禄丰市恐龙山地质文化镇
宣传画册

云南省地质调查院

（云南省地质科学研究院）

二〇二四年六月

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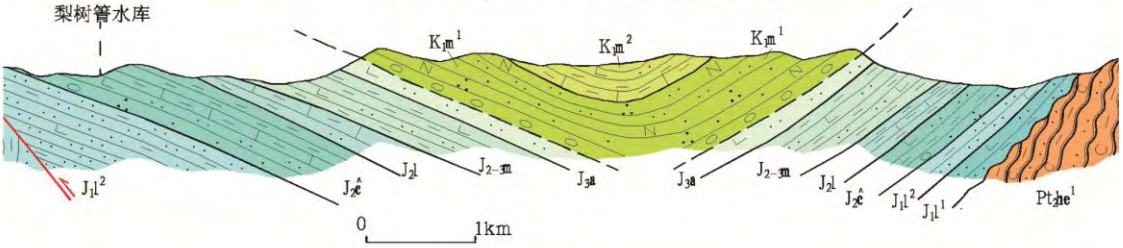

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滑石板白垩纪恐龙足迹化石图版

兽脚类、鸟臀类恐龙足迹化石

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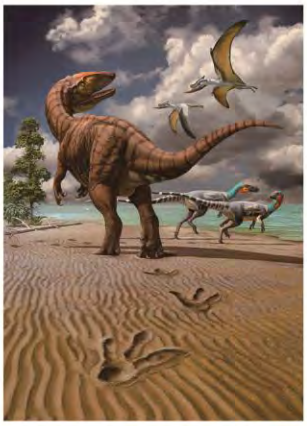
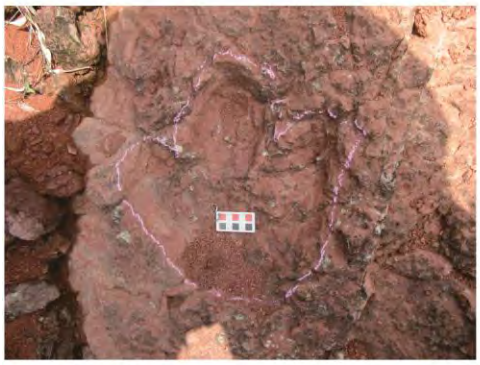
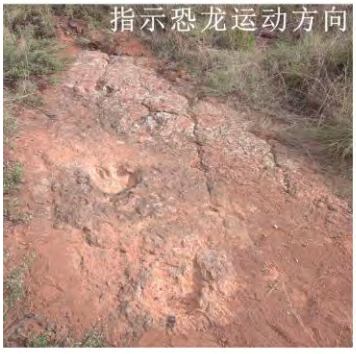
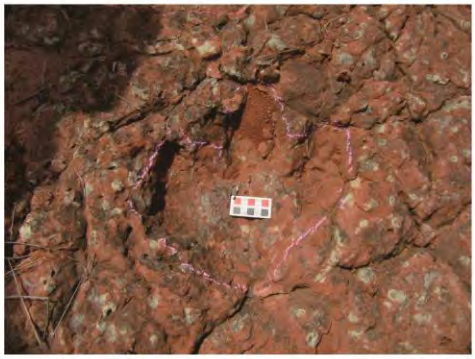


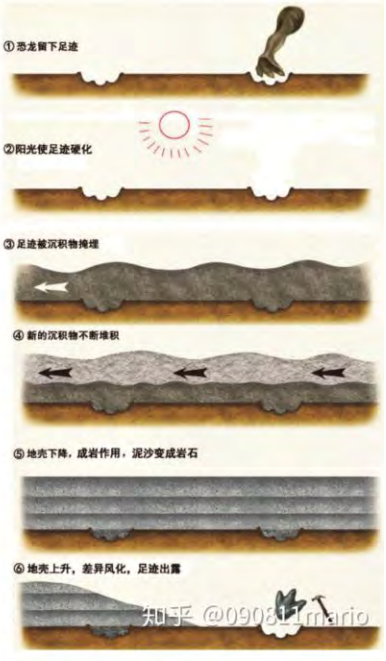
兽脚类恐龙足迹化石（左图来源于网络）







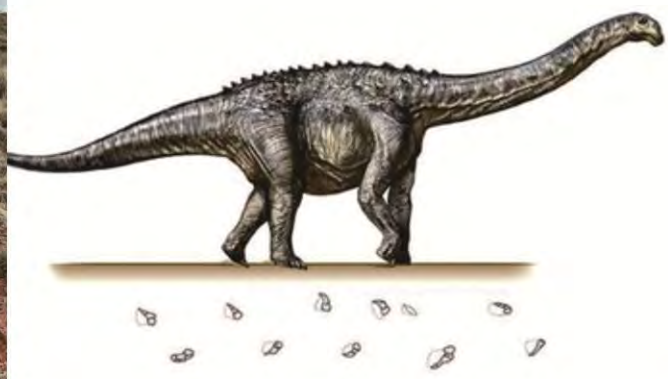
鸟臀类恐龙足迹化石



恐龙足迹化石形成过程
（来源于网络）

滑石板白垩纪恐龙足迹化石图版

蜥脚类恐龙足迹化石



滑石板白垩纪蜥脚类恐龙足迹化石

蜥脚类恐龙足迹化石
长100cm，宽75cm

蜥脚类恐龙足迹化石
长101cm，宽74cm

人民日报 有品质的新闻

云南禄丰发现1.2亿年前恐龙足迹化石群

近日，研究人员在云南省禄丰市恐龙山镇梨园村发现数量众多的白垩纪早期恐龙足迹化石。现场测定地层年龄显示，恐龙足迹所在岩石层距今虽然已经超过1.2亿年，但现场很多足迹保存依然十分清晰。

