of forest land, under intensive forest management, over the present drain, would ultimately amount to about 12 million cords of the pulp species. To this could be added about 11 million cords now lost annually by fire and disease.

"To this could be added about 2,000,000 cords annually from Alaska. Out of this total could be met the $10\frac{1}{2}$ million cord difference between the present cut from our forests and the ultimate requirement of 15 million cords, and leave a substantial margin."

BLUE WALLS APPEAR TO PROMOTE GROWTH

Young animals, and presumably children also, grow more rapidly in rooms whose walls are painted in light, cheerful colors than they do in dark-painted apartments. This is the conclusion indicated by results of researches conducted by Dr. H. A. Gardner, of the research laboratory of the Paint Manufacturers' Association.

Dr. Gardner experimented with guinea pigs. He placed young animals in cages which had been painted inside in various colors, and weighed them at intervals for forty days. At the end of the period the animals kept in white and light-colored cages had made rapid growth, while those in black or dark-colored cages were stunted. The guinea pigs in pale blue, white and light tan cages showed gains in weight of approximately 31, 29, and 20 per cent., respectively; those in dark green cages had gained only eight per cent. the ones in black cages about four per cent., while the unfortunates in dark red prisons had put on less than two per cent. increase in weight. The shorter the wave length of the light the greater the growth.

These results are in line with recent researches of students of vitamins, notably Dr. A. F. Hess of Columbia and Dr. Harry Steenbock of Wisconsin, who have shown that sunlight and ultra-violet radiation can be used as effective substitutes for the vitamin that prevents rickets. Light-colored and white surfaces reflect a large share of the light that falls on them, while black and dark colors absorb most of it. The modern system of having walls and ceilings of homes, schools and factories painted in white or in light colors thus appears to have a hitherto unsuspected scientific backing.

The Tupelo, or sour gum tree, is being considered as a possible source of paper pulp in the South

POWER SUB-STATION CONTROLLED BY RADIO

Complete radio control of the electrical substation at Tipton, Ind., supplying a city of 5,000 population, has been established. Radio waves sent from Kokomo control the switches, and through them the light and power of the community. This is believed to be the first instance of this kind in the United States.

Two transmission lines to Tipton are maintained from Kokomo and Noblesville. In case of interruption on either, such as might be caused by storms, the supply can be resumed from the alternative source. Heretofore, the operation of oil switches, used to change the connection, has necessitated the constant presence of substation attendants who have received their instructions by telephone from Kokomo. The telephone has sometimes been put out of commission by storms.

Under the new system, if trouble develops on either of the lines, it is instantly observed on the powerhouse instruments at Kokomo and an operator sends out high frequency waves which open the oilswitch. The special wave length used is outside broadcasting range. The waves are received by antennae at Tipton and transmitted to a five tube receiving set and amplifier. They are then carried to a series of selector relays which in turn operate the storage battery switches.

PART OF EYE MAY BE COLOR BLIND WHILE REMAINDER IS NOT

One portion of the eye of an individual may be color blind while another portion is not. In one eye there may be a spot on the retina, capable of distinguishing certain colors and in the opposite eye of the same individual the corresponding spot is not able to distinguish colors. These are the deductions made by Dr. F. M. Baldwin, professor of physiology at Iowa State College after a series of experiments on color-blindness in the human eye.

The variations are caused by the variation in distribution of the photochemical substances in the retina. An engineer might be able to pass a railroad test for color-blindness and yet the range of his eye in distinguishing colors be limited to the exact focal point of the eye. An engineer with such a limited range of color distinction would be a dangerous man to have at the throttle of an engine, according to Dr. Baldwin, because of the great speed of the train and the variation in light, both of which would make it possible for him to fail to read his signals properly.

Near-sighted persons have a bigger field of color discrimination than do far-sighted people.

According to all creditable data color blindness is more prevalent among men than women. Approximately five per cent. of all males are unable to distinguish one or more colors, while only about one per cent. of females are so affected.

The strength of radio signals increases during cold waves.

