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FATES THAT CONTROL US

By Prof. J. Arthur Thomson, M.A., LL.D.

(Prof. Thomson of the University of Aberdeen has an international reputation as naturalist. He is the editor and in large part the author of the "Outline of Science", recently published for the purpose of doing for science what Wells' "Outline of History" has done for history).

If we are to attain to a firmer and finer control of life, we must be clear in regard to the factors that determine its course. Long ago men spoke of the Three Fates; now we speak of the factors in life, and there are still three. There is, first of all, heredity, i.e., our flesh-and-blood continuity with the past. Our inheritance really means, to begin with, ourselves - our bodily constitution, mental capacity, temperament, instincts, "urges" - all more or less unified. To our parents and lineage we owe a certain "make-up", which is us; for in biology it is not possible to draw a line between the heir and his inheritance. Yet, almost from the first, the living creature begins to be moulded by its food, by its surroundings, by what it does and by what it does not do. Thus we are ever, to some extent, making ourselves, till we cease to be plastic or modifiable at all. In a sense we are made by our forbears, though every new creature is a fresh individuality. In another sense, we are all self-made, for the shaping of our life is in part determined by the way in which we play our part in relation to food, work, leisure, and surrounding influences in general. The Three Fates are Heredity, Function, and Environment. Function must include not-doing as well as doing, sloth as well as exertion. The technical term environment is usually allowed to include nutrition, The influences of function, food, and our surroundings, all added up, spell "Nurture", which since Sir Francis Galton's day has also become a technical term.

The First Fate: Heredity

Our inheritance is on three stories. There is a ground floor, which we share with all normal human beings. It consists of the very stable specific characters of Homo sapiens, which vary within narrow limits. Above that are racial characteristics, not quite so stable - the characters of skin, hair, eyes, skull, temperament, and so on, which mark us as Jews, or Japs, Europeans or Negroes, or otherwise. The top story consists of family characteristics, which are for the most part very variable, and it is to the permutations and combinations of these, along with an occasionally well-marked originality of our own, that our individual pattern is due. But we are always in haste to add, that given a pre-determined hereditary pattern, we can do a good deal to blur orimprove it, according as we use our functional and environmental opportunities.

The flesh-and-blood hereditary relation between successive generations is such

that like must tend to beget like. This is due to what is called the continuity of the germ-plasm. That is to say, while most of the cells that result from the cleavage of the fertilized ovum are differentiating in a puzzling way into the nerve-cells, muscle-cells, gland-cells, skeletal-cells, and sonon that make the body, other cells remain unspecialized, not sharing in body-making, retaining intact the characters implicit in the original fertilized ovum. These cells form the reproductive cells of the offspring, some of which will be, or may be, eventually launched on the adventurous voyage of life. Similar material to start with - the germ-plasm; similar conditions in which to develop; like must tend to beget like. We use the phrase "like tends to beget like" instead of the familiar "like begets like" for a definite reason. While the hereditary arrangements are such that they make for the persistence of a specific organization, there are also loopholes for new departures, opportunities for novelties or variations. The antithesis is not between heredity and variation; it is between persistence of organization and changes therein; it is between inertia and divergence.

All sorts of constitutional peculiarities, except sterility, may be continued as part of the inheritance, though it does not follow that they must find expression in the immediate offspring. Skipping a generation is a common and readily explicable phenomenon. All sorts of constitutional characters, we say, which excludes those that are impressed on the individual parent from without, may be continued (the word "transmitted" is out of date) in the inheritance of the next generation. Important characters like longevity; trivial characters like crinkly hair; normal characters like alertness; morbid characters like a tendency to bleeding; plain-sailing characters like a thick skin; subtle characters like fertility; all may be continued hereditarily from generation to generation.

The Inexorableness of Heredity

The impression of inexorableness grows on us, when we think of concrete cases, like the Hapsburg lip. An oddity like having six digits has been shown to last for six generations - what an extraordinary inertia of the useless! This inexorableness is especially marked in the case of Mendelian characters, clear-cut and non-blending peculiarities like the color of the eyes, pre-senile cataract, brachydactyly, or having fingers all thumbs, and certain forms of epilepsy and feeble-mindedness. When they come, they come to stay, and though they may be masked they cannot disappear from a stock as long as those exhibiting them continue to multiply. Among the descendants of Jean Nougaret, who was known to suffer from "night-blindness" in 1647, a certain proportion have been night-blind generation after generation. If a normal member of the lineage married a normal outsider, the children were all normal; if an affected member of the lineage married a normal outsider, the night-blindness expressed itself afresh in a certain proportion of the offspring. Our examples of inexorableness have been on the minus side, but there is no doubt as to hereditary grip of useful and admirable plus characters, such as longevity and self-control.