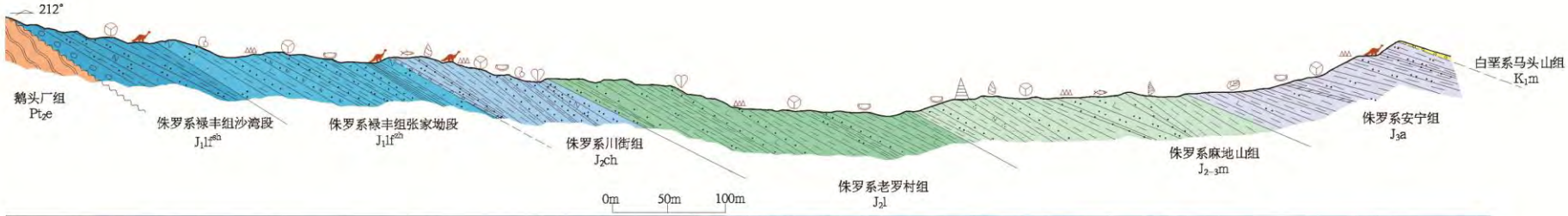
本次发现在媒体上报道

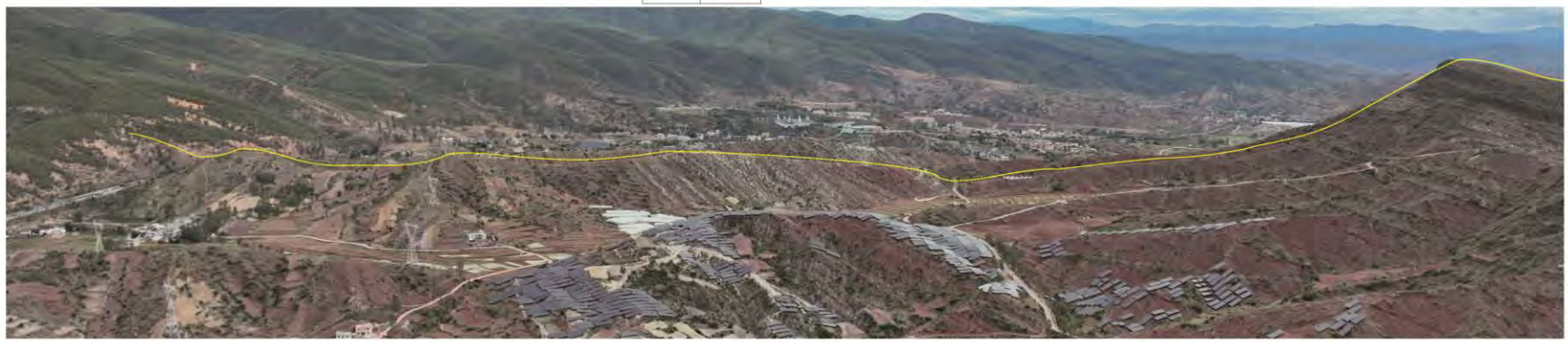
蜥脚类恐龙足迹化石
长88cm，宽88cm

蜥脚类恐龙足迹化石
长90cm，宽85cm

指示恐龙运动方向的足迹化石

恐龙山镇老长箐侏罗系剖面
剖面概况及不整合接触关系



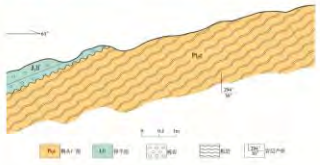


中生界侏罗系与元古界昆阳群界线

BOUNDARY BETWEEN THE JURASSIC AND KUNYANG GROUP

该点为中生界侏罗系下统禄丰组与元古界昆阳群鹅头厂组界线出露点，界线之上为禄丰组紫红色砾岩层；界线之下为鹅头厂组暗红色、褐灰色砂质板岩、千枚状板岩。两套地层之间有很长时间的沉积间断，且地层产状不一致，形成较大交角，为角度不整合接触关系。

The outcropped point of this area is a boundary between early Jurassic Lufeng Formation and Algonkian Etouchang Formation of Kunyang Group. The upper part of boundary is claret conglomerate bedding of Lufeng Formation, and the lower part is dull-red and brownish-gray sandy phyllitic slate. Two stratums have a hiatus for a long time with an angular unconformity due to the different occurrences.

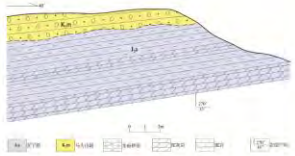


白垩系马头山组与侏罗系安宁组界线

BOUNDARY BETWEEN CRETACEOUS MATOUSHAN FORMATION AND JURASSIC ANNING FORMATION

该点为白垩系马头山组与侏罗系安宁组的分界点，界线之上为马头山组，岩性为浅紫红色厚层状—块状砾岩、含砾粗砂岩；界线之下为安宁组，岩性为紫红色中薄层状泥质粉砂岩、粉砂岩、钙质泥岩夹灰绿色中薄层状石英砂岩、粉砂岩和泥灰岩。上下两套地层之间为平行不整合接触关系。

The outcropped point of this area is a boundary between Cretaceous Matoushan Formation and Jurassic Anning Formation. The upper part of boundary is light claret massive conglomerate and gravel-bearing coarse sandstone of Matoushan Formation. The lower part is claret pelitic siltstone, silty mudstone and calcareous mudstone of Anning Formation interlayered with grey green quartz sandstone, silty mudstone and marlite. Two stratums have a parallel unconformable contact.



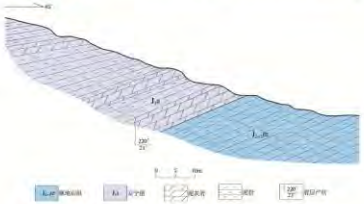
恐龙山镇老长箐侏罗系剖面
侏罗系地层接触关系

安宁组与麻地山组界线

BOUNDARY BETWEEN
ANNING FORMATION AND MADISHAN FORMATION

该点为侏罗系安宁组与麻地山组的分界点，界线之上为安宁组，岩性为紫红色中薄层状泥质粉砂岩、粉砂岩、钙质泥岩夹灰绿色中薄层状石英砂岩、粉砂岩和泥灰岩；界线之下为麻地山组，岩性为酒红色块状泥岩、泥质粉砂岩夹灰紫色薄层状泥灰岩、泥质粉砂岩。两套地层之间为整合接触关系。

The outcropped point of this area is a boundary between Jurassic Anning Formation and Madishan Formation. The upper part of boundary is claret pelitic siltstone, siltstone and calcareous mudstone of Anning Formation interlayered with celadon quartz sandstone, siltstone and marlite. The lower part is claret massive mudstone, silty mudstone and mudstone of Madishan Formation interbedded with grey purple marlite and politic siltstone. Two stratums have a conformable contact.



麻地山组与老罗村组界线

BOUNDARY BETWEEN
MADISHAN FORMATION AND LAOLUOCUN FORMATION

该点为侏罗系麻地山组与老罗村组的分界点，界线之上为麻地山组（酒红层），岩性为酒红色块状泥岩、粉砂质泥岩夹灰紫色薄层泥灰岩、薄-中层泥质粉砂岩；界线之下为老罗村组（杂色层），岩性为紫红色薄层状钙质泥岩、粉砂质泥岩、泥岩与灰黄　色、灰紫色泥灰岩不等厚互层。两套地层之间为整合接触关系。

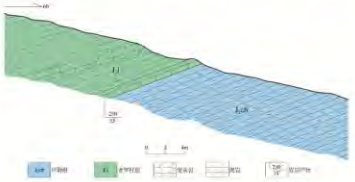
The outcropped point of this area is a boundary between Jurassic Madishan Formation and Laoluocun Formation. The upper part of boundary is claret massive mudstone, silty mudstone of Laoluocun Formation interlayered with marliteite and pelitic siltstone. The lower part is claret calcareous mudstone, silty mudstone and mudstone of Chuanjie Formation interbedded with sallow marlite in different thickness. Two stratums have a conformable contact.

