Characteristics of Pterosaurs

【Paragraph 1】The extinct flying reptiles called pterosaurs were the second group of animals (after insects) to evolve flight. Most pterosaurs were about the size of modern seagulls. A few were as small as sparrows, but some of the later species were the largest flying animals that have ever lived. In 1817 Theodore Von Soemmerring published the first description of a pterosaur fossil, and thin king that it was that of an unusual bat species, he drew his reconstruction with a very batlike posture and wing. His early reconstruction of a pterosaur has haunted the public and scientific perception of pterosaurs ever since Soemmerring's reconstruction is understandable given that he was the first to try to describe a pterosaur, that few naturalists of the time accepted the idea of major groups of extinct animals, and that both pterosaurs ' and bats 'wings consist of a membrane supported by enormously elongated finger bones. Soemmerring showed his pterosaur with the laterally directed legs and reoriented feet of bats and with the wing membrane stretching from the arm and finger along the sides of the body and legs all the way to the ankle. The reconstruction also included a membrane stretching between the legs, similar to that in bats. Even though other scientists developed less batlike descriptions of pterosaurs in the late 1800s, the popular literature, and even some scientific literature, continued to describe pterosaurs as batlike into the 1980s.

【Paragraph 2】Bats perch by hanging upside down from tree limbs and roofs of caves. Though many are surprisingly agile climbers, bats are generally awkward when crawling on level surfaces. Did pterosaurs also hang upside down and avoid landing on the ground? Until recently, some paleontologists thought they did, but most scientists now agree that pterosaurs got around on the ground reasonably well. What is still uncertain is whether pterosaurs walked on all fours or just on their hindlegs. Pterosaurs' ancestors were bipedal (two-footed) and used their tails to balance their forward-tilted trunks and heads Early pterosaurs also had long tails and probably could have run on their hindlegs, certainly handy for an animal with wings for forelimbs. These early pterosaurs, however, could have used their forelimbs for walking because their arm and hand bones were only slightly enlarged—most of the wing was supported by the gigantic fourth finger.

【Paragraph 3】Later pterosaurs are more enigmatic: their arms and especially their hands seem too long to be used comfortably for walking, but their tails were too short to counterbalance their bodies if they walked just on their hindlegs. Birds also have short, stubby tail skeletons, but they manage to walk quite well on their hindlegs. Birds manage this by angling the thighs forward to get their feet under the body's center of gravity. They hold their thighs at this unstable angle with extensive hip and thigh muscles Some researchers have suggested that pterosaurs, hipbones were too small to anchor extensive thigh-positioning muscles, but others have responded that pterosaurs* leg and foot bones are so strikingly birdlike that pterosaurs must surely have walked like birds. Recently, however, some pterosaur experts have concluded that a number of fossil trackways—trails of preserved footprints—were made by pterydactyloid pterosaurs, and these animals clearly walked on all four limbs. Perhaps some early pterosaurs walked on their hindlegs, but according to current evidence, most species probably walked on all fours. In any case, large pterosaurs, with eight or ten-meter wingspans and weighing as much as an adult human, do not seem likely candidates for a batlike existence confined to clambering about in trees and hanging upside down from branches.

【Paragraph 4】Pterosaurs also possessed some obvious adaptations for powered flight. They had large sternums (breastbones) for attaching powerful flight muscles, well-developed shoulder bones to carry the body's weight in flight, and air-filled bones to lighten the skeleton. ■Some even had a furcula (a fused breastbone also found in birds): perhaps to flex like a spring and help raise the wings during the upstroke. ■How competent were they at flying? The original batlike reconstructions; along with their classification as reptiles, suggested to many earlier biologists that pterosaurs were only gliders. ■Biologists now, however, generally agree that pterosaurs were capable of powered, flapping flight. ■Indeed, the shoulder joint is clearly specialized for the down-and-forward, up-and-back movement of normal flapping.

1. In the discussion of Soemmerring in paragraph 1. why does the author mention that "few naturalists of the time accepted the idea of major groups of extinct animals" ?

