SCIENCE NEWS

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INVESTIGATIONS IN ALASKA

ALASKA, like Greece, had its golden age, when the people attained the high point of their culture and then dropped to a less admirable level. Evidence of this prehistoric golden age in the Arctic has been brought back to the Smithsonian Institution by Henry B. Collins, Jr., who conducted an expedition to St. Lawrence Island this summer for the Smithsonian and for the American Association for the Advancement of Science.

On the narrow strip of land called St. Lawrence Island, Mr. Collins found a remarkable mound about 20 feet high and large enough to be the site of a compact village. The mound was composed of trash, the refuse and sweepings from an entire village over a period of many centuries. Animal bones and broken tools, bits of ivory and whalebone, pieces of wood carved in fantastic design, all were mixed in with a binding of earth and permanently hard and frozen from the cold climate.

The most surprising moment in the digging came when the frozen bodies of some of the oldest inhabitants were discovered encased in ice. Six children had been buried there in the side of the mound, each one dressed carefully in his fur and feather garments. The place where they lay happened to become filled with water which froze, thus preserving the bodies through so many centuries. This is the only time that human bodies have been found in such condition, Mr. Collins states.

Ruins of houses made of driftwood and whalebone were in the top layer of the great mound, Mr. Collins said, in describing his excavation of the site. Digging to the bottom of the mound, he found the ruins of the homes of the oldest inhabitants. To reach the most deeply buried deposit, where the oldest layer of ruins lay, Mr. Collins had to dig six feet below the reach of the storm tides. In other words, he explains, the land has sunk since those houses were built on the beach, and this in itself indicates the passage of considerable time.

This oldest layer of houses dates back to pre-Russian days, the ethnologist declares. They are surely 300 years old, and more likely are nearer to being eight centuries old. The village is the most extensive Eskimo settlement ever excavated.

Many harpoons and other tools and weapons were brought back to the Smithsonian collection. Objects displaying the finest art in carving and design were taken from the lowest and oldest level of the mound. These were made in the days of the highest Eskimo culture. The precision of the lines and the fine designs used indicate that these inhabitants were far more clever with their hands and had a keener sense of beauty than any of their descendants in the Arctic. Whether they were some of the "first Americans," some pioneer Asiatics who brought knowledge and skill to the new world, can not yet be stated, Mr. Collins says. But it is certain that the Eskimos of historic times have lost a heritage of finer things, as the simpler carvings in the top layers of the mound show.

Present-day Eskimos, possibly direct descendants of the artists, came to the island and helped the scientist excavate. In some cases they were able to enlighten him as to the use of the peculiar articles discovered in the deserted village.

THE EUROPEAN BISON HERD IN THE CAUCASUS

THE wisent, Europe's representative of the bison family and close cousin to the American bison, appears to be certainly doomed to extinction. The herd of the Caucasus region, which numbered 1,000 head in 1911, has now totally vanished. So states Professor J. Pujanow, of Semferopol, who has just completed a survey of the status of this vanishing species.

In 1924 the Soviet government set aside an area of 1,100 square miles in the Caucasus as a permanent wisent reserve. At that time there were known to be 25 head of the animals still in existence in the region, and it was hoped that under protection they might stage a comeback like that of the American bison in the national parks of the United States and Canada. Parties of naturalists in the field in 1924 and 1925 failed to catch a glimpse of any of the animals, which remained hidden in the more remote fastnesses of the rugged terrain. Last year a larger group of zoologists who had had special experience with the wisent took the field and explored the region thoroughly, combing every valley.

They did not find a single living animal. They came upon plenty of bones, some of them bearing bullet marks, indicative of the inability of the inadequate government patrol to stop illegal shooting. The bones all seemed to be from animals not long dead—two or three years at most; so that it seems probable that the herd was there when the reserve was created for it, but has been wiped out since. There may still possibly be one or two wisent in remote haunts in the Caucasus, but they can no longer be counted on to help stay the march of the species toward extinction.

The wisent was formerly an important game animal in Europe, and until the seventeenth century was actively hunted. The advance of civilization in eastern Europe, however, drove it toward extinction as the advance of civilization later in western America threatened the New World bison. A large herd in the Baltic region was almost wiped out during the war; only five specimens now survive. There was also a wisent preserve in the Crimea before the war, but this was destroyed during the Russian revolution. There are still a few specimens scattered about in zoological parks in England and northern Continental Europe, and an association has been formed which is endeavoring to prolong the life of the species. But the news of the wiping out of the Caucasus herd comes as a heavy blow to the friends of the wisent.

THE MASSIVE JAWBONES OF SOUTH SEA ISLANDERS

MASSIVE jawbones, resembling in many details of structure the jaw of the ancient Heidelberg Man, have been found by Professor A. N. Burkitt, of Sydney University, in a collection of modern human remains from the South Sea island of New Caledonia. He reports his researches in the British scientific journal, *Nature*.

