

THE SCIENCE NEWS-LETTER

A Weekly Summary of Current Science

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REAL "SKELETON IN CLOSET" CREATES INTERNATIONAL SCANDAL

There is a "skeleton in the closet" of man's evolutionary history, and Prof. E. Dubois, former surgeon in the Dutch Army, holds the key. The "closet" is said to be a good stout safe in Haarlem, Holland, and the skeleton is none other than that of *Pithecanthropus erectus*, the famous ape-man who lived in Java over a half million years ago. For thirty years scientists from all over Europe have besieged Dr. Dubois for permission to examine the remains, while eminent anthropologists have crossed the ocean for that purpose only to be turned away at the door.

His locking up of these specimens and holding out on his fellow scientists has become an international scandal, and is credited with causing other scientists to follow the same policy. The Natural History Museum at Paris now has a number of skulls of cave men of the Neanderthal period which were discovered in 1912 which they refuse to allow scientists to examine thoroughly.

The Java ape-man remains were found by Dr. Dubois near Trinil in the central part of the island of Java in 1891. All that has been furnished the scientific world are casts of the top of the skull, and two teeth, and a photograph of the thigh bone in 1894. He concluded that these remains represented a true intermediate form between anthropoid apes and man. Some, however, believed they represent a very primitive man, others that they represent merely an extinct form of ape. To solve more definitely these problems, scientists have sought permission to examine the original petrified fossils themselves, but Dr. Dubois has refused on the excuse that he wished to publish his own findings first.

Scientists recognize that such action is proper if the findings are published within a reasonable time; but to explain the years that he has withheld his work it has been rumored that he was influenced by religious bigotry to which these bones were "a skeleton in the closet" in the general acceptance of that phrase.

The story of an unsuccessful pilgrimage to Dr. Dubois' home in Holland several years ago was told recently by Dr. Ales Hrdlicka, anthropologist of the Smithsonian Institution. Dr. Hrdlicka was simply unable to find Dr. Dubois' home.

Dr. Hrdlicka praises Dr. Dubois' explorations and early reports on the valuable bones, although he and many other scientists would like to see the originals, make their own measurements and form their own conclusions.

"The final word concerning their exact age and true biological position has not yet been pronounced," said Dr. Hrdlicka, in explaining that there was no room for doubt as to the place of the discovery of the several bones and their geological relations.

The Java ape-man is the oldest of all the links tending to show man's rise in the world. From the geological strata in which it was found, it is estimated that it must have lived from 500,000 to a million years ago, making it nearly twice as old as the next oldest cave-man. The first human or near-human remains yet found, it was recently shown by Dr. Hrdlicka, are those of the so-called Piltdown man found near London, England, and probably dating back over 250,000 to 300,000 years. He believed that modern man may have developed from this western type and that the Java ape-man represents an extinct branch and is not in the direct line of man's ascent.

READING REFERENCES.- Hrdlicka, Ales. The Most Ancient Skeletal Remains of Man. Washington, Government Printing Office, 1916. Wells, H. G. Outline of History. New York, MacMillan Company, 1921. Osborn, Henry Fairfield. Men of the Old Stone Age. New York, Charles Scribner's Sons, 1921.

Dr. Edwin E. Slosson

C H A T S O N S C I E N C E

SHARK-TOWED SUBMARINES

It is funny that anybody should be surprised at a parliamentary allusion to Great Britain's determination to remain mistress of the seas when she has made that plain by legislation, poetry and action for the last four hundred years. It is only a few years since as her associate in the late war we joined in the singing of

"Rule Britannia ! rule the waves !
All thine shall be the subject main,
And every shore it circles thine.

But it is not so commonly known that one of the proposed methods by which Great Britain was to hold her supremacy of the seas was the use of submarines towed by sharks. The inventor of this ingenious scheme was Dr. Erasmus Darwin, grandfather of Charles who derived more than one hint for his theory of evolution from Erasmus Darwin's volume of versified science, "The Botanic Garden".

The most famous passage in this curious work is that in which Erasmus Darwin anticipates the automobile, the steam tug and the airplane:

"Soon shall thy arm, unconquered Steam ! afar
 Drag the slow barge, or drive the rapid car;
 Or on wide-waving wings expanded bear
 The flying-chariot through the fields of air.
 Fair crews triumphant, leaning from above,
 Shall wave their fluttering 'kerchiefs as they move;
 Or warrior-bands alarm the gaping crowd,
 And armies shrink beneath the shadowy cloud."