O To support the position that Soemmerring was the first to recognize the scientific significance of pterosaur fossils

O To suggest that Soemmerring^ reconstruction of the pterosaur went against a commonly accepted position of naturalists at that time

naturalists at that time

O To help explain why it was reason able for Soemmerring to think that pterosaurs were related to today's bats

O To indicate how little was known about pterosaurs before Soemmerring published his reconstruction

2. According to paragraph 1, Soemmerring believed that pterosaurs had all of the following features EXCEPT

O wings that were attached to the sides of the body

O wings without bones

O legs that were oriented laterally

O a membrane between the legs

3. The word "awkward" in the passage is closest in meaning to

O careful

O clumsy

O slow

O helpless

4. In paragraph 2: what evidence suggests that early pterosaurs walked on their hind legs only?

O The arm and hand bones on early pterosaurs were enlarged

O The tails of pterosaurs may have been long enough to use for balance

O The trunks and heads of early pterosaurs may have been tilted forward.

O The wings of early pterosaurs were largely supported by a single finger.

5. The word "slightly" in the passage is closest in meaning to

O a little

O in part

O gradually

O occasionally

6. The word "strikingly" in the passage is closest in meaning to

O perfectly

O suspiciously

O remarkably

O elegantly

7. What evidence is presented in paragraph 3 that at least some pterosaurs walked on all four of their limbs?

O The position of their feet relative to the body's center of gravity in some pterosaurs

O The considerable wingspan and weight of some pterosaurs

O Fossil trackways left by some pterosaurs

O The shape of the leg bones and feet bones in some pterosaurs

8. According to paragraph 4, what are two indicators that pterosaurs were capable of powered flight? To receive credit, you must select TWO answers.

O Their shoulder bones allowed the wings to move in more than one direction.

O Their furcula was separate rather than fused to the breastbone

O Their bones were filled with air rather than bone tissue

O Their weight was primarily concentrated in the wing flight muscle.

9. Look at the four squares■ that indicate where the following sentence could be added to the passage

(Flying was thought to require more energy than cold-blooded reptiles were capable of generating).

Where would the sentence best fit? Click on a square〔■〕to add the sentence to the passage.

Pterosaurs also possessed some obvious adaptations for powered flight. They had large sternums (breastbones) for attaching powerful flight muscles, well-developed shoulder bones to carry the body's weight in flight, and air-filled bones to lighten the skeleton. ■Some even had a furcula (a fused breastbone also found in birds): perhaps to flex like a spring and help raise the wings during the upstroke. ■How competent were they at flying? The original batlike reconstructions; along with their classification as reptiles, suggested to many earlier biologists that pterosaurs were only gliders. ■Biologists now, however, generally agree that pterosaurs were capable of powered, flapping flight. ■Indeed， the shoulder joint is clearly specialized for the down-and-forward, up-and-back movement of normal flapping.

10. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage This question is worth 2 points.

Soemmerring's description of the pterosaur has had a major impact on people's perception of the creature

Answer Choices

A. While Soemmerring recognized certain similarities between pterosaurs and bats, he did not believe the two species were related

B. In Soemmering's view, bats and pterosaurs had many features in common, including the way the wing was attached to the rest of the body.

C. Other than birds, pterosaurs were the only species to have a fused breastbone that could bend when the forelimbs were raised or lowered.

D. Scientists long believed that, like bats, pterosaurs lived in trees and caves.

E. While it seems likely that some early pterosaurs walked on two limbs and some later ones walked on four limbs, biologists remain uncertain about how many pterosaurs walked.

F. Based on various skeletal features, most biologists now believe that pterosaurs were actually capable of powered, flapping flight.

Auditory Perception in Infancy

【Paragraph 1】Because they have had some practice in hearing before birth, it is not surprising that infants have reasonably good auditory perception after they are born. In fact, for certain very high and very low frequencies, infants actually are more sensitive to sound than adults-a sensitivity that seems to increase during the first two years of life. On the other hand, infants are initially less sensitive than adults to middle-range frequencies. Eventually, however, their capabilities within the middle range improve.