The Second Fate

There is a wise saying: By force of smiting one becomes a blacksmith, and no one doubts that the individual is to some extent moulded by what he does. The clever doctor can often tell his patient's trade at a glance, and there are, unfortunately, occupational diseases. The athlete can double the size of his muscles, and homely exercises may add many years to a life. Sluggishness, on the other hand, tends to the atrophy and degeneration of body and mind. It is not merely that activity moulds the body and the mind; it is certain that some measure of normal activity is necessary if the development of a structure or quality is to

proceed aright. Up to a certain point the development of a chick's lung goes on in virtue of the inertia of the inheritance, but when the chick is three weeks old it must breathe in the open air if its lungs are to develop further. Which things are a parable, for it is a common fallacy to say that this or that character is absent or rudimentary when the lack has been opportunity for exercise.

The Third Fate

By environment we mean all the surrounding influences, including food. The Proteus newt of the Dalmatian caves lives in darkness; it develops no pigment in its skin and its eye is arrested without coming to the surface. But if Proteus be reared in the light of day in an aquarium, it soon develops dark pigment, and its eye becomes a little larger than usual. It would be a mistake to refer the paleness of Proteus to defective inheritance; the defect is in the environment. A well-fed goldfish will become blind if it is kept long enough in complete darkness; that is, a minus "dint" or modification is acquired as the direct consequence of the absence of light, but we do not know that the eyesight of the offspring is affected by what happens to the parents. If a packet of seed from the same parent-plant be divided into two, and one half sown in good soil with a fine exposure, and the other half sown in poor soil with a wretched exposure, the influence of the environment on the individual will soon be plain enough. These things also are parables. We cannot change bad seed into good, and it is folly to spoil good seed by mingling it with bad; but no one can tell what "nurture" in the widest sense may not do for the individual. Whether there is any transmission of individually acquired characters is an important question in itself.

It is not merely that the environment moulds, it also determines the degree of expression which the inheritance finds. Our inheritance is like a number of buds, to which we cannot add; but the environment is the soil and the sunshine, the wind and the rain which determine that this bud shall unfold generously, while this other may happily remain asleep. It is also known that in some organisms below the level of man changes in environment supply a stimulus to variability - calling forth the new. In man, also, however caused, these variations or idiosyncrasies are common - the most precious new things in the world, for they form the raw materials of possible evolution; and the persistence of useful novelties, as well as the suppression of those that are undesirable, depends in part on the reception they get from the environment. Of course, in man's case, the environment includes the whole social heritage, which lifts the whole problem on to a higher plane. We have put the first fate first; but function and environment are also essential.

To pretend belief in a biological equalitarianism is absurd. Some of us are one-talent men, more are five-talent men, a few are ten-talent men. We cannot be born again biologically. But what we make of our talents depends on what we make of our "nurture", which is in some measure within our control. If it be said that what we make of our nurture depends in part on what we hereditarily are, we must admit at once, gladly and sadly, that this is true, but it is not the whole truth.

READING REFERENCES:- Thomson, J. Arthur. System of animate nature. N.Y. H. Holt & Co., 1920. Thomson, J. Arthur. Outline of Science. 4 vols. N.Y. G. P. Putnam's Sons, 1922.

Furfural, a chemical obtained from corncobs, can be used in the manufacture of a synthetic resin suitable for the making of pipestems.

STRANGE RADIO SIGNALS ARE BROADCASTED PHOTOGRAPHS

Strange but regular noises that have puzzled Washington radio fans nearly every day for the past month were explained when it became known that photographs are being sent by radio from Naval Air Station, NOF, at Anacostia, to the laboratory of C. Francis Jenkins, the inventor, on Connecticut Avenue.

Likenesses of President Harding, Secretary of the Navy Denby, several feminine portraits, and written messages have been transferred by the Jenkins apparatus through the ether, and these have produced the rhythmic and somewhat musical sounds that have been heard on the NOF wave length of 425 meters. The listeners-in have been hearing photographs.

