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古兵器大揭秘 (2015)

第二季 第1集 剑

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In 515 BC,

The kings and officials of the Wu state are enthusiastically waiting for a delicious meal.

The legendary plum blossom phoenix cockles burned.

No one could have imagined that this serving person named Zhuan Zhu was actually a killer.

He took a dagger from the belly of the fish at the moment of serving and stabbed Wang Lao.

公元前515年,

吴国的国君王僚正在兴致勃勃地等待一道美味佳肴。

传说中的梅花凤鲚炙。

没人能想到这个叫专诸的上菜人竟是一名杀手。

他在上菜的瞬间从鱼腹中取出一把短剑刺向了王僚。

公元前 (gōng yuán qián) BCE (before the Common Era); BC (before Christ).

吴国 (wú guó) Wu state (in south China, in different historical periods); Wu state 220-280, founded by Sun Quan 孙权 the southernmost of the three Kingdoms. 君王 (jūn wáng) sovereign king. 僚 (liáo) bureaucrat; colleague. 兴致勃勃 (xìng zhì bó bó) to become exhilarated (idiom); in high spirits; full of zest. 等待 (děng dài) to wait; to wait for. 一道 (yī dào) together. 美味 (měi wèi) delicious; delicious food; delicacy. 佳肴 (jiā yáo) fine food; delicacies; delicious food.

传说 (chuán shuō) legend; folklore; to repeat from mouth to mouth; they say that.... 梅花 (méi huā) plum blossom; clubs ♣ (a suit in card games); wintersweet (dialect). 凤 (fèng) phoenix. 鲚 (jì) Coilia nasus. 炙 (zhì) to broil; to roast.

想到 (xiǎng dào) to think of; to call to mind; to anticipate. 诸 (zhū) all; various. 上菜 (shàng cài) to serve, also to put on plate. 杀手 (shā shǒu) killer; murderer; hit man; (sports) formidable player.

瞬间 (shùn jiān) in an instant; in a flash. 腹 (fù) abdomen; stomach; belly. 取出 (qǔ chū) to take out; to extract; to draw out. 短剑 (duǎn jiàn) dagger. 刺 (cì) thorn; sting; thrust; to prick; to pierce; to stab; to assassinate; to murder. 王 (wàng) to rule; to reign over.

At this time, Wang Liao still had a trace of luck in his heart.

此时的王僚心中还存有一丝侥幸，

此时 (cǐ shí) now; this moment. **心中** (xīn zhōng) central point; in one's thoughts; in one's heart. **存有** (cún yǒu) to hold in storage; to retain; to harbor (feelings); to entertain (sentiments); (of abstract things) to exist; there is. **丝** (sī) silk; thread; trace; (cuisine) shreds or julienne strips; classifier: a thread (of cloud, smoke etc), a bit, an iota, a hint (of sth) etc. **侥幸** (jiǎo xìng) luckily; by a fluke.

Because he wore the best armor at the time.

因为他穿着当时防御性能最好的铠甲。

穿着 (chuān zhuó) attire; clothes; dress. **防御性** (fáng yù xìng) defensive (weapons). **铠甲** (kǎi jiǎ) armor.

sword,

剑，

剑 (jiàn) double-edged sword; classifier for blows of a sword.

It is one of the most widely equipped short weapons in ancient China.

是中国古代装备最为广泛的短兵器之一。

古代 (gǔ dài) ancient times; olden times. **装备** (zhuāng bèi) equipment; to equip; to outfit. **最为** (zuì wéi) the most. **广泛** (guǎng fàn) extensive; wide range. **兵器** (bīng qì) weaponry; weapons; arms. **之一** (zhī yī) one of (sth); one out of a multitude; one (third, quarter, percent etc).

During the Spring and Autumn and Warring States Period,

春秋战国时期，

春秋战国 (chūn qiū zhàn guó) the Spring and Autumn (770-476 BC) and Warring States (475-221 BC) periods. **时期** (shí qī) period; phase.

Located in the Wuyue area in the southern water network belt,

地处南方水网地带的吴越地区，

地处 (dì chǔ) to be located at; to be situated in. **地带** (dì dài) zone. **吴越** (wú yuè) states of south China in different historical periods; proverbially perpetual arch-enemies. **地区** (dì qū) local; regional; district (not necessarily formal administrative unit); region; area; as suffix to city name, means prefecture or county (area administered by a prefecture-level city or county level city).