The discovery of the Australian anthropologist suggests the possibility of a revolutionary change in our assumptions concerning the kind of a person *Homo Heidelbergensis* was. It has always been taken for granted that he was a pronounced lowbrow. Though no skull of his race has been discovered, and a single jawbone is the only Heidelberg relic ever turned up, this jawbone is of such brutish proportions that the assumption has always been that the rest of his head must have been shaped to match it, and that in particular he had a low sloping forehead and a brain notably smaller than that of modern man.

The jawbones examined by Professor Burkitt are more advanced in structure than the Heidelberg jaw in some respects, notably in having more of a chin, but they are decidedly "Heidelbergian" in their general depth and massiveness and especially in the width and configuration of the ramus, or angle where the jaw fits into the cheek. But the natives of New Caledonia are not lowbrows; even though they are savages their skulls are "modern," and their brains are just about as large as those of contemporary Europeans.

This leaves us with the possibility, disquieting to current anthropological assumptions, that the massive-jawed Heidelberg man did not necessarily have a gorilla-line cranium. And nothing short of the discovery of a Heidelberg skull can really settle the matter.

THE SURVIVAL OF ARISTOCRATIC FAMILIES

ROYALTY and old families do not die out because of their age, neither do they become degenerate and sterile because of their wealth and power, according to Dr. F. A. Woods, of the National Research Council, in a report to the American Genetic Association. Facts taken from the history of the British peerage furnish proof of this, he says, in contradiction to popular notions about inherited wealth and position. Since families and family names continue only in the male line, many old families have become extinct only because all the children of one generation were girls. It is not fair to say that old families are dying out because certain names are no longer found in the peerage. On the other side of the picture, it was found that over half of the British peers of 1921 trace a continuously aristocratic descent in the direct male line to as early as the year 1450.

Every instinct and desire of powerful and wealthy families would tend biologically toward their growth in strength and numbers, Dr. Woods points out, mentioning the desire for children, particularly sons, and the selective mating of aristocratic families, a mating designed to strengthen the family.

While nine out of a certain ten old families may have died out, due to a preponderance of girl children, the remaining one will have branched out and ramified until fully ten important families of to-day can trace their descent from it in the male line. An example of this is the great number of aristocratic families, including 12 peers, descended from the old Stewart family of Scotland, the originator of the family line being the first Steward of the King of Scotland. Thus in actual numbers, a balance is kept, and aristocracy as a whole, as well as royalty, does not die out because of any degeneracy or weakness due to its rank or wealth.

Of the royal families of to-day, both reigning and non-reigning, nearly every one, through the male line, "shows a continuous position of nobility or royalty traceable as early as the eleventh century." Three or four thousand members of various royalties are living in Europe to-day, and they are all having large families.

THE GRAF ZEPPELIN

WHILE the *Graf Zeppelin*, world's largest airship, dwarfs her sister, the *U. S. S. Los Angeles*, American dirigible designers and enthusiasts are looking forward to 1931 when the all American *ZRS-4*, a dirigible nearly twice the capacity of the *Graf Zeppelin*, will take the air. A little less than a year later the *ZRS-5*, a sister ship from the same mold, will be produced here in America by the Goodyear Zeppelin Corporation as the result of a contract signed by the U. S. Navy just a few days before the *Graf Zeppelin* left Germany.

Even earlier, the *Graf Zeppelin's* world dirigible title will be challenged, for in England two dirigibles, both 5,000,000 cubic feet in capacity, are nearing completion. They are John Bull's bid for supremacy in the air lanes as well as on the sea's surface. America may expect visits from the *R100* and *R101* in the spring although they may be flight tested on the air routes to Egypt, India and Australia for which they were designed.

Not discounting the achievements of the *Graf Zeppelin's* flight, airship experts note that the new German airship is an enlarged edition of the *ZR-3*, now the *Los Angeles*, which four years ago made the same trans-atlantic crossing from Friedrichshafen to Lakehurst on its way to join the U. S. Navy. Twenty-eight balloonets instead of 24 make the *Graf Zeppelin* 771 feet long instead of 658 feet. The diameter of *Graf Zeppelin* is only ten feet greater than that of the *Los Angeles*. Both have five engines and their external appearances are similar. The principal difference in the interior is accommodation for the gas fuel balloonets at the bottom of the large envelope and an extra corridor or "cat walk" running the length of the ship.

The new Navy airships when completed will be only fourteen feet longer than the *Graf Zeppelin* but they will be 132.9 feet in diameter and hold 6,500,000 cubic feet compared with the *Graf Zeppelin's* 3,708,000 cubic feet. The American ships will incorporate some new design factors that promise to make them unique.