老罗村组与川街组界线

BOUNDARY BETWEEN
LAOLUOCUN FORMATION AND CHUANJIE FORMATION

该点为侏罗系中统老罗村组与川街组的分界点，界线之上为老罗村组（下杂色层），岩性为紫红色薄层状钙质泥岩、粉砂质泥岩、泥岩与灰黄色、灰紫色泥灰岩不等厚互层；界线之下为川街组，岩性为紫红色泥质粉砂岩、粉砂岩夹灰绿色、黄绿色粉砂质泥岩、泥岩，底部为黄绿色含砾粗砂岩和黄绿色长石细砂岩。两套地层之间为整合接触关系。

The outcropped point of this area is a boundary between mid-Jurassic Laoluocun Formation and Chuanjie Formation. The upper part of boundary is claret calcareous mudstone, silty mudstone and mudstone of Laoluocun Formation interbedded with sallow silty mudstone and grey purple marliteite. The lower part is claret pelitic siltstone and siltstone of Chuanjie Formation interlayered by lime-green silty mudstone and mudstone, with lime-grey gravel-bearing coarse sandstone at the bottle. Two stratums have a conformable contact.

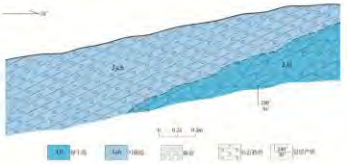


川街组与禄丰组界线

BOUNDARY BETWEEN
CHUANJIE FORMATION AND LUFENG FORMATION

该点为侏罗系中统川街组与侏罗系下统禄丰组的分界点，界线之上为川街组，岩性为紫红色泥质粉砂岩、粉砂岩夹灰绿色、黄绿色粉砂质泥岩、泥岩，底部为黄绿色含砾粗砂岩和黄绿色长石细砂岩；界线之下为禄丰组，岩性为暗紫红色、紫红色粉砂质泥岩、钙质结核泥岩夹黄绿色、浅黄绿色粉砂岩，底部为灰白色含长石中—粗粒砂岩。上下两套岩层产状平行，为平行不整合接触关系。

The outcropped point of this area is a boundary between mid-Jurassic Chuanjie Formation and early-Jurassic Lufeng Formation. The upper part of boundary is claret pelitic siltstone, siltstone interlayered by lime-green silty mudstone and mudstone of Chuanjie Formation, with lime-green gravel-bearing coarse sandstone at the bottle. The lower part is dark claret pelitic siltstone and calcareous mudstone of Lufeng Formation interlayered by lime-green siltstone. Two stratums have a parallel unconformable contact.



恐龙山镇老长箐侏罗系剖面
岩性科普

砾岩
CONGLOMERATE

该点出露的灰褐色岩石为砾岩，为一种碎屑岩，砾石含量＞30%，砾石成分主要为硅质，大小为2-64mm，磨圆度不等，呈浑圆状、次圆状、次棱角状，分选性差，为硅质胶结，砂屑成分为长石、石英和岩屑，粒径大小0.5—2mm。

The outcropped rock of this area is a kind of mousy clastic rock called conglomerate, which is composed of more than 30% of siliceous clast. The grain size of clast is between 2 mm to 64 mm. The shapes of the clast are mainly from round to semi-edge-angle, their roundness have big different. The sand is composed by quartz, feldspars and cuttings, whose size is between 0.5 mm to 2 mm.

细砂岩
FINE SANDSTONE

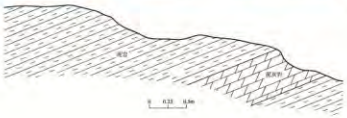
这里出露的灰黄色、褐红色的岩石为细砂岩，岩石主要由碎屑和充填物组成，碎屑以石英、长石为主，充填物包括胶结物和碎屑杂基，细砂粒径为0.0625mm—0.125mm。岩石成分主要为石英等坚硬的矿物成分，胶结紧密，因而相对周围岩石抗风化而突出地表。这种岩石通常形成于滨湖、滨海、河流等比较动荡的水体环境中。

The outcropped rock of this area is shallow or maroon fine sandstone, which is composed of clastic sediments, like quartz and feldspars, and fillings, like cements and matrix. The grain size of the sandstone is between 0.0625mm to 0.125 mm. This kind of rock here is characterized by differential weathering due to quartz and so on. Marlite in this area is formed in flowing water like shallow lakes, coastal zones, and rivers and so on.

泥灰岩
MARLITE

该点出露的灰黄色、灰紫色的岩石为泥灰岩，是一种界于碳酸盐岩与粘土岩之间的过渡型岩石，由粘土质矿物与碳酸盐矿物组成，一般粒径在0.01mm以下，常呈薄层状或透镜状产出。泥灰岩通常形成于盐度相对较高、环境比较宁静的水体中。

The outcropped rock of this area is shallow or greyish purple Marlite, which is transitional rock between carbonate and clay rock and composed of clay and carbonate minerals. Generally, the grain size of marlite is less than 0.01 mm with thin-layers or lenticular texture. Marlite in this area is formed in quite salty water.



泥岩
MUDSTONE

这里出露的紫红色岩石为泥岩，是一种主要由粘土矿物组成的岩石，通常粒度很细，肉眼不能分辨，岩石遇水易软化。这种岩石通常形成于湖泊、海洋等比较宁静的水体中，这里的紫红色泥岩形成于浅湖环境。

The outcropped rock of this area is claret mudstone, which is generally composed of clay minerals. Mudstone, with small particle size, can hardly be observed by naked eyes. This kind of rock is produced by gentle water like lake and ocean. Mudstone in this area is formed in shallow lake.

恐龙山地质文化镇阿纳恐龙大遗址

阿纳侏罗纪恐龙大遗址，为1997年发现川街老长箐恐龙化石墓群——川街恐龙动物群而闻名。通过持续对化石保护、开发，形成了集科研、科普和旅游活动为一体的地质公园黄金景区，极大促进了地方社会经济的快速发展，成为我国国家级地质公园中的典范，是我省古生物化石开发保护的成功范例。