Mainly infantry,

以步兵为主，

步兵 (bù bīng) infantry; foot; infantryman; foot soldier. **为主** (wéi zhǔ) to rely mainly on; to attach most importance to.

Swords suitable for infantry use began to equip troops in large numbers here.

适合步兵使用的剑在这里开始大量装备部队。

大量 (dà liàng) great amount; large quantity; bulk; numerous; generous; magnanimous. **部队** (bù duì) army; armed forces; troops; force; unit.

The bronze sword in Wuyue area is shorter in length,

吴越地区的青铜剑长度较短，

青铜 (qīng tóng) bronze (alloy of copper 铜 and tin 锡 (xī)). **长度** (cháng dù) length.

The blade is generous,

剑身宽厚，

剑身 (jiàn shēn) sword blade. **宽厚** (kuān hòu) tolerant; generous; magnanimous; thick and broad (build); thick and deep (voice).

The blades on both sides showed a two-degree arc,

两侧的**剑刃**呈现出**两度弧曲**,

两侧 (liǎng cè) two sides; both sides. **刃** (rèn) edge of blade. **呈现** (chéng xiàn) to appear; to emerge; to present (a certain appearance); to demonstrate. **弧** (hú) arc. **曲** (qū) tune; song.

China Resources smooth silhouette.

华润流畅的**轮廓**。

华润 (huá rùn) China Resources (company name). **流畅** (liú chàng) flowing (of speech, writing); fluent; smooth and easy. **轮廓** (lún kuò) an outline; silhouette.

Many high-level swords are also decorated with gorgeous patterns.

很多**高等级**的**宝剑**上还**饰有华丽**的**纹案**。

等级 (děng jí) grade; rank; status. **宝剑** (bǎo jiàn) (double-edged) sword. **饰** (shì) decoration; ornament; to decorate; to adorn; to hide; to conceal (a fault); excuse (to hide a fault); to play a role (in opera); to impersonate. **华丽** (huá lì) gorgeous. **纹** (wén) line; trace; mark; pattern; grain (of wood etc). **案** (àn) (legal) case; incident; record; file; table.

Another typical representative of the bronze sword is the Qin long sword.

而**青铜剑**的**另一个典型代表**则是**秦国长剑**。

另一 (lìng yī) another; the other. **典型** (diǎn xíng) model; typical case; archetype; typical; representative. **代表** (dài biǎo) representative; delegate; to represent; to stand for; on behalf of; in the name of. **秦国** (qín guó) the state of Qin, one of the seven states of the Warring States Period (475-220 BC).

It looks unpretentious,

它**外观朴实无华**,

外观 (wài guān) exterior appearance; to view sth from the outside; exterior condition. **朴实** (pǔ shí) plain; simple; guileless; down-to-earth; sincere and honest.

But the length has reached a staggering 90 centimeters.

可是**长度**却**达到惊人**的**90多厘米**。

达到 (dá dào) to reach; to achieve; to attain. **惊人** (jīng rén) astonishing. **厘米** (lí mǐ) centimeter.

Perhaps it is this kind of practical supremacy,

也许**正是**这种**实用至上**的**思想**,

正是 (zhèng shì) (emphasizes that sth is precisely or exactly as stated); precisely; exactly; even; if; just like; in the same way as. **实用** (shí yòng) practical; functional; pragmatic; applied (science). **至上** (zhì shàng) supreme; paramount; above all else. **思想** (sī xiǎng) thought; thinking; idea; ideology.

Helped Qin to complete the great cause of unifying China.

帮助**秦国**完成了**统一中国**的**大业**。

统一 (tǒng yī) to unify; to unite; to integrate. **大业** (dà yè) great cause; great undertaking.

Although there are many styles of bronze swords,

尽管**青铜剑**的**样式繁多**,

样式 (yàng shì) type; style. **繁多** (fán duō) many and varied; of many different kinds.

But going back to the source,

但是**追根溯源**,

追根溯源 (zhuī gēn sù yuán) to pursue sth back to its origins; to trace back to the source; to get to the bottom of sth.

Most of them are developed from short swords.

他们**大都是**由**短剑**发展而来。

大都 (dà dōu) for the most part; on the whole; also pr. (dà dū).

The short sword used by the assassin's monograph is a famous representative among them.