This is a good guess for 1789, although it is not steam but gasoline that we are using for automobiles and airplanes. But Grandfather Darwin could not anticipate the internal combustion engine and he knew that steam would not work under water so when he undertook to describe a submarine he could not see how the boat could be propelled unless fish could be harnessed to it. So he wrote:

"Led by the Sage, lo ! Britain's sons shall guide
 Huge Sea-Balloons beneath the tossing tide;
 The diving castles, roof'd with spheric glass,
 Ribbed with strong oak and barr'd with bolts of brass,
 Buoy'd with pure air shall endless tracts pursue,
 And Priestley's hand the vital flood renew.-
 Then shall Britannia rule the wealthy realms,
 Which Ocean's wide insatiate wave o'erwhelms:
 Confine in netted bowers his scaly flocks,
 Part his blue plains, and people all his rocks,
 Deep, in warm waves beneath the Line that roll,
 Beneath the shadowy ice-isles of the Pole,
 Onward, through bright meandering vales, afar,
 Obedient sharks shall trail her sceptered car,
 With harness'd necks the pearly flood disturb
 Stretch the silk rein, and champ the silver curb."

Absurd as this is as science and poor as it is as poetry yet it has many points of interest. The author solved the question of submarine ventilation by the means now employed, that is, the renovation of the air by oxygen gas which had been discovered only fifteen years before by his friend, Joseph Priestley, a preacher-chemist who was driven out of England and came to America because of his political and religious non-conformity.

But Erasmus Darwin made a bad guess in his surmise as to the motive power of the future submarine. Man has never been able to train to harness any animals of the sea. His control stops with the shore.

And now he is getting ready to dismiss the ox and horse from their long servitude and rely instead upon the inanimate energy of fuel and falls to run his slow barges and rapid cars as well as his flying-chariots and sea-balloons.

READING REFERENCES.- Stevens, William Oliver and Westcott, Allan. A History of Sea Power pp 293-296. New York, George H. Doran Company, 1920. Abbot, Willis John. Aircraft and Submarines; story of their invention, development, and present day uses. New York, G. P. Putnam Sons, 1918.

HUMAN RACE GETS DRIER

Man as an individual is getting drier and drier every day, according to Prof. C. Robert Moulton of the University of Missouri. This progressive desiccation which continues until what Prof. Moulton calls biochemical maturity is reached, is not due to the passage of the eighteenth amendment but because of the natural law discovered by him that the proportion of water in the tissues decreases with age.

The loss of moisture in the human organism progresses most rapidly before birth. When the infant is born, it is composed of about 83 per cent water, which means that eight and a third pounds of a ten pound baby is water. After birth the relative amount of water decreases at a slower rate until biochemical maturity is reached after which the amount remains constant. On the other hand, nitrogen and ash constituents including phosphorus are very rapidly gained in the period before birth and at a diminishing rate until biochemical maturity is reached after which, in this case also, the proportion remains constant.

What is true in this respect with man is also true with the lower animal such as rats, dogs, and cattle. Beeves at the time of birth consists of about three fourths water, whereas newborn rats have even a greater proportion, their water content being approximately nine tenths of the whole.

19 CHILDREN DRINK LYE; NO POISON LABELS ON CANS

Because 20 persons, most of them children, have come under his care during the past 16 months for partial or complete stoppage of the esophagus following the accidental swallowing of solutions of lye, Dr. Louis H. Clerf of Philadelphia strongly recommends in the current issue of the Journal of the American Medical Association that all containers of lye put up for household purposes should be plainly labeled "poison".

Of the 20 cases, all except one drank the poison when they were children. In most cases the symptoms came on soon afterwards, in others some years intervened, and in many there had been months or years of partial starvation due to inability to swallow solid food. In a few cases feeding by the mouth was impossible. The stoppage was due in all cases to the scars resulting from the corrosive action of the poison when swallowed.

Most of these cases might have been prevented, Dr. Clerf says, if the lye containers had been marked as are the poisons sold by druggists. Lye manufacturers should warn the public, he states, of the poisonous character of these substances, and in homes they should always be kept out of reach of the children.

NEW VOLCANO IN CHINA SEA

A new volcano has just been born. Preliminary reports have been confirmed by recent advices to the U. S. Hydrographic Office which gives the location of the volcano at Latitude 10 degrees 10 minutes 20 seconds north; and Longitude

109 degrees 00 minutes 10 seconds east. This is in the China Sea near the coast of French Indo-China and about on the site of a shoal formerly known as "Julia Bank".