禄丰世界恐龙谷景区

三叠中国龙化石

世界恐龙谷景区航拍

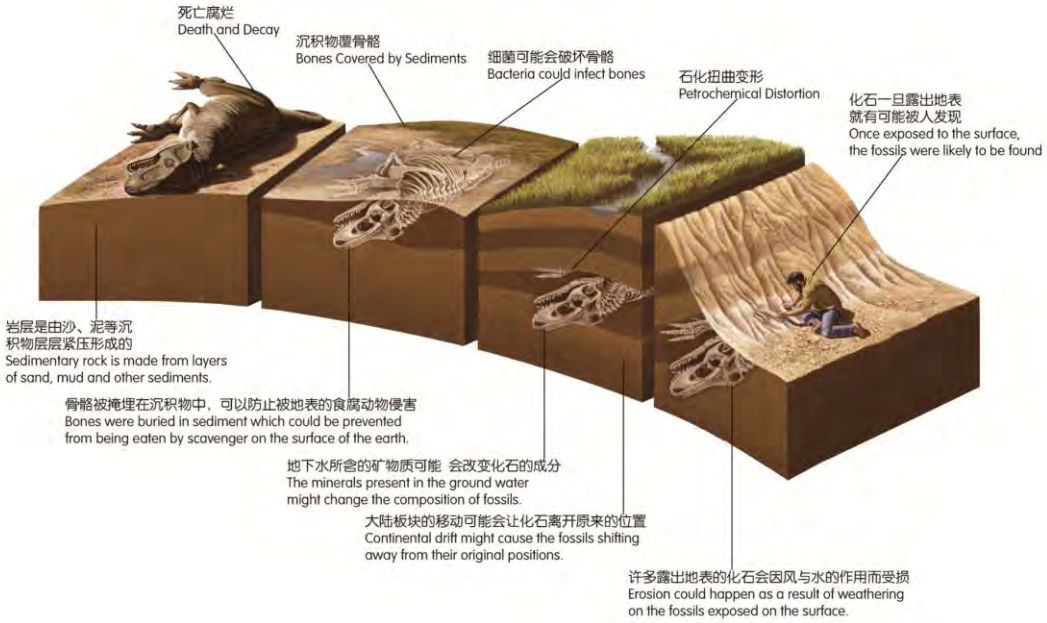
巨型禄丰龙化石

禄丰世界恐龙谷大遗址博物馆

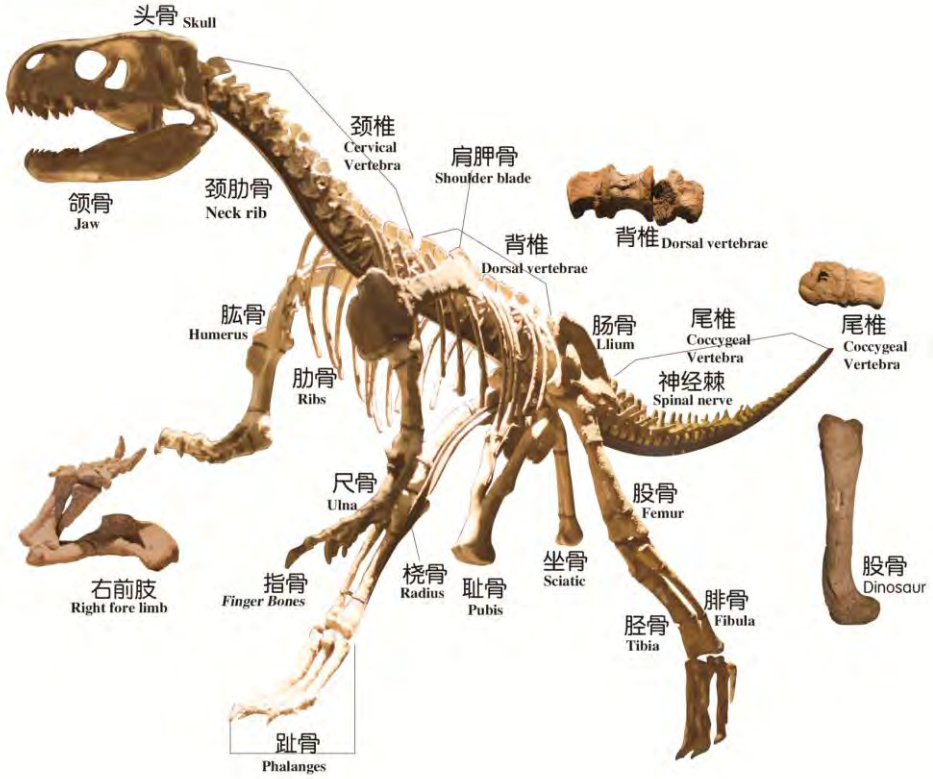
云南龙化石

恐龙山地质文化镇阿纳恐龙大遗址
恐龙化石的形成及构造

恐龙化石的形成
FOSSIL FORMATION OF DINOSAURS



恐龙身体骨架构造
DINOSAUR SKELETONS AND BONES



恐龙山地质文化镇阿纳恐龙大遗址
川街龙、金时代龙

阿纳川街龙
ANACHUANJIESAURUS

阿纳川街龙属于蜥脚类植食性恐龙，生存于侏罗纪中期，化石最先发现于川街盆地侏罗系川街组地层中。它体长约27米、高6.5米，个体庞大，长颈长尾，脑袋小得出奇，是目前亚洲最大的恐龙之一。

阿纳川街龙前脚趾
front toe of *Anachuanjiesaurus*

阿纳川街龙尾椎
Coccyx of *Anachuanjiesaurus*

Anachuanjiesaurus is a genus of herbivorous sauropods that lived during the Middle Jurassic. Its fossil was first uncovered in the Jurassic Chuanjie Formation of Chuanjie basin. As one of the largest dinosaur in Asia, *Anachuanjiesaurus* was a large sized herbivore (about 27 meters long, 6.5 meters high) with a long neck and tail, and a surprisingly small head.

阿纳川街龙复原图
Reconstruction of *Anachuanjiesaurus*

金时代龙
SHIDAISAURUS JINAE

金时代龙牙齿
teeth of *Shidaisaurus jinae*

金时代龙上颌骨
Maxilla of *Shidaisaurus jinae*

金时代龙下颌骨
mandible of *Shidaisaurus jinae*

金时代龙
SHIDAISAURUS JINAE

金时代龙属兽脚类肉食龙，生存于侏罗纪中期，化石发现于川街盆地侏罗系川街组地层中，它体长约6米。

Shidaisaurus jinae belongs to one of carnivorous saurischians that lived in the Middle Jurassic. Its fossil with a length of 6 meters was first uncovered in the Jurassic Chuanjie formation of Chuanjie basin.

金时代龙牙齿
teeth of
Shidaisaurus jinae

金时代龙复原图
Reconstruction of *Shidaisaurus jinae*

川街龙动物群
CHUANJIESAURUS FAUNA

川街龙动物群是侏罗纪中期生活在滇中、川南一带的动物化石群，主要由爬行类、两栖类、早期哺乳类、鱼类和无脊椎动物组成。其中以阿纳川街龙为代表的恐龙化石最为丰富，恐龙种类更加进化的蜥脚类和兽脚类为主，个体明显增大。此外，还有大量的龟鳖类、鱼类和无脊椎动物。

Chuanjiesaurus Fauna, which lived in Middle Yunnan and Southern Sichuan during the middle Jurassic, was mainly composed of reptiles, amphibians, early mammals, fish and invertebrates. In this fauna, there are abundant skeletal fossils of *Anachuanjiesaurus* and some advanced species like sauropods and theropods, which were significantly larger than others. In addition, there were a large number of fossil turtles, fishes and invertebrates.

马门溪龙动物群
MAMENCHISAURUS FAUNA

马门溪龙动物群是侏罗纪晚期生活在四川和云南中部的动物化石群，主要由爬行类、两栖类、鱼类和哺乳类等脊椎动物以及众多的无脊椎动物组成，代表分子是云南马门溪龙，这一时期的恐龙类型特别丰富，体型巨大。侏罗纪晚期，云南地区湖盆收缩、咸化，地形变得相对崎岖，不太适合于体型相对较大的恐龙生活，所以云南的马门溪龙化石保存不多。

Mamenchisaurus Fauna lived during the Late Jurassic in Sichuan and the middle of Yunnan, and is mainly composed of fossilized vertebrates such as reptiles, amphibians, fish and mammals. This fauna was rich in species, and there were numbers of large dinosaurs living during the late Jurassic period, like *Mamenchisaurus yunnanensis* found in the Chuanjie basin, Lufeng. However, as the layers in the Yunnan basin modified as it undergoes shrinkage, the lake were salty and the lands became relatively rugged and broken. It became less and less suitable for large dinosaurs lived here during the Late Jurassic. And that's why we could not get more *M. yunnanensis* fossils in Yunnan during the Late Jurassic.