The method is relatively simple and it is predicted that the results will be of practical use. Transmission of photographs, black and white drawings, sketches or handwriting by radio or by land wires can be accomplished.

The Navy Department is cooperating with Mr. Jenkins in the first practical trials of his method by allowing him to utilize the high quality and high power of the radio telephone transmitter with which NOF is equipped. At present pictures and photographs are being transmitted over a distance of about five miles across the city, but demonstrations from Washington to some distant city are to be held shortly, according to Mr. Jenkin's plans.

The Jenkins apparatus has the effect of dividing an image of the photographic negative being sent into many closely spaced horizontal lines. These lines, point by point, are converted into variations in electrical intensity by a process analagous in some respects to the way in which a telephone transmitter converts sound into electrical impulses. These variations representing the photograph are broadcasted like a radio telephone song or talk and when received they are changed back into light variations and built up into the photograph again, line by line.

The novel features of the Jenkins apparatus are prismatic lens discs which in the sending set impress the picture point by point upon a light sensitive cell and in the receiving set similarly impress the variations of light point by point on a photographic plate. These discs are really circular prisms near their circumferences and the angle of the prisms constantly changes so that a beam of light passing through the prismatic portion is thrown from one side to the other as a disc revolves once.

The sending apparatus consists of an ordinary stereoptican projector and the prismatic disc. These impress the projected photograph point by point upon a substance that has the power of changing light variations into electrical variations. This varying current is amplified and transformed and then broadcasted.

In the radio picture receiver, the incoming current moves a very small mirror, the amplitude of this movement being controlled by whether the current represents a light or dark place in the picture being transmitted. A beam of light, broken by the shadow of a human hair, is reflected by this mirror so as to pass through a slit and be impressed upon the photographic plate by the prismatic discs. When black is being sent, the reflected shadow of the hair completely excludes the light from the plate, but when a light portion of the photograph is being received the mirror vibrates and lets through sufficient light to reproduce the tone of the original photograph.

Any spark or arc radio telegraph transmitter can send black and white pictures, but a high-grade radio telephone transmitter is necessary for sending photo-

graphs. Photographs can, however, be transmitted over ordinary land telephone lines satisfactorily.

Mr. Jenkins claims that his method is the first to satisfactorily transmit a flat photograph in adequate detail and shading. The Photographs received by radio have good detail and a finish that may almost be described as artistic.

Next Mr. Jenkins intends sending from an actual photographic print instead of through a photographic negative. This will be accomplished by employing a reflecto-scope such as is used in producing stereoptican views directly from objects. In the same way he hopes to transmit actual still scenes.

Then he looks forward to motion pictures. A photograph is now transmitted in about six minutes. If a photograph could be sent in one-sixteenth of a second, Mr. Jenkins explained, then vision through space will have been achieved. When the eye sees sixteen pictures a second as it does at the ordinary motion picture perform-ance, then the motion appears continuous. With sixteen radioed or wired scenes a second, seeing by radio and wire will be as real as a telephone conversation.

A STELLAR CAREER COMES TO AN END

The brilliant new star, Nova Aquilae No. 3, which for a few days in 1918 was the brightest star in the sky, with the exception of Sirius, and which in actual light-giving power was one of the greatest objects ever recorded, has now, after an eventful career, settled down to its normal and original faintness, according to a report being published from the Harvard College Observatory. Nova Aquilae No. 3 was the brightest new star seen for more than three centuries.

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The chapters just written at Harvard in the history of this nova call to mind the exciting beginnings of its story, which were followed promptly by a gradual de-cline, both in activity and in scientific interest. From now on the nova, that was formerly the concern of a hundred observers, will receive only a moderate amount of routine attention. It has had its day.

On June 5, 1918, and for at least thirty years before that, Nova Aquilae No. 3 was an ordinary faint star of the tenth or eleventh magnitude, visible only with the aid of telescopes. Four days later it rivaled Sirius in brightness, being in as-tronomical language, of magnitude -1.2, and 40,000 times brighter than it was the week before. This sudden leap into visibility and consequent fame was accompanied by remarkable changes in the color and character of the light, showing that the matter composing the star was disrupted, enormously excited, and thrown out of equi-librium by the cataclysmic rise in temperature. Whether the catastrophe was brought about by a collision of the star with another star or with a nebula, or whether it represents an internal explosion, astronomers are not yet prepared to say.