Volcanic activity in this region is declared to be something quite new by Dr. H. S. Washington, volcanologist of the Carnegie Institution of Washington. There is a chain of volcanoes extending through the Philippine Islands and southwards into Celebes and Java, and northwards into Formosa; but volcanic activity so far to the west is unprecedented, he said.

The volcano is now 97 feet high and in full eruption. Another smaller one has also appeared above the sea about two miles to the south. This is at present only a foot above the water but is erupting actively. Vessels sailing in that part of the sea are warned to use the utmost caution, as besides the volcanoes new shoals are reported.

NEWS OF THE STARS

By Isabel M. Lewis
U. S. Naval Observatory.

JUPITER AND SATURN NOW BRILLIANT IN EVENING SKY

The two largest planets of the solar system, Jupiter and Saturn, may now be found early in the evening not many degrees apart in the constellation of Virgo. There will be no difficulty in identifying Jupiter because it is the brightest stellar object above the horizon at this time. Venus, to be sure, always far exceeds all the stars and planets in brightness, including Jupiter, but Venus is now a morning star and can be seen only by those who are up before the sun.

Jupiter crosses the meridian due south about nine p.m. the middle of June and Saturn about 7:20 p.m. on the same date. Saturn now lies only a few degrees northwest of the brilliant, white, first-magnitude star Spica in Virgo and very slightly surpasses it in brightness. In fact, only a trained eye would now detect any difference in brightness between the white star Spica and the yellowish planet Saturn. During the summer and early fall Saturn will gradually draw nearer to Spica until on the first of October it will lie about four and a half degrees due north of Spica. During this time it will change very slightly in brightness owing to its great distance from the earth. Jupiter now lies nearly on the border line between the constellations of Virgo and Libra and is slowly moving westward. By the end of the first week in July it will reach its farthest point westward, close to its present position, and will then move slowly eastward for the remainder of the year passing from Libra into Scorpio late in the fall. Both planets, therefore, will continue to be visible in the evening throughout the summer, coming to the meridian earlier each evening as the constellations in which they are located gradually shift westward.

The question of the probable surface temperatures of the planets is one that seems to have aroused considerable interest among astronomers recently and there have been estimates made, based upon modern methods of investigation, that may

change some of the views that were formerly held on this subject. Particularly is this so in the case of the outer planets that are largely gaseous in their constitution. It was formerly held that these bodies were semi-suns and that in fact it might be possible that they were emitting a considerable quantity of heat to their satellites. Recent measurements of planetary radiations show, however, that the heat radiations from the planets Jupiter and Saturn are practically nil. There is no great outpouring of heat from these planets to their satellites and there is reason for believing that the surface temperatures of both Jupiter and Saturn lie far below zero. There may be, and probably is, a gradual seepage of internal heat to the surface of these planets, though not in sufficient quantities to modify the intense cold that must prevail upon the surfaces of the numerous satellites that revolve about these huge bodies. Jupiter has nine satellites and Saturn ten, in addition to the numberless bodies of meteoric size that make up the substance of its three rings. These satellites range in size from bodies equal to or greater than Mercury to tiny objects not over twenty miles in diameter. At the enormous distance from the sun at which they lie, devoid of atmospheres and with no appreciable heat furnished to them from the planets about which they revolve, these small worlds must have surface temperatures close to the absolute zero of space.

RAID ON PREHISTORIC RUINS REVEALS ANCIENT GAMBLING GAME

How a vanished race, which once lived in the isolated Rio Mimbres valley of southern New Mexico, shot craps has been revealed by prehistoric pottery dug up near Deming, New Mexico, by H. D. Osborn of that place. In a scientific report just issued by the Smithsonian Institution, Dr. J. Walter Fewkes of the Bureau of American Ethnology, who recently left here to make further explorations at the site of these discoveries, describes crockery showing scenes and figures from the daily life of a people whose very existence was doubted until a few years ago.

On the bottom of a broken jar, there is a gambling scene representing three men playing a game with dice, the spots on which can be plainly seen. Just which one is winning it is impossible to say, as almost half of the picture is no longer visible. Arrows were apparently being used for stakes. One man seems to be down to his last arrow.

Another piece of pottery shows how these ancient Mimbres snared birds, while still another represents two men dragging a dangerous captured animal in such a way as to prevent his attacking either one of them.