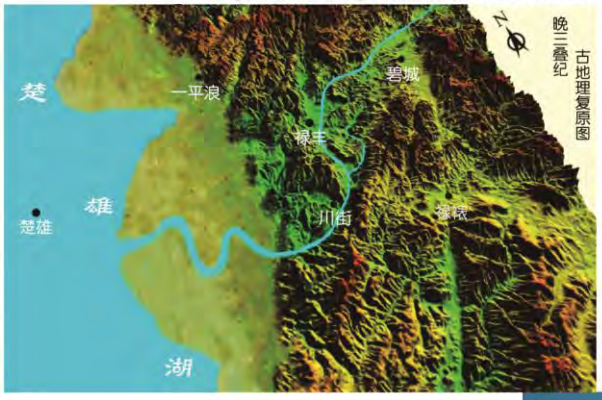
恐龙山地质文化镇阿纳恐龙大遗址

禄丰晚三叠世、早侏罗世古地理

恐龙时代的禄丰

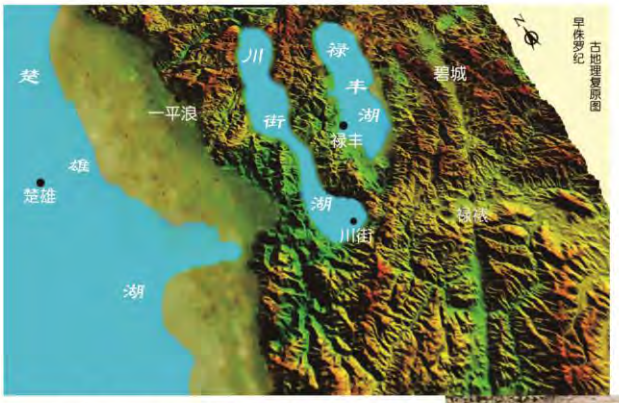
LUFENG DURING THE AGE OF DINOSAURS

如今的禄丰，群山环抱、沃野平畴。你能想象1亿8千万年前的恐龙世界是一番什么景象吗?
Nowadays, Lufeng is an area that is a fertile breeding ground surrounded by mountains. Can you imagine what Lufeng, where abundant dinosaurs lived, would look like 180 million years ago?



三叠纪的大部分时间，禄丰一带和周围其他地方一样，还是一片隆起的山地。到了三叠纪晚期，才在禄丰西部的一平浪一带沉降形成内陆湖盆，那时候禄丰一带气候温暖湿润、植被茂密，大量蕨类和松柏类为主的植物繁茂生长，各种昆虫类、爬行类动物穿行林间。

During the early and middle Triassic period, the Lufeng area was situated on a mountain. An inland lake basin was formed through the settlement around Yipinglang in the west of Lufeng until the Late Triassic. At that time, in a warm and moist environment, a large number of ferns and conifers were dominant species in the plant community. And a variety of insects, amphibians and reptiles animals once lived in this forest.



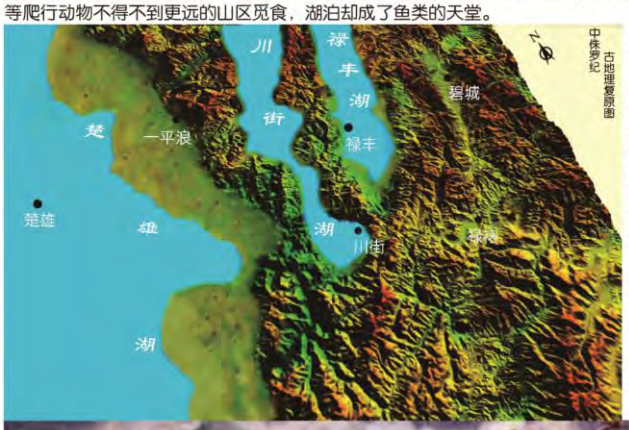
侏罗纪早期开始禄丰地区的地形地貌发生了很大的变化，不仅一平浪一带的湖盆继续扩张，在禄丰、川街等地也沉降形成了两个小的湖盆，周边的山地也变得更加低缓。同时，这一时期禄丰地区的气候也发生了很大变化，从原来的温暖湿润变成了干旱炎热与温暖湿润交替的波动气候。湖盆周边地势低平、植被稀疏，干涸的湖滩时而大面积裸露，时而被浅水淹没，各种恐龙等爬行动物徜徉于湖滨山林间饮水觅食、追逐嬉戏。

At the beginning of the early Jurassic, great changes had taken place in the physiognomy of Lufeng. The lake basin around Yipinglang continued to expand, and two small basins were formed through settlement in Lufeng, Chuanjie. The surrounding mountains had become low and flat. Meanwhile, large changes in climate had happened in this area during this period. The climate was characterized by humid and warm before, and then had been dry and hot sometimes. There were few of plants in low-lying terrain around the lake. A large area of lakebed along the lakeshore exposed above water from time to time, or submerged in the shallow water sometimes. And various kinds of dinosaurs and reptiles once preyed and lived around lakes and mountains.


晚三叠纪古环境复原图

恐龙山地质文化镇阿纳恐龙大遗址
禄丰中侏罗世、晚侏罗世古地理

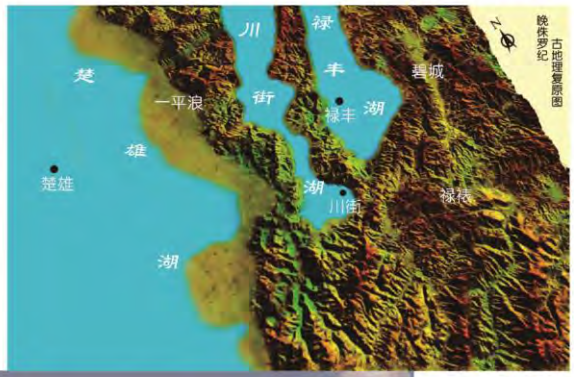
侏罗纪中期，禄丰地区的气候仍然没有多大的变化，只是不时的暴雨引发山洪泥石流，冲来泥沙，有时还冲来恐龙的遗骨，充填在湖盆边缘。长期稳定的环境非常适宜恐龙的生活，恐龙也逐渐进化，新的种群不断出现，体型变得越来越大，数量也越来越多，川街龙是这一时期的巨无霸。后来湖盆曾一度扩张，覆水面积增大，但是气候变得更加干旱了，为了生活恐龙等爬行动物不得不到更远的山区觅食，湖泊却成了鱼类的天堂。