刚刚而刺客专著所使用的那柄短剑正是其中的著名代表。

刚刚 (gāng gang) just recently; just a moment ago. 刺客 (cì kè) assassin. 专著 (zhuān zhù) monograph; specialized text. 柄 (bǐng) handle or shaft (of an axe etc); (of a flower, leaf or fruit) stem; sth that affords an advantage to an opponent; classifier for knives or blades.

According to historical records,

根据史料的记载,

史料 (shǐ liào) historical material or data. 记载 (jì zǎi) to write down; to record; written account.

Wang Lao was wary of this banquet.

王僚对于这次宴请早有戒心,

宴请 (yàn qǐng) to entertain (for dinner); to invite to dinner. 戒心 (jiè xīn) vigilance; wariness.

That's why he put on his armor to go to the banquet.

所以他才会特意披上坚甲赴宴。

特意 (tè yì) specially; intentionally. 披 (pī) to drape over one's shoulders; to open; to unroll; to split open; to spread out. 甲 (jiǎ) first of the ten Heavenly Stems 十天干 (shí tiān gān); (used for an unspecified person or thing); first (in a list, as a party to a contract etc); letter "A" or Roman "I" in list "A, B, C", or "I, II, III" etc; armor plating; shell or carapace; (of the fingers or toes) nail; bladed leather or metal armor (old); ranking system used in the Imperial examinations (old); civil administration unit (old); ancient Chinese compass point: 75°. 赴宴 (fù yàn) to attend a banquet.

So how strong is this collar armor?

那么这领坚甲究竟具有多强的防御性能,

领 (lǐng) neck; collar; to lead; to receive; classifier for clothes, mats, screens etc. 强 (qiáng) strong; powerful; better; slightly more than; vigorous; violent; best in their category, e.g. see 百强 (bǎi qiáng).

Can Wang Liao choose it to protect himself?

才能让王僚选择它来保护自己呢?

Inferred from archaeological discoveries of similar ages,

根据时代相近的考古发现推断,

时代 (shí dài) age; era; epoch; period (in one's life). 相近 (xiāng jìn) close; similar to. 考古 (kǎo gǔ) archaeology. 推断 (tuī duàn) to infer; to deduce; to predict; to extrapolate.

Wang Lao's armor may be a type of armor called Hejia from that period.

王僚的铠甲可能是那个时期一种叫做合甲的铠甲。

叫做 (jiào zuò) to be called; to be known as.

Jiang Feng,

江峰,

峰 (fēng) (of a mountain) high and tapered peak or summit; mountain-like in appearance; highest level; classifier for camels.

Famous ancient armor restorer,

著名古代甲冑复原师,

甲冑 (jiǎ zhòu) armor. 复原 (fù yuán) to restore (sth) to (its) former condition; to recover from illness; recovery.

Has long been engaged in armor research and restoration.

长期从事甲冑研究和复原。

长期 (cháng qī) long term; long time; long range (of a forecast). 从事 (cóng shì) to go for; to engage in; to undertake; to deal with; to handle; to do.

Today he will recreate the armor that Wang Li wore for us.

Jiang Feng's restoration of this armor is made of wooden tires,

And paint the composite nail on the outer surface,

So it is usually called Hejia.

The nails are large and thick on the torso,

Strong defense,

The arm area is small,

Facilitate flexible movement.

On the battlefield in the Spring and Autumn Period and Warring States Period,

slave,

Ge,

Spears are the main battle weapon.

今天他将为我们来**重现**王僚身披的**坚甲**。

江峰复原的这套**合甲**是由**木胎两面贴皮**,

并**在外表面修漆制成的复合甲片**,

因此**通常被称为合甲**。

在**躯干部位甲片块大而厚实**,

防御力强,

手臂部位甲片较小,

便于灵活运动。

春秋战国时期的**战场上**以**弓**、

奴、

戈、

矛等**作为主战兵器**。

重现 (chóng xiàn) to reappear.

套 (tào) to cover; to encase; cover; sheath; to overlap; to interleave; to model after; to copy; formula; harness; loop of rope; (fig.) to fish for; to obtain slyly; classifier for sets, collections; bend (of a river or mountain range, in place names); tau (Greek letter Ττ). **木** (mù) tree; wood; coffin; wooden; simple; numb; one of the eight categories of ancient musical instruments 八音 (bā yīn). **胎** (tāi) fetus; litter; tire; abbr. of 轮胎. **两面** (liǎng miàn) both sides. **贴** (tiē) to stick; to paste; to post (e.g. on a blog); to keep close to; to fit snugly; to subsidize; allowance (e.g. money for food or housing); sticker; classifier for sticking plaster: strip.