The new star was discovered by scores of observers in all parts of the world. Probably the first to observe it was G. N. Bower, at Madras, India. He saw the nova on June 8 when the time at Greenwich was 4 P.M., corresponding to eleven o'clock in the morning at New York. His priority is due, no doubt, to the fact that the darkness of night comes earliest at points far to the east of the Greenwich meri-dian. Later in the same day, and long before Bower's observation became known, many Europeans and Americans discovered for themselves the brilliant new star in the

eastern sky.

A nova as bright as the first magnitude is of such rare occurrence, that astronomers all over the world began investigations immediately, with all the means at their disposal. In fact, no new star has been so well observed as Nova Aquilae No. 3. During the first months, when it was visible to the unaided eye, it was followed by amateur and professional astronomers everywhere; afterwards only by those who had suitable instruments. The result was that in less than a year more than six thousand visual observations of the light variations had been accumulated at Harvard from two hundred and fifty different observers in countries scattered over the entire globe. More than a thousand photographs were made in Cambridge, Canada, Peru, and China, and a discussion of this work is now in press.

Since the exciting part of its career, in 1918-1919, telescopes have kept a complete record of the star's activities. An account of its past variations in light, color, and spectrum is recorded in the Harvard publications; and now it is announced that the star has returned to normal brightness. The peculiar spectrum of Nova Aquilae, however, will probably continue for some time to show that here is a star with a past. Its career has been similar in almost all details to the careers of other novae, the chief distinction in this case being the unusual brightness attained, not equaled since the nova observed by Kepler in 1604.

READING REFERENCES- Lewis, Isabel M. Astronomy for young folks. N.Y. Duffield & Co., 1922. Hale, George Ellery. The New Heavens; treats of recent developments in studying the heavens. N.Y. Charles Scribner's Sons, 1922.

EGYPT'S TOMB GIVES TIP FOR SCIENTIFIC ART INQUIRY

A Pharoah from his mummy-case near the Nile may help to save medieval art treasures of old England. Efforts to discover chemical preservatives for relics found in the tomb of King Tutankhamen at Luxor, Egypt, have created a demand for the systematic recording of thousands of wall-paintings found in old churches and dwellings in this country and scientific means to prevent their decay.

Many of these paintings and frescos have been discovered in recent years under layers of whitewash in unrestored medieval churches. More than three thousand are known and it is believed that as many more may yet be found by systematic work in domestic buildings. Some of those discovered fifty years ago have already become indistinguishable, with no copies to show their former beauty. Others have never been catalogued, while attempts to preserve still others have not proved altogether successful. Thirteenth century paintings of the Last Supper and other subjects found on the walls of a church in a small Northamptonshire village, for instance, were treated with a celluloid preparation, but this did not prevent them peeling off the wall.

Hope has been expressed that chemists working on the great Egyptian discoveries will find a preservative which will also be applicable to the English art treasures.

READING REFERENCES - Breasted, James Henry. Ancient records of Egypt. University of Chicago Press, 1906. Metropolitan Museum of Art. A handbook of the Egyptian rooms. N.Y. The Gillis Press, 1911.

TREE TWIGS CARRY LONG WEATHER RECORD

Spring weather records for the past ten to fifteen years can be read from the tiny twigs of many trees, according to officials of the Missouri Botanical Garden, St. Louis. Statistical study of scars left by bud scales on the branchlets of silver and Norway maples have shown the surprisingly great effect of climatic conditions on the amount of annual growth and indicate that the weather most favorable to the tree's development over a long period of years may be determined by such an investigation.

Scars are left on the twigs where growth starts each spring. The annual growth in length between these scars has been measured by the Botanical Garden experts for the past four years. From four to seven healthy, unbroken twigs from a large number of trees were used. Although some were large and others small, they all showed the same proportions of growth for the same year. Climate is the only factor which, they claim, could have influenced all of these differently situated trees and as the silver maples make most of their growth during a short period in spring the twigs furnish an index to the weather of that season during the last four years. The figures show that 1919 and 1920 were good growing seasons while 1921 and 1922 were much less favorable.

The scars disappear as the branch enlarges, but it is not unusual to find complete records for the previous ten to fifteen years.

READING REFERENCES - Keeler, H. L. Our native trees and how to identify them. N. Y. Charles Scribner's Sons.