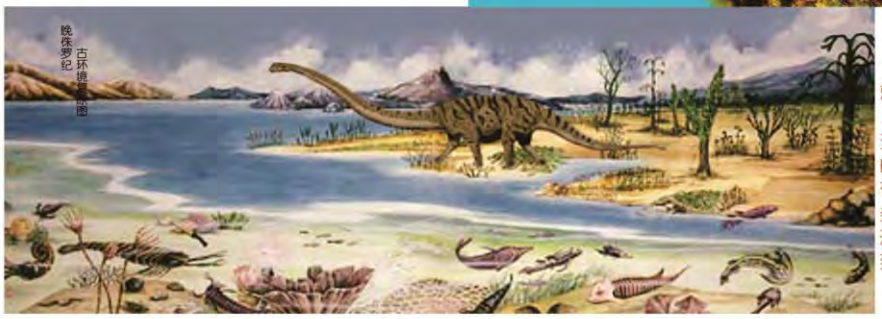


During the middle Jurassic, very little changes had taken place in the climate of Lufeng. Occasionally, there were flash floods and debris flows triggered by heavy rains. And flash floods carried high sediment and several dinosaur bones, which deposited at the edge of the basin. Lufeng was a great place to live for dinosaurs during this period. Different dinosaurs evolved to live in different environments. New species continued to emerge. Dinosaurs became more diverse in general, including size. Many of them evolved to become larger, such as *Chuanjiesaurus* who was a huge predator during this period.Then as the lake basin once expanded, more and more surface was covered with water in Lufeng. Lufeng was becoming drier.Under the threat posed by drought, dinosaurs and other reptiles had to go to another mountain far from here for food foraging.Meanwhile, the lake niches were occupied by fishes.

侏罗纪晚期，气候的持续干旱形成的大面积湖滨平原是马门溪龙等大型草食动物的理想栖息地。远处滇中山地蜿蜒流淌而来的河流滋润着这片干渴的土地，给生命带来了希望。侏罗纪快结束的时候，禄丰、川街等湖泊完全干涸了，少数残留湖盆也在长期的蒸发下变成了盐湖，恐龙被迫迁徙他乡。

The Late Jurassic, a large area of plain beside the lake, formed by the deposition of sediments in the drought conditions, provided an ideal habitat for large herbivorous animal such as *Mamenchisaurus*. These running streams from distant mountains moistened the thirsty land and help it to bring forth new life. At the end of the Jurassic, the lakes of Lufeng and Chuanjie had completely dried up, and a few residual lakes became salty due to lack of fresh water inflow in the long-term drought conditions. Therefore, dinosaurs had been forced to flee their homes and seek refuge elsewhere.





是环境的变化造就了恐龙的天堂，也因为环境的变化毁灭了恐龙的家园，作为具有更高智慧的人类，我们是否从恐龙的历史中学到了点什么呢?

It was the change of environment that created the dinosaur's paradise, but also because of which destroyed the dinosaur's home. As humans with high intelligence, have we learned something from the history of dinosaurs?

恐龙山地质文化镇阿纳恐龙大遗址

恐龙的起源

ORIGIN OF DINOSAURS

二叠纪和三叠纪之交的生物大灭绝为三叠纪早、中期两栖类和爬行类的发展开辟了生态空间，爬行动物迅速辐射、分化，占领了陆地和海洋，陆栖恐龙被认为起源于三叠纪早期的爬行动物—祖龙类，而且是由单一的槽齿类族群演化而来。

禄丰恐龙最早出现在侏罗纪早期，有人认为进入禄丰的第一只恐龙从印度迁徙而来，由于这里环境适宜便定居并迅速繁衍。

远古槽齿类爬行动物 Ancient Thecodonts Reptiles

After the Permian – Triassic extinction event wiped out almost all life on Earth, amphibians and reptiles rapidly occupied different environments including the land and marine during the Early and middle Triassic. Dinosaurs diverged from their archosaur ancestors during the early Triassic period, which were descendants of generalized thecodonts.

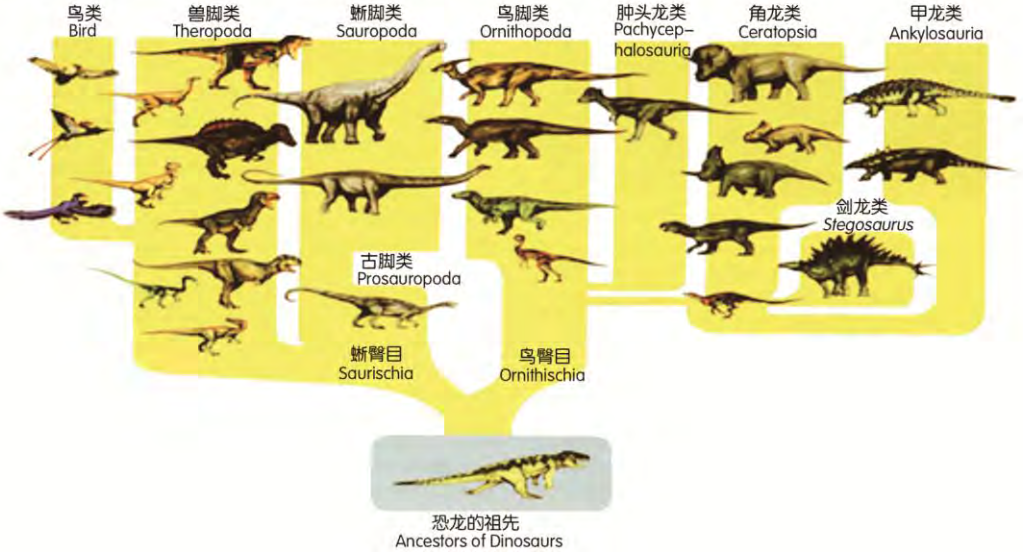
The first dinosaur in Lufeng appeared during the early Jurassic period. It is believed that the first group of dinosaurs came from Indian and then migrated to Lufeng. Since Lufeng was a great place to live during that period, they chose to settle down and reproduce rapidly here.

恐龙的演化

EVOLUTION OF DINOSAURS

恐龙出现于三叠纪，因独立而相互分隔的气候区域刺激着恐龙朝不同方向演化，当时恐龙的种类不多，体形也小；到了侏罗纪，气候对恐龙的繁衍十分有利，哺乳动物还处于进化的早期阶段，恐龙基本上没有任何竞争对手，所以它们迅速占领了各个大陆，理所当然地成为生物界的唯一霸主，演化出繁多的种类，进入了鼎盛时期；到白垩纪，恐龙种类从喜欢集体狩猎的恐爪龙到大型肉食性龙——暴龙一应俱全，还出现了新的植食性恐龙，发展到了它最鼎盛时期，但到了白垩纪末期，在一次重大的灭绝事件中，恐龙及当时大多数生物从地球上消失了。

Dinosaurs appeared in the Triassic and evolved towards different directions in order to adapt to various environmental conditions. At the begining, these animals were indeed small and the species diversity was relatively low. Dinosaur evolution after the Triassic follows changes in the climate that was very suitable for dinosaurs living. And the evolution of mammals has passed through the early stages. Without the extra competition from other animals, dinosaurs occupied almost all of the lands and evolved into separate groups adapting in different ways. Following the Cretaceous period, there were different kinds of carnivorous and some new herbivorous dinosaurs, including Deinonychus living and hunting in packs, large carnivores Tyrannosaurus. All dinosaurs and almost everything on Earth went out at the end of the Cretaceous, which is known as the Cretaceous–Tertiary extinction event.