The electric eel is able to give shocks with a potential of 400 volts.

SEEKS GOLD MINES IN AMERICAN SEAS

Prof. Fritz Haber of the University of Berlin and inventor of the Haber process for the fixation of nitrogen, who created somewhat of a sensation some time ago with the announcement that he had devised a method of extracting gold from sea water, now is in the United States following this same line of research.

Prof. Haber this week requested the United States Bureau of Fisheries to furnish him samples of the coastal waters of the North American continent for analysis. Like a prospector among quartz hills, Prof. Haber literally is seeking veins of gold, silver and other precious metals running through the oceans of the world.

He explained to Bureau of Fisheries officials, however, that he no longer considers his experiments as commercially valuable and is pursuing them only with the hope of increasing scientific knowledge. The actual procuring of gold from sea water is an accomplished fact, he claims, but the quantities are so minute and the expense so great that he believes the process never can be made profitable.

But like a geologist, Prof. Haber expects to discover the interrelation of waters, the courses of ocean currents, and the history of various sections of the sea through the mineral deposits. The amounts of mineral, whether gold, silver or less valuable minerals, differ according to geographic location of the water and in many cases this difference is very marked. Analysis of water as to its mineral quantities may prove a valuable asset to oceanography, Prof. Haber believes, just as analysis of rocks is valuable to the geologist in tracing the history of different sections of the country.

It was indicated that the Bureau of Fisheries may comply with Prof. Haber's request and that the cooperation of other government departments dealing with the ocean may be asked.

The best available data at present on the presence of gold in sea water gives the following figures for different locations, bearing out Prof. Haber's claim of wide variation according to locality.

Deep sea water from the Atlantic Ocean has from 0.032 to 0.267 part of gold per million parts of liquid; water from Christiania Fjord, Norway, from 0.005 to 0.006; from the coast of New South Wales, 0.032 to 0.065; and from the coast of New Zealand 0.005 part of metal per million parts of sea water.

On land the lowest gold deposits which it has been found profitable to operate, contain about 0.14 part of gold to per million parts of gravel which does not have to be crushed to extract the precious metal. The granites of California and Nevada have about 0.37 parts of gold per million; the sandstone, 0.03 and the limestone 0.007.

It will be noted that some sea water contains nearly twice as much gold as the lowest grade gold deposit on land found profitable to operate.

Prof. Haber was in charge of poison gas research for the German government during the war and is credited with the development of many of the deadly gases used by the Germans. As inventor of the leading process for taking nitrogen from the air and making it available for fertilizer, he has made all countries independent of the mineral deposits of nitrate, such as those in Chile.

GERMAN INVENTION PRINTS MOVIE FILMS BY MACHINE

"Longer and better" movie films are promised by a new German film-developing machine, invented by Otto Fliess, a Berlin engineer.

By the present method, films are made in short lengths and glued together - frequently as many as 150 pieces to the reel. By the Fliess method the pieces of negative are printed against a continuous positive film, which may be as much as 500 meters long - half again as long as the average reel. The position of each scene and subtitle is determined by marks previously made on the positive, and the amount of light necessary for printing is controlled according to the known density of the negatives.

The whole plant is operated by two men and has a capacity of 3000 meters of film in eight hours of working time.

TRAPS FOR MAGGOTS SET WITH ALCOHOL

Temperance lecturers can draw a moral from the sad fate of the orion and sweet corn maggots. These unfortunate creatures have developed an acute thirst for hard liquor and follow the scent of it to their deaths, according to Prof. Alvah Peterson of Rutgers College.

They are attracted, says Prof. Peterson, to sweetened baits containing small amounts of various kinds of alcohol. A highball of alcohol, honey and water seems to be their favorite beverage. With a drop of poison added to this drink their lives are doomed.

Perhaps the maggots are willing to die for the sake of a good "jag". In any event, they will not go near the bait unless it contains some alcohol.