LIMELIGHT ON INDIAN REVEALS SHADOWS OF PAST

While Congress debates the Bursum Bill, recognizing the claims of squatters on the Pueblo Indian Lands in New Mexico, or substitute measures to evict the whites, and while bright blanketed chieftains of the red petitioners add color to Pennsylvania Avenue, scientists still inquire where the Indian came from in the first place and how he got in this country.

J. P. Harrington, ethnologist, of the Smithsonian Institution, believes that the American Indian tribes have a common ancestry in Mongolian peoples of Siberia. There are in Siberia today, he says, tribes which resemble in every respect certain Indian tribes. So close is this similarity, he claims, that were one of these natives stripped and placed alongside our Indian, no scientist could tell by skull measurements, eyes, hair, or any other characteristic which was which.

Judging by differences which have developed in the languages of the various Indians in North, South, and Central America, Mr. Harrington fixes the date of the discovery of America by the Indian at least 20,000 years ago. Like Columbus they did not know what they had found when they found it. From a long strip of Siberian coast, the shore and mountains of Alaska are in plain sight across Bering Strait, which at one point is only fifty miles across. The two small Diomede islands also help break the passage. This strip of water sometimes freezes over, and could have been crossed either on the ice or by boats which they had from the earliest times. The Okhotsk Sea in Siberia was a more formidable looking water barrier than this small stretch of water.

That they used this route and not some other is indicated by the lack of evi-

dence elsewhere. The Kommandorsky Islands, the westernmost of the Aleutian chain of islands which stretches from Kamchatka to Alaska was uninhabited when discovered by modern man as was also Iceland; indicating that neither the Aleutian chain nor Iceland were used. He also discounts the theory that Asiatics reached American shores by way of the long jumps across the Pacific. Moreover, no articles of Atlantis culture have ever been dredged up from the Atlantic Ocean, so he dismissesthat fabled sunken continent as a mere myth which can not substantiate claims of immigration from an eastern source.

The Indians gradually spread from Alaska down the west coast and over all North and South America. They were much thicker in the west than in the eastern United States and Canada, and in the west, especially in Mexico, Central America and Peru, their culture reached its highest development. Mr. Harrington bases his idea of the Indian's oneness on the physical characteristics of the Indians, the widespread occurrence of customs and myths, and upon his study of the languages in connection with which he used the kymograph, an instrument for recording the most delicate nuances of sound.

He points out that the physical unity of the American Indian races and the unity of the languages would indicate that the Indians are the result of a single invasion or spilling over from Siberia and in a comparative study of Indian languages, he finds a certain clue to the time element, indicating that the Indians have been here for a long period, since 20,000 would be required to explain the differentiation of their related languages.

Commenting on various theories which have been advanced to account for the Indian, Mr. Harrington mentioned the belief that Polynesians reached the coast of South America.

"If they did", he said, "they undoubtedly found it already inhabited by Indians and arrived in such small numbers as to produce no effect on the American physical type or languages of those parts."

A still bolder theory is that the American Indians were Europeans, who arrived at an early period and here became dark-skinned and Indian-like.

"The best refutation of this theory," Mr. Harrington explained, "is that Iceland, the natural stepping stone to such an immigration was uninhabited and showed no trace of man when discovered by the Scandinavians. One variety of the European theory is that the Indians are Welch in origin because many of the tribes have the Welch letters double ell (ll) and other supposedly Cymric sounds."

Dr. Roland B. Dixon, professor of anthropology of Harvard University, however, has brought forward a more complex and startling explanation of the Indian, that is now being warmly discussed by ethnologists. He holds that there are four main racial types representing four different immigrations and bases his belief on geographic distribution and in part on direct archaeological evidence.

The Eskimo and the tribes of the extreme south of South America represent what he calls the Caucasoid type and are related to the fundamental stratum of the population of northern Europe. The second stratum were related to the dark people of the Pacific Islands and of southern Asia and came in by way of Bering Strait. The Iroquois and Algonkain tribes, of the northeastern United States, were among the chief representatives of this group.

The third immigration comprised, he claims, peoples similar in their physical characters to the present population of southeastern Asia. This group is represented by the tribes of the region west of the Rocky Mountains and the Gulf States, and

in South America by many of the peoples of the Amazon-Orinoco region.