【Paragraph 2】It is not fully clear what leads to the improvement during infancy in sensitivity to sounds, although it may be related to the maturation of the nervous system. More puzzling is why, after infancy, children's ability to hear very high and low frequencies gradually declines. One explanation may be that exposure to high levels of noise may diminish capacities at the extreme ranges.

【Paragraph 3】In addition to the ability to detect sound, infants need several other abilities in order to hear effectively. For instance, sound localization permits infants to pin point the direction from which a sound is emanating Compared to adults, infants have a slight handicap in this task, because effective sound localization requires the use of the slight difference in the times at which a sound reaches our two ears. Because infants' heads are smaller than those of adults; the difference in timing of the arrival of sound at the two ears is less than it is in adults. However， despite the potential limitation brought about by their smaller heads, infants* sound localization abilities are actually fairly good even at birth, and they reach adult levels of success by the age of one year. Interestingly, their improvement is not steady: although we don't know why： the accuracy of sound localization actually declines between birth and two months of age, but then begins to increase.

【Paragraph 4】Eve n more important to their ultimate success in the world, you ng infants are capable of making the fine discriminations that their future understanding of language will require For instance, in one classic study, a group of one to four-month-old infants sucked on nipples that activated a recording of a person saying “ba” every time they sucked At first, their interest in the sound made them suck vigorously. Soon, though, they became acclimated to the sound and sucked with less energy On the other hand, when the experimenters changed the sound to “pa”, the infants immediately showed new interest and sucked with greater vigor once again. The clear conclusion: infants as young as one month old could make the distinction between the two similar sounds.

【Paragraph 5】Even more intriguing is the fact that young infants are able to discriminate certain characteristics that differentiate one language from another. Some evidence suggests that even two- day-olds show preferences for the language spoken by those around them over other languages. In the first few months, the ability to discriminate between languages develops rapidly. By the age of five months, they can distinguish the difference between English and Spanish passages, even when the two are similar in meter, number of syllables, and speed of recitation.

【Paragraph 6】Given their ability to discriminate a difference in speech as slight as the difference between two consonants, it is not surprising that infants can distinguish different people on the basis of voice. In fact, from an early age they show clear preferences for some voices over others For instance, in one experiment newborns were allowed to suck a nipple that turned on a recording of a human voice reading a story The infants sucked significantly lon ger when the voice was that of their mother than when the voice was that of a stranger.

【Paragraph 7】How do such preferences arise? One hypothesis is that prenatal exposure to the mother's voice is the key. As support for this conjecture, researchers point to the fact that newborns do not show a preference for their fathers* voices over other male voices. Furthermore: newborns prefer listening to melodies sung by their mothers before they were born to melodies that were not sung before birth It seems, then, that the prenatal exposure to their mothers' voices-although muffled by the liquid environment of the womb-helps shape infants* listening preferences.

1. The word "initially" in the passage is closest in meaning to

O usually

O at first

O to some extent

O basically

2. According to paragraph 1, which of the following statements does NOT accurately characterize auditory capability in infants?

O Infants have good auditory capabilities in extreme frequencies rather than in middle frequencies.

O Infants have no experience with auditory stimuli before they are born.

O Infants are more capable of hearing high and low frequencies than adults are, and this capability increases during the first two years of life.

O An infant' s sensitivity to frequencies in the middle range improves as the infant grows older.

3. Which of the following best describes the organization of paragraph 2?

O A brief discussion of two changes in auditory perception together with possible explanations of them

O Two hypotheses about auditory perception, followed by summaries of experiments that have tested those hypotheses

O A brief history of studies of auditory perception, followed by a discussion of two recent studies

O A comparison of two different answers to an important question in the study of auditory perception

4. According to paragraph 3, which of the following statements does NOT accurately characterize infants' sound-localization capabilities?

O The sound-localization capabilities of infants do not improve steadily: but the reason for this is unknown

O Infants' ability to localize sound declines steadily after two months of age but then increases after the age of one.