Food animals, however, predominate in the pottery pictures, and from this evidence Dr. Fewkes concludes that animal food formed a considerable part of the dietary of these ancient people. Deer, antelope, rabbits, turkeys, parrots, fishes of many sorts, turtles, frogs, and insects indicate that these early Indians were good observers, clever artists, and possibly drew their pictures from nature.

Their artistic work was accomplished in an isolated valley whose rivers have no outlet to the sea, and Dr. Fewkes urges additional investigations in this valley which lies midway between the Pueblo and Mexican region and shows

affinities with the culture of both.

READING REFERENCES.- Fewkes, J. Walter. Designs on prehistoric Hopi pottery, Washington, Government Printing Office, 1919. Explorations and field-work of the Smithsonian Institution in 1922. Smithsonian Miscellaneous Collections Vol. 74, Number 5, Washington, 1923.

ALASKA CUTS OFF MOSS AND THAWS OUT

Ceasing to be moss-backed, Alaska is thawing out. It has been found as the result of the experience of twenty years or more that where the thick layers of ground moss which cover so much of the area of the Territory have been removed the underlying frozen soil gradually thaws, permitting general agriculture.

Travellers and others have frequently noted and told the world about the frozen earth that lies all the year not far below the moss-covered surface, and this has led many to believe that agriculture would always be impossible. This is not so in the experience of the experimental stations of the Department of Agriculture.

At the Rampart station, which is situated within about 50 miles of the Arctic Circle, grain growing has been carried on successfully for more than 20 years. The first clearing was made in 1900 and a layer of moss removed from the land. At that time the soil was frozen to within 8 inches of the surface. After one summer's exposure the ice had melted to a sufficient depth to permit the first crop to be planted. The ice layer has now receded to a depth of 6 or 7 feet and it is still gradually being lowered.

The presence of this frozen subsoil is not without advantage in the interior of Alaska, where the rainfall is light and dry seasons sometimes prevail. At such times the moisture from below is brought to the roots of plants by capillarity and crop production is assured.

The receding of the permanent ice is shown in other ways. At the Holy Cross Mission, on the lower Yukon River, a well was dug in the summer of 1899 to a depth of 25 feet and no permanent ice encountered. The place where the well was dug had been under cultivation for about 10 years.

At the Fairbanks station in the spring of 1909 a well 40 feet deep was dug and no frost met with except in the first 2 feet on land cleared in 1907.

These instances show that if the moss is removed the ice will thaw to a greater depth in summer than it freezes in winter.

The skull of a gigantic fifteen foot high hornless rhinoceros, perhaps the largest land mammal which ever lived, was recently discovered by a scientific expedition in central Mongolia.

PLAGUE OUTBREAK NEAR PARIS NO CAUSE FOR ANXIETY HERE

Recent reports of a small outbreak of bubonic plague near Paris have not yet been confirmed by the U. S. Public Health Service, but if true there is no cause for worry in the United States, says Surgeon J. H. Linson, in charge of the Division of foreign quarantine.

Plague has been existent for some time in some of the ports of Spain, notably Barcelona, and vessels coming from there are subject to thorough fumigation before being permitted to discharge cargo. Cases have been reported in recent years in Liverpool and Marseilles and also in New Orleans.

The spread of the disease is controllable through eradication of the rats and other rodents in the infected areas, as the common type of the disease is spread solely by the bite of fleas from infected rodents. Protection to individuals is also afforded by vaccination with anti-plague vaccine. Vessels arriving at our ports from infected seaports are fumigated with cyanide gas which kills both rats and fleas.

OIL REPLACING COAL IN SWEDISH SHIPPING

The rapidity with which coal is being abandoned by Swedish shipping in favor of oil is a significant phenomenon revealed by recent reports from various interests of the Swedish shipping world.

Thus it has just been announced that the Swedish-American Line has placed an order in England for the largest motor-driven passenger vessel in the world, which will be able to accommodate about 1,800 passengers in the transatlantic service. This ship will have a speed of 17 knots. This news comes on the heels of a report that the alteration of a vessel by the same company to an oil-burner has reduced the cost of fuel 50 per cent., has reduced the personnel in the stoke-hole from 72 to 6, has permitted the addition of 140 new berths, and increased the cargo space by 800 cubic meters. Also the use of oil together with the new Delaval steam turbines have saved a day and half in the run between Gothenburg and New York.

Another victory for the oil principle is the new 8,000 ton Diesel motor-ship "Luosa" just delivered by a Gothenburg ship-building firm to the Grangesberg mining and traffic company. The "Luosa" is expected to prove a valuable addition to the company's fleet of vessels which carry iron ore from Swedish mines to American and other countries.