在外 (zài wài) outer; excluded. **表面** (biǎo miàn) surface; face; outside; appearance. **漆** (qī) paint; lacquer; to paint (furniture, walls etc). **制成** (zhì chéng) to manufacture; to turn out (a product). **复合** (fù hé) complex; compound; composite; hybrid.

通常 (tōng cháng) regular; usual; normal; usually; normally. **称为** (chēng wéi) called; to call sth (by a name); to name.

躯干 (qū gān) trunk; torso. **部位** (bù wèi) position; place. **厚实** (hòu shí) thick; substantial; sturdy; solid.

防御 (fáng yù) defense; to defend.

手臂 (shǒu bì) arm; helper.

便于 (biàn yú) easy to; convenient for. **灵活** (líng huó) flexible; nimble; agile.

战场 (zhàn chǎng) battlefield. **弓** (gōng) a bow (weapon); to bend; to arch (one's back etc).

奴 (nú) slave.

戈 (gē) dagger-axe; abbr. for 戈瑞 (gē ruì); (Tw) abbr. for 戈雷 (gē léi).

矛 (máo) spear; lance; pike. **作为** (zuò wéi) one's conduct; deed; activity; accomplishment; achievement; to act as; as (in the capacity of); qua; to view as; to look upon (sth as); to take sth to be. **战** (zhàn) to fight; fight; war; battle.

We will choose the long-range weapon bow and the melee weapon Ge to test the armor worn by Wang Lao.

Because the torso of domestic animals is very close to the structure of the human body,

So we use livestock trunks instead of human bodies,

And put on the armor to reflect the protection level at that time.

In order to explore the protective ability of Hejia,

Our military expert Li Kefeng personally took the test.

This kind of armor made of leather and thin wood,

Can it withstand the incoming shooting of a hard bow?

Shot on this nail will damage the skin.

It's also more money,

Those who didn't hit the top,

Hit the organization,

Playing relatively deep,

我们将选择**远程**兵器弓和**近战**兵器戈来对王僚所穿的**合甲**进行**测试**。

由于**家畜**的躯干与**人体**躯干的**结构**非常**接近**,

所以我们使用**家畜**躯干**代替**人体,

并且在**上面**披上**合甲**来**体现**当时的**防护**水平。

为了**探究**合甲的**防护**能力,

我们的**军事**专家**李克峰**亲自**上场**测试。

这种以**皮子**和**薄木板**合成的**合甲**,

究竟能不能**承受**硬弓的**抵进**射击呢?

射到这甲上对**皮肤**就是有**损伤**,

也是**比较**钱,

没打到甲上的,

打到**组织**上的,

打得都**比较**深,

远程 (yuǎn chéng) remote; long distance; long range. **测试** (cè shì) to test (machinery etc); to test (students); test; quiz; exam; beta (software).

家畜 (jiā chù) domestic animal; livestock; cattle. **人体** (rén tǐ) human body. **结构** (jié gòu) structure; composition; makeup; architecture. **接近** (jiē jìn) to approach; to get close to.

代替 (dài tì) to replace; to take the place of.

上面 (shàng miàn) on top of; above-mentioned; also pr. (shàng mian). **上合** (shàng hé) SCO (Shanghai Cooperation Organisation); abbr. for 上海合作组织 (shàng hǎi hé zuò zǔ zhī). **体现** (tǐ xiàn) to embody; to reflect; to incarnate. **防护** (fáng hù) to defend; to protect.

探究 (tàn jiū) to investigate; to delve; to probe; to enquire into; to look into.

军事 (jūn shì) military affairs; military matters; military. **专家** (zhuān jiā) expert; specialist. **亲自** (qīn zì) personally; in person; oneself. **上场** (shàng chǎng) on stage; to go on stage; to take the field.

皮子 (pí zi) skin; fur. **薄** (báo) thin; cold in manner; indifferent; weak; light; infertile. **木板** (mù bǎn) slab; board; plank. **合成** (hé chéng) to compose; to constitute; compound; synthesis; mixture; synthetic.

承受 (chéng shòu) to bear; to support; to inherit. **抵** (dǐ) to press against; to support; to prop up; to resist; to equal; to balance; to make up for; to mortgage; to arrive at; to clap (one's hands) lightly (expressing delight