O The comparatively short distance between the ears of infants makes their sound localization potentially less exact than that of adults.

O By the age of one year, infants' sound-localization capabilities are similar to those of adults.

5. Which of the following statements describes a finding from the classic study on infants' auditory perception that is discussed in paragraph 4?

O Infants are more interested in sounds of spoken language than they are in other kinds of sounds.

O Infants show more interest in some consonant sounds than others.

O When the sound infants are hearing is changed, the infants lose interest

O Even very young infants are able to notice slight differences in sound

6. The classic study discussed in paragraph 4 supports which of the following claims?

O The infants' sucking responses would have been different if a different pair of consonants had been used.

O The infants in the study had previous exposure to a language in which the difference between "ba" and "pa" is important.

O Infants are more interested in what is new or unexpected than they are in any particular consonant sound

O Infants are able to produce the distinct consonant sounds that they hear as distinct.

7. What is the main point of paragraph 5?

O Very young children can distinguish between the sounds of different languages even though they cannot speak.

O Many children are exposed at an early age to both English and Spanish

O Meter and speed of recitation are two characteristics children use to distinguish one language from another.

O Children recognize similar sounding words in different languages

8. Why does the author discuss the voices of fathers and other males in paragraph 7?

O To emphasize the difference between the auditory abilities before and after a child is born

O To provide evidence that infants* listening preferences are shaped by what they hear in the womb

O To argue that very young infants may have difficulty distinguishing between two similar · sounding voices

O To argue that infants are less interested in male voices than female voices

9. Paragraph 6 answers which of the following questions about the auditory abilities of infants?

O What quality of a voice allows an infant to distinguish between different voices?

O Can newborns distinguish between tapes of their mother reading different stories?

O Can newborns distinguish between tapes of different strangers reading the same story?

O Can infants notice when the reader of a recorded story is changed?

10. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage This question is worth 2 points.

Studies have shown that auditory perception in infants is quite sophisticated.

Answer Choices

A. Infants' ability to hear high and low frequencies is better than that of adults, and their ability to locate the source of a sound is also surprisingly good

~~B. During the first two years of life, infants' sensitivity to middle-range frequencies improves more rapidly than their sensitivity to sounds at extreme frequencies~~

C. Studies have shown that the liquid environment of the womb prevents a father's voice from being heard, which causes a newborn to prefer its mother's voice

D. At an early age, infants are able to make auditory discriminations between two similar sounds, different languages,

and different voices.

E. In one classic study, infants sucked vigorously on a nipple when they heard a recording of a person saying "ba" but lost interest once the sound changed to "pa"

F. The preference of newborns for their mother's voice and melodies the mother sang during pregnancy suggest that prenatal exposure affects auditory development in the womb.

The Development of Complex Societies in Ancient Mexico

【Paragraph 1】Between 9,000 and 4,000 years ago, most of Mexico was inhabited mainly by hunter-foragers who lived in small bands that moved with the seasons to exploit cactus fruits, deer herds, nuts, and the hundreds of other plant and animal species in their range, depending on the season. Since these bands were small in size and never stayed in one place for a sufficient period of time to have much long-term effect on the plant and animal populations on which they subsisted, the hunter-foragers' overall impact on their environment was low. A few groups along the margins of the lake in the Valley of Mexico may have been sedentary villagers, as were some groups along the coasts, and their role in the domestication of plants and animals and the eventual spread of agriculture is unclear. Some researchers suggest, however, that by about 4,000 years ago, maize cob size had become large enough that people over large areas of the Mexican highlands could subsist mainly on maize.

【Paragraph 2】The recent re-dating of some of the supposedly earliest domesticated maize in Mesoamerica (Ancient Mexico) to about 3500 B c. raises the possibility that initial agriculture evolved out of intensified foraging by groups of people who were relatively sedentary, perhaps living all or most of the year in one or a few places, and that they were perhaps even in the process of developing social differences (social hierarchy) that increased the intensity of their foraging. However maize was domesticated: and by whom, maize appears to have reached sufficient productivity to permit the village-farming way of life soon after about 2000 B.C., and agricultural communities appeared at about this time in many different areas.