FINDS MISSING LINK IN HORSE'S ANCESTRY

The missing link between modern horses and the long line of fossil ancestors from which they were evolved has been discovered by Dr. W. D. Matthew of the American Museum of Natural History in New York. Dr. Matthew has given his find the name of Plesippus or Near-Horse.

Near-Horse's fossil skeleton was dug up from the Elance formation of Texas. It shows characteristics like those of the horses of the Ice Age, which were practically horses as we know them today, and also like the less horse-like animals further back on the horse's family tree.

The legs are much larger and more robust than those of the last of the pre-horse ancestors of the modern horse and the skull is also long like that of the Dobbins of today, in contrast to the shorter head of the earlier equids. Near-Horse, however, had teeth more like those of the fossil ancestors than their living descendants. Tiny vestiges of a fifth toe are also present.

"The series of American ancestors of the horse is one of the classic examples of evolution provided by the fossil record and the most complete and convincing

among the mammals," said Dr. Matthew. "Nevertheless, it is well recognized by those who have made a special study of it, that while the broader lines of descent are beyond reasonable question, there are definite gaps between some of the successive stages."

Near-Horse fills one of the three important gaps previously existing in the horse's family tree, which is nearest to recent times. The genus represented by Near-Horse, Dr. Matthew claims, is certainly the desired intermediate stage between *Plihippus* and *Equus*, the modern horse, although further study may show that Near-Horse itself is a little off the direct line of descent.

REMARKABLE NEW BERRY DISCOVERED IN FLORIDA

The elevation of the humble gooseberry from its present position as a minor fruit good only for pies and preserves to the dignity of a table fruit on a par with cherries, plums and grapes, is one of the possible results from the discovery of a new species in the woods of northern Florida, a region where gooseberries have never before been known.

Gooseberries are not properly appreciated in this country, is the opinion of Dr. Frederick V. Coville, botanist in charge of the Office of Economic and Systematic Botany, Bureau of Plant Industry, whose description gives the new species to science. Abroad, the fine European varieties are eaten ripe, as table fruit. But these choice varieties are subject to disease in this country, and all the hardy native species known until the present time have berries too small and poorly flavored to be of much value. Moreover, gooseberries as well as currants harbor one phase of the deadly blister rust disease that is threatening our forests of white pine, so that government forest officials are urging that gooseberry culture be strongly curtailed.

Into this rather unpromising setting the new Florida species comes almost like a horticultural fairy godmother. It is probably the biggest wild gooseberry ever discovered, the fruits reaching seven-eighths of an inch in diameter. A hybrid with the large-fruited European varieties need not lose size. It is native in northern Florida, far south of the present centers of gooseberry culture, and what is even more important, far south of the white pine region. Therefore it can be cultivated without regard to the white pine blister rust, and there will be the added advantage of having berries ready for market much earlier than at present. And it seems to be quite immune to the mildew disease to which the European varieties are susceptible.

In its present wild state the fruit has one notable drawback. Each berry is covered with so many long, sharp spines that it suggests a little porcupine. It is hoped that these can be eliminated in the breeding experiments now under way at the Department of Agriculture.

The honor of the discovery of this promising berry is divided between Prof. Herman Kurz of the Florida State College for Women and Dr. Roland M. Harper of the Florida State Geological Survey. They came upon it in the woods along the shore of a little lake near Tallahassee in the course of a Sunday botanizing trip. They notified Doctor Coville, as the recognized expert in this part of the botanical field, and after several trips to the region to obtain specimens, seeds and bushes for transplanting, he announced the find to the scientific public.

BLIGHT-KILLED CHESTNUTS MAY BE "COMING BACK"

That the chestnut forests of the United States, now practically exterminated by the epidemic of blight disease that swept them a few years ago, are showing signs that indicate a possible recovery and reestablishment, is the belief of Dr. Arthur P. Kelley of Rutgers University.

Doctor Kelley has found that many new chestnut seedlings have appeared in various parts of the eastern hardwood forest belt, as well as new growth from the roots of trees whose tops were killed. By counting and measuring the amount of new growth on trees injured, but not killed, by the disease, he found that new growth is apparently increasing faster than old limbs are dying. Dr. Kelley is of the opinion that instead of cutting down all the surviving chestnut trees, some of them should be spared to supply seed for a possible new generation.