Due to the use of inert helium instead of explosive hydrogen for inflation, it will be possible to place the

eight engines inside the hull. Engine specifications have not been announced but it is considered probable that gasoline will be abandoned for heavy oil fuel. The internal engines will allow the ship to slip through the air with less resistance and there will be less danger of the engines being torn off in a severe storm. A complete airplane hangar will be housed within the hull from which five airplanes can be launched from a trapeze, like performers at a circus.

The frame-work of the new dirigible will have a strength unequalled in any other design. Made of duralumin, the favorite dirigible metal because of its lightness, every portion of the frame will be close to corridors and passageways and accessible for inspection and repair even during flight.

VEHICLE TUNNELS

How modern tunnels for vehicles under rivers, such as the Holland Tunnel under the Hudson, have been made possible by means of experiments on animals and experiments in which full-sized autos were driven through a small experimental tunnel, is revealed in a report to the Engineering Foundation at New York by A. C. Fieldner, chief engineer of the experiment station division of the U. S. Bureau of Mines.

When the Holland Tunnel was first proposed, says Mr. Fieldner, many engineers thought that it would be impossible to ventilate. The amount of poisonous carbon monoxide given off in the exhaust was thought to be so great that it could not be carried away.

Experiments made by Professor Yandell Henderson at Yale University showed that as much carbon monoxide in the air as 4 parts in 10,000 would not be harmful if the exposure did not exceed an hour. The first experiments were made on animals, then Prof. Henderson and his students tried it on themselves.

Then an experimental tunnel was built at the experimental mine of the Bureau of Mines near Pittsburgh. This was 9 feet wide, 8 feet high and 400 feet long. Above the ceiling was an air duct 3 feet high, and below the floor was one 2½ feet high. Either could be used for introducing fresh air or for exhausting contaminated air.

Small automobiles were driven back and forth through the tunnel at a speed of 10 miles an hour, and at 40-foot intervals. Tests were made with various methods of removing and admitting the air, and examinations of the drivers by blood tests were made before and after. It was found that the most efficient method of ventilating was to admit the fresh air at the bottom and to remove it at the top.

Another safety device developed by the Bureau of Mines in use in the Holland Tunnel is an automatic carbon monoxide recording machine, which rings a bell and flashes a danger light when the gas becomes more concentrated than 4 parts in 10,000. Then immediate steps can be taken to increase the circulation of air.

ITEMS

A NEW disease of the western yellow pine has been found in east central Colorado attacking young pines. About two thirds of all the trees in the region where the disease was discovered appear to be attacked, and about two per cent. of all the trees in the stand are killed by the disease each year. Apparently the virulence of the disease is influenced by the thriftiness of the saplings, for in those places where thinnings were made, removing the weaker trees, the death rate is greatly reduced. Then, too, even in dense stands not thinned, the diseased trees are always the slower growing ones. The new epidemic seems to weaken young trees, for diseased saplings break and bend more easily when weighted down with snow in winter than do healthy trees of the same size. The disease is being carefully studied by foresters and pathologists because the western yellow pine is one of America's most important forest trees, inhabiting about three fourths of the forest lands in the west.

SPORTSMEN should exercise care during the fall hunting season in handling the birds they bring down. Dr. R. G. Green and E. M. Wade, of the Minnesota State Board of Health, have succeeded in inoculating ruffed grouse with tularemia, the rabbit plague that has been transmitted to many hunters, market men and cooks who have handled the infected animals. The birds, the scientists report, succumbed to the disease in the laboratory as readily as guinea-pigs or rabbits, a condition that makes it seem extremely likely that they may be infected under natural conditions. The susceptibility of the grouse to tularemia was made the subject of experiment because it has been felt by scientists for some time that there might be a relationship between the disappearance of the grouse and the rabbit, both of which have been dying out in large numbers in states throughout the North during recent years.

MORE than 7,500 square miles of hitherto unexplored or little known Alaska territory, mainly in the southeastern regions, were mapped this past summer by geologists and engineers of the U. S. Geological Survey, according to Dr. Philip Smith, chief of the Alaska branch of the survey, who has now returned to Washington. Dr. Smith explained that while only about forty per cent. of the vast Alaskan territory is surveyed properly at the present time, there being several hundred thousand square miles yet to be mapped geologically and topographically in the north-central and southwestern regions, nevertheless the major districts with respect to mineral, fur and trade importance are now well known to science.

SOAP flakes and soap powders, being extremely explosive, take their place as the latest industrial hazard. Certain kinds of soap dusts when suspended in air are more violently explosible than most other industrial dusts, according to tests made at the Pittsburgh Experiment Station of the U. S. Bureau of Mines. These soap dusts are easily ignited and explode violently, accompanied by much flame and large quantities of heat. This is in spite of the fact that soap is a compound of semi-organic nature and that sodium compounds in general have a cooling effect on the flames of explosives.