【Paragraph 3】From the hot, wet coastal lowlands to the arid Tehuacan Valley, the earliest villages were quite similar in size and contents. Almost all houses were built using the wattle-and-daub method-sticks, branches, and cane were woven in-and-out between vertical wall poles, then covered with a mud plaster, which was dried by the hot sun Houses, which were seldom larger than four by six meters, featured thatched roofs and tamped clay floors on which fine sand was scattered.

【Paragraph 4】Most of the earliest farming communities were tiny hamlets-villages of ten to twelve houses that were home to about fifty to sixty people-but some communities were larger. Most houses that have been excavated have yielded the same remains, mainly grinding stones, storage pits, pieces of large ceramic storage jars, bones of cottontail rabbits, carbonized maize fragments, and broken pieces of ceramic charcoal braziers. In addition, ovens, middens, and graves are very comm on. While the proportion of plant and animal foods varied somewhat, all villages probably grew maize; beans, squash, peppers, and some other crops, and hunted deer and rabbits. Each village, or each extended family, may have had a specialist who did pressure flaking of stone (to make tools), leather-working, or a similar craft, and individual villages may have concentrated on specialties like salt production, feather-weaving, shell-working. and grinding stone manufacture.

【Paragraph 5】As in Mesopotamia, China, and elsewhere, the background to the origins of complex society in Mesoamerica was a great scatter of relatively simple agricultural villages in which the mechanics of producing a reliable, expandable food supply had been mastered. An early radical break with the simple village farming tradition of Mesoamerica occurred in the sweltering lowlands of the South Gulf Coast of Mexico. Here, beginning at about 1000 B c., people built massive clay pyramids and platforms, lived in small town groups of hundreds or even thousands, intensively farmed a variety of ecological zones, and produced what is one of the world's most valued examples of stone sculpture.

【Paragraph 6】These people are known to us as the Olmec, a name derived from an ancient American word for rubber-doubtless a reference to the rubber trees that grow in this area-but a name they themselves probably did not use. Some scholars have considered the possibility that the Olmec culture was the mother culture of all later complex societies in Mesoamerica and that the Olmec were directly responsible for transforming their neighbors by military, political religious, or economic means into complex societies. Other scholars, however, have argued convincingly that the Olmec represent only one of several largely independent cases of the evolution of social complexity in Mesoamerica.

1. According to paragraph 1, which of the following developments occurred in Mexico between 9,000 and 4,000 years ago?

O Sedentary villages gradually disappeared, except along the coast and along lakeshores.

O Agriculture spread steadily as more and more plants and animals were domesticated.

O Hunter-foragers living on the coasts moved to the highlands.

O Maize emerged as the dominant food plant.

2. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? In correct choices change the meaning in important ways or leave out essential in formation

O These small bands never stayed in one place long enough to get the most out of the plants and animals on which they lived

O To keep their impact on the environment low, these small bands never stayed anywhere for very long.

O These bands were small and moved frequently, so they had relatively little impact on their environment.

O Because these bands were small and did not settle anywhere, there is never enough evidence of the effect they had on their environment.

3. Paragraph 2 supports the idea that the development of social differences would have had which of the following effects?

O A quickening of the transition to early agriculture

O A slowing down of the change to sedentary life

O Less contact among foraging groups

O Conflict within foraging groups

4. Paragraph 3 supports which of the following statements about the earliest houses?

O They were adapted to the particular climate in which they were built.

O They used a variety of construction methods but not of building materials.

O They varied in size according to how many people lived in them

O They did not differ significantly from one another.

5. According to paragraph 4, the contents of the excavated houses are mainly related to

O the making and shipping of tools

O the storage and preparation of food

O the production of crafts using natural materials like feathers and shells

O the trade goods that the village specialized in producing

6. In paragraph 5; why does the author mention the conditions in which complex society developed in Mesopotamia, China, and elsewhere?

O To identify models that guided the author in studying the development of village farming in Mesoamerica