The greatest fleet of large ocean-going motor-ships in Scandinavia, and, doubtless, the greatest in the world, is owned by the North Star Line, usually called the Johnson Line, the founder, Mr. Axel Johnson, having been the pioneer of Swedish over-seas shipping. This line now has eleven motor-ships of about 9,000 tons each, and the marine experts are most enthusiastic over these trim, clean-looking cargo carriers as the last word in economy of fuel and labor.

Coal is also being gradually superseded by oil in the fleet of the Transatlantic, Sweden's biggest steamship company. Seven of its thirty-three ocean-going vessels are driven by motor, and it is reported that the company will order new motor vessels in the near future.

MALARIA DECLINING: FEW SEVERE CASES

Malaria is generally decreasing throughout the United States according to U. S. Public Health Service information, but in a few states a recent increase has been noted. Although the disease is now seldom found outside the southern states, it would be a mistake to assume, say experts, that it is generally prevalent there. There are large areas of the South today which are free of the disease or so nearly so that it does not assume the proportions of a public health problem.

Malaria is now prevalent only in certain regions of the Atlantic and Gulf coastal plain and along the lower Mississippi valley. It is there that it still constitutes a big problem, principally in the rural districts. The states of Mississippi and Arkansas show considerable increases in the number of deaths from the disease in the past year and although Missouri and Kentucky have shown a decrease over a period of years the results for last year show an increase. In the Carolinas, malaria is practically stationary after a marked decline some years ago. The upland and mountain regions of the South are practically free of the disease.

Testimony is general throughout the South that the disease has greatly declined there in the past 20 years. The "oldest inhabitant" of nearly every village can tell of how when he was a boy nearly everybody used to have their regular chills while now the vendor of quack malarial cures finds little custom. The character of the disease has become more mild with the lessening prevalence and severe cases are increasingly rare.

BRAN AND POTATOES BEST DIET SAYS DANE

If all persons were vegetarians nine people could be supported by two and a half acres of land says Dr. D. Hindhede, the Danish nutrition expert, in a recent report to the American Medical Association on the relation between diet and disease.

There was a great decrease in deaths from heart disease, pneumonia, bronchitis and old age in Denmark during the war, Dr. Hindhede states. Peace brought a return to higher death rates from these diseases and the doctor asserts that the increased health in war time was due to enforced abstention from meat, coffee, and white bread.

Dr. Hindhede, who is director of the Danish State Laboratory for Nutritional Research, asserts that his experiments made with men over a long period of time prove that life, health, and vigor may be maintained on a diet of bran, potatoes, and other vegetables; although it is not proved that a small amount of meat does any considerable harm. He is not himself a vegetarian, and he considers it most important that one eat only when hungry and stop while the food still continues to taste good.

TABLOID BOOK REVIEW

TOBACCO AND MENTAL EFFICIENCY, - By M. V. O'Shea, Professor of Education, University of Wisconsin, New York, The Macmillan Company, 1923. Price \$2.50

This book is a timely compilation of the objective and subjective data as to the effects of tobacco on the working of the mind. Neither the defenders nor the enemies of the fragrant weed will find much consolation in its pages, as the evidence presented is somewhat conflicting and inconclusive. Professor O'Shea has made a scientific experimental study of the effects of tobacco on the simpler intellectual processes, however, which shows that it has some slight tendency to retard and to disturb the mental machinery of adults. A more decided bad effect on high school pupils was found from intelligence tests and from the subjective testimony of teachers.

AMERICAN PETROLEUM REFINING. By H. S. Bell, C. E. D. Van Nostrand Company, New York.

This is purely a technical handbook, a view of the petroleum industry framed completely by the refinery boundaries. Within those boundaries it is thorough, complete, and explicit, no phase of the refinery process from the storage of the crude oil to the shipping of the refined product. A feature of the book are the numerous and excellent illustrations.

The fourth largest aquarium in the world is located at Honolulu, Hawaii, and is devoted entirely to the marine life of the tropical Pacific.

There is less than a gram of liquid water per cubic meter of the densest fog.

Because the Peruvian Government has prohibited the killing of chinchillas, a variety of rabbit whose fur curiously resembles the chinchilla is being bred in France.

What is thought to be the fossil remains of an ancestral relative of the modern bed bug which lived millions of years ago has been found in Sweden.

The earth sweeps up about twenty million shooting stars or meteors big enough to be visible to the naked eye in the course of a single day.