Lastly there came a people related to the so-called Alpine people of Central and Eastern Europe, Western and Central Asia. The tribes of Alaska, the Canadian Northwest, and the plains, together with most of the peoples of Mexico, Central America, and the whole western portion of South America, represent this type which became the dominant element over four-fifths of this area, he says.

Then there is the Mormon theory that Indians are of Semitic origin and are one of the lost tribes of Israel which reached America from Palestine at an early date and here degenerated because of their iniquities or other reasons.

The Atlantian theory is perhaps the most fantastic of all and would suppose a single culture extending from Egypt through the lost Atlantis to Yucatan.

But while the scientists and others differ, Congressmen are becoming aware that the noble red man is here, no matter how or by what route.

READING REFERENCE- American Indian Life, edited by Elsie Clews Parsons. N.Y. B. W. Huebsch, 1922.

TEST SHOWS SALESMEN TOO BRIGHT FOR JOBS

Applicants may be too intelligent to be profitably employed for some jobs. This is the conclusion drawn by Dr. W. B. Bingham, director of cooperative research of the Carnegie Institute of Technology from mental tests, made by the Bureau of Personnel Research of that organization, of salesmen from twenty-seven companies of national scope.

These studies, he reported to the Engineering Foundation of New York, have proved that psychological tests are a valid measure of mental alertness; but that where the work is essentially routine, a man may have either too much or too little ability. The fact that he might be too intelligent has in the past not been taken into consideration in making the tests, with the result that the psychological examination of many types of salesmen and clerical workers has shown no correlation with their production records. The reason for this, he pointed out, is that the brighter the salesman doing routine work, the sooner, as a general rule, he left the employ of the concern, while only the more stolid men were content to remain long enough to get valuable experience and build up a creditable sales record.

Commenting on the value of these tests, Dr. Bingham predicted that "the scientific study of the human factor may prove as important to the next era of industrial progress as research in the physical sciences has proved hitherto."

READING REFERENCES- Russell Sage Foundation. Psychological tests in industry, a bibliography. N.Y. Russell Sage Foundation Library, 1921.

"Jordan" means "the descender", and the Palestine river of that name is unique among rivers in that it rises a little above sea level and spends its complete course in descending to the depth of 1,300 feet below sea level.

Egypt and the United States have arranged to exchange crop news by radio.

TABLOID BOOK REVIEWS

OUTLINES OF CHILD STUDY. Edited by Dr. Benjamin C. Gruenberg for The Federation for Child Study. 260 pages. The Macmillan Co., New York. $2.

This book is a survey of the child's development through actual experiences with children. Outline by outline a realm of human nature qualities is unrolled, and each by references connected with works, popular and otherwise, dealing scientifically with human development. It is a key for parents, practical, intelligent, fundamental, and interesting.

AUTO GASES TURN ORANGE SKINS YELLOW

A gas attack is used in Alabama to turn the unpleasant green skins of otherwise ripe satsuma oranges into a salable golden color, according to Dr. Wright A. Gardner of the Alabama Polytechnic Institute. The exhaust gases from gasoline motors and poorly burning oil stoves have been found useful in producing the proper color in oranges, but scientific work showed that intermittent treatment with acetylene, oxygen, carbon monoxide and sulphur dioxide was found to be more effective in destroying the green chlorophyll in the rind of the oranges than continuous exposure.

PREHISTORIC BONES MAKE BEST BILLIARD BALLS

Ivory from prehistoric mammoths would make better billiard balls than the tusks of modern elephants. This is the opinion expressed by experts of the Natural History Museum in London after examination of the first complete specimen of Siberian mammoth skull ever brought to England. The skull belonged to a female mammoth recently dug from Arctic ice of one of the Siberian islands and was brought to London by a firm of ivroy merchants, from whom the Museum authorities bought it.

The superior quality and original clean, white appearance have been well preserved by their untold ages in cold storage. Pieces of skin were still clinging to the jaws, and study of the teeth enabled the experts to determine the sex and relative age of the animal. The tusks are set in the skull like an elephant's and do not curl upward and outward in the exaggerated way that one sees in the conventional pictures of restorations.

Since the conquest of Algeria by the French in 1830, seven important irrigation dams have been constructed in that country.

The area of the Belgian Congo is almost exactly one third as great as that of the United States.

The canvasback duck can fly at from 130 to 160 feet a second, but its usual rate is 60 to 70 miles an hour.

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