恐龙山地质文化镇阿纳恐龙大遗址

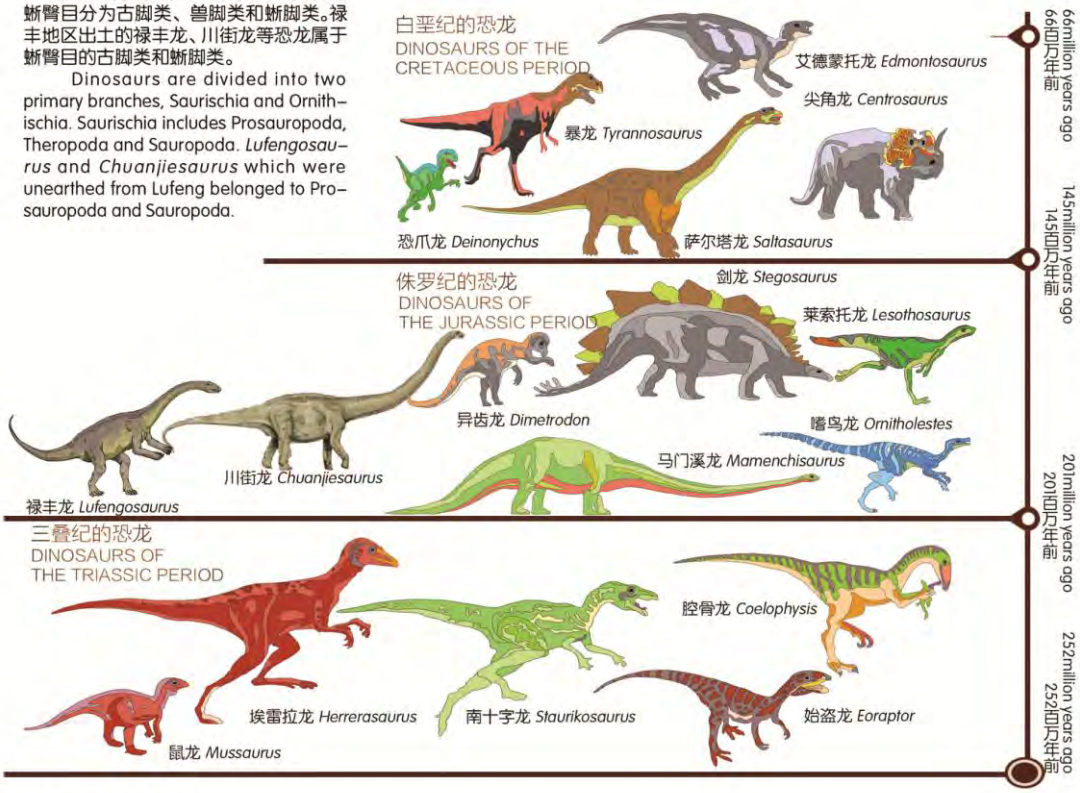
恐龙的分类和灭亡

不同时代的恐龙种类

DIFFERENT DINOSAURS IN DIFFERENT PERIODS

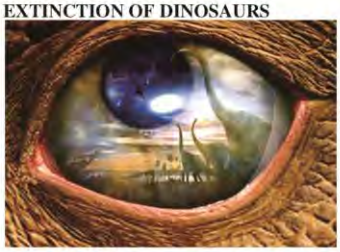
恐龙分为两大类：蜥臀目、鸟臀目。蜥臀目分为古脚类、兽脚类和蜥脚类。禄丰地区出土的禄丰龙、川街龙等恐龙属于蜥臀目的古脚类和蜥脚类。

Dinosaurs are divided into two primary branches, Saurischia and Ornithischia. Saurischia includes Prosauropoda, Theropoda and Sauropoda. *Lufengosaurus* and *Chuanjiesaurus* which were unearthed from Lufeng belonged to Prosauropoda and Sauropoda.



恐龙的灭亡

EXTINCTION OF DINOSAURS



曾经的世界霸主，为何突然消失了呢?

物竞天择、优胜劣汰、适者生存是亘古不变的真理，但恐龙灭亡的具体原因至今无人能说清。比较流行的说法有以下几种：

小行星撞击说：认为恐龙灭绝于白垩纪末期（距今约6500万年）的一次小行星撞击事件，撞击爆炸腾起遮天蔽日的烟尘，挡住阳光而使大量植物枯死，全球气温下降，素食恐龙大量饿死，继而肉食恐龙因食物枯竭也全部死亡。

火山喷发说：白垩纪末期全球性火山活跃，大量火山烟尘和酸性气体喷射到空中，光照大量减少，空气酸化，地表植被迅速消亡，生态系统崩溃，导致恐龙灭亡。

种群老化说：恐龙种群的自身演化，导致个体不断增大，逐渐不适应环境而消亡。

Once dinosaurs lived on the earth and then they died out. Why did the dinosaurs suddenly disappear?

Natural selection or survival of the fittest is a key mechanism of evolution. No one really knows for sure why the dinosaurs disappeared, but scientists have some ideas.

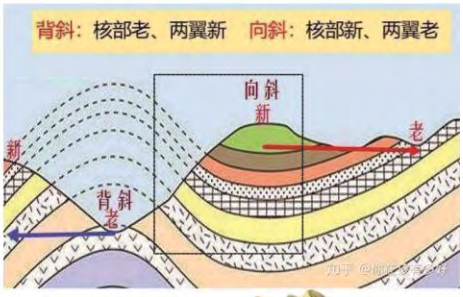
Asteroid Impact Hypothesis (The Alvarez Hypothesis). During the late Cretaceous (about 65 million years ago) meteorites had crashed to the earth. It would blast millions of tons of dust and rock into the sky. The thick cloud of dust, rock, and smoke would swirl around the world, blocking the sunlight for months or even years. Without sunlight, the earth would grow very cold. Plants died without the sunlight. Without plants to eat, the plant-eating dinosaurs died. Then the meat-eaters died.

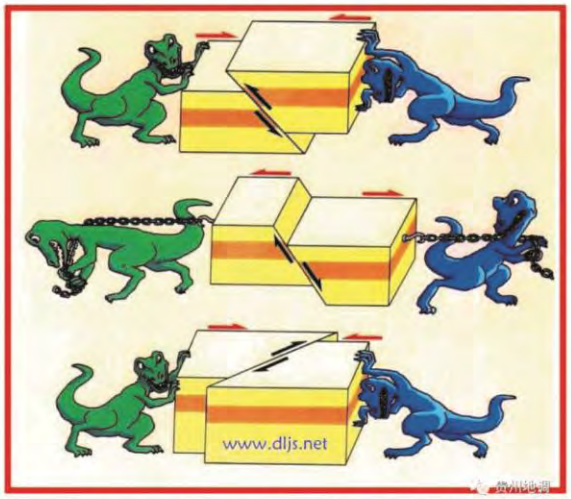
Volcanism Hypothesis. During the end of the Cretaceous period, there was increased volcanic activity. Over a period of several million years, this increased volcanism could have created enough dust and soot to block out sunlight. Plants died without the sunlight. And then the whole ecosystem collapsed. Finally, lack of food caused dinosaurs to fade away.

Population Aging Hypothesis. As the results of evolution, dinosaurs tend to evolve towards larger bodies over time. Dinosaurs with huge bodies were poorly adapted to a changing set of conditions, and then they fade away.