LARGE CRYSTALS OF IRON SHOW REMARKABLE PROPERTIES

Iron is not usually thought of as a substance capable of forming crystals, but it does do so. "Flaws" in iron are usually due to the presence of masses of small crystals, which may be seen as a "grain" at the point of breakage.

Two British scientists have succeeded in producing large crystals of iron, as much as four by one and one-quarter by one-eighth inches in size. The strength of these crystals is only about half that of an ordinary piece of iron which is made up of small crystals irregularly arranged. They are so brittle that a light tap with a hammer breaks them but they can be rolled out to one hundred times their length without cracking or breaking.

DEATH STILL AT LOW LEVEL

The United States continues to enjoy good health. According to figures announced by the Metropolitan Life Insurance Company and based on records of more than 15,000,000 industrial policyholders in the United States and Canada, the August deathrate was the lowest ever recorded in any year for that month. The August deathrate was but 7.3 per 1,000 which is a decline of 13 per cent. as compared with the mortality during August, 1923.

"Not only for the general deathrate does this favorable report hold but for every one of the principal causes of death," says the report. "It may now be stated almost beyond peradventure that the typhoid fever rate this year will establish a new low point; this is assured for tuberculosis. The accident deathrate was 67 per 100,000 which is unusually low for a midsummer month, and even automobile fatalities recorded a decline, as compared with the same month of last year and July of this year.

Four quarts of American peanuts, taken to China thirty-five years ago by a missionary, are the ancestors of the Chinese peanut crop, which now exceeds American production.

SCIENTISTS DISAGREE ON MARTIAN TEMPERATURE

Measurements of the temperatures of Mars, taken at the Mt. Wilson, California, and the Flagstaff, Arizona, observatories are not in complete agreement. The Flagstaff data were published in "Science", and the Mt. Wilson figures were made public by the Carnegie Institution of Washington.

According to the observations at Mt. Wilson, the noonday temperature on the Martian equator is about 10 degrees above freezing, that is, about 42 degrees Fahrenheit, or the temperature of a late February day in the temperate regions. The Flagstaff figure is higher, about 20 degrees Centigrade or 68 degrees Fahrenheit, like a temperate-zone April day. The Mt. Wilson observations show that the temperature of Mars depends largely on the direct rays of the sun, as do temperatures on the mountain-tops of the earth, for the average morning temperature, between Martian sunrise and 9 A. M., is about 10 degrees Fahrenheit, while over the south polar cap a low point of 95 degrees below zero is reached.

The Flagstaff scientists do not give exact figures except for the noonday temperature, but they say, "these radiometric measurements show that the equatorial zones are much warmer than the polar regions which emit practically no planetary radiation; the morning side of the planet is at a lower temperature than the afternoon side which has been exposed to the sun's rays for a longer time; the dark regions are at a higher temperature than the light ones, and a gradual rise in temperature of the southern hemisphere, where summer is now advancing, is recorded."

 TABLOID BOOK REVIEW

MANUAL OF STANDARD PRACTICE FOR THE POWER-LAUNDRY WASHROOM:- By the Department of Research of the Laundryowners National Association, Mellon Institute of Industrial Research of the University of Pittsburgh. Published by Laundryowners National Association, La Salle, Ill.

This little volume is a comprehensive report of research work on how to wash clothes and is recommended as a practical guide to those who operate large power-laundries. It is also a suitable text-book for the student of laundry chemistry. All the phases of the washroom are covered and one chapter is given to standard formulas for washroom practice. The treatment of water under various conditions, alkalies, soaps, bleaching, blues, starches, etc. are discussed and explained.

The strength of radio signals increases during cold waves.

Chemical arts practised in ancient Egypt included dyeing, the working of gold, glass blowing, baking, pottery making, and the use of the blowpipe.