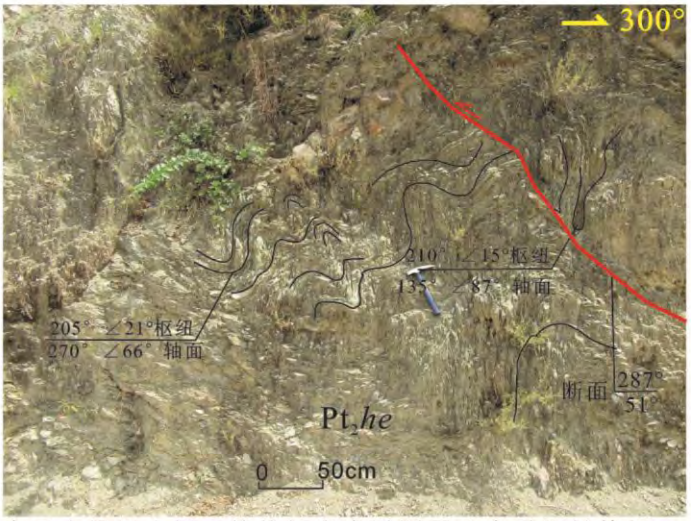
小行星撞击说 Asteroid Impact Hypothesis

火山喷发说 Volcanism Hypothesis

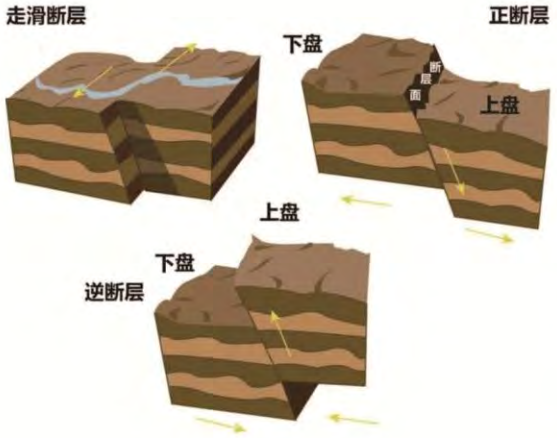


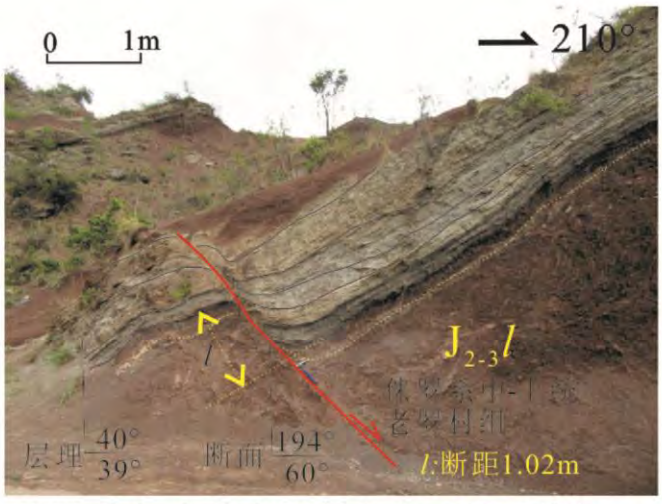


逆断层、正断层、平移断层应力特征



中元古界黑山组千枚状板岩中逆断层及牵引褶皱特征





侏罗系中-上统老罗村组中正断层特征

继承和发扬革命精神

我们传承红色基因，在川街四二八革命烈士纪念塔纪念革命先烈，发扬为有牺牲多壮志、敢问日月换新天的开拓进取精神。

第一代科学家：杨钟健和卞美年

传承科学家精神

传承数代科学家在禄丰风餐露宿、跋山涉水的“寻龙精神”和艰苦奋斗、务实求真的“科学家精神”。

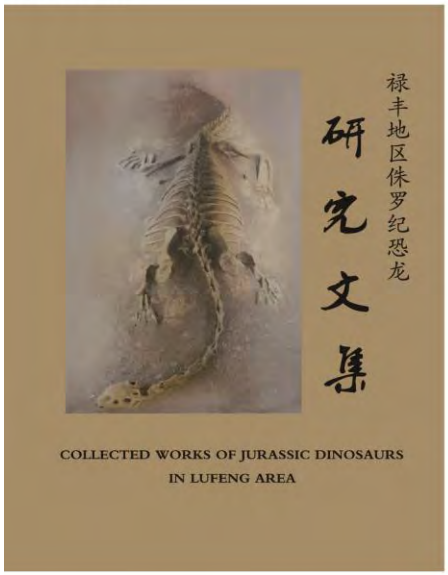
第二代科学家：董枝明

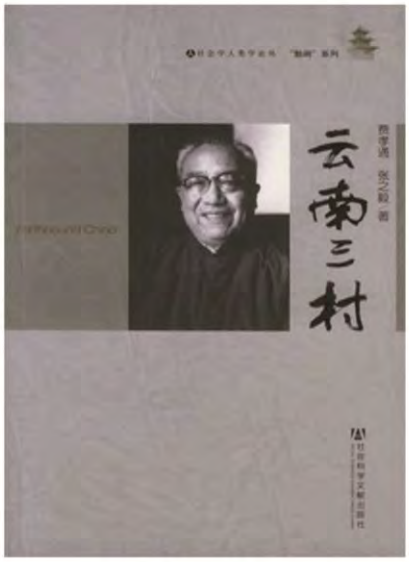
第三代科学家：尤海鲁

禄丰恐龙化石的守护者：王涛

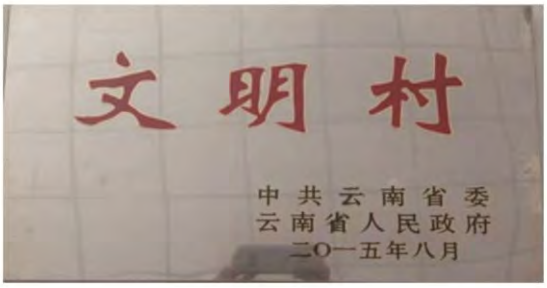
恐龙山地质文化镇特色文化荣誉

出版书籍





部分荣誉称号



市级文物保护单位—阿纳大寺

市级文物保护单位—魁阁楼

市级文物保护单位—罗家大院

农耕农具

碾子

非遗：传统造纸

非遗：木甄子制作

非遗：龙狮舞

恐龙山地质文化镇特色民族文化

民族特色：火把节

恐龙文化节

民族特色：彝人祭火

民族特色刺绣

民族特色：羊鼓舞

民族特色舞蹈

民族特色：摸鱼节

民族特色节日庆典

恐龙山地质文化镇文创产品

恐龙谷景区

与恐龙同行-恐龙营地

恐龙文创产品

特色竹编

恐龙文创产品

恐龙文创产品

恐龙文创产品

恐龙文创产品

恐龙山地质文化镇服务设施

酒店民宿

恐龙山地质文化镇特色农产品

恐龙山火龙果

恐龙山冰糖枣

恐龙山沙地瓜

恐龙山小辣椒

特色美食：红烧驴肉

特色美食：油淋干巴

特色美食：谷花鱼

特色美食：凉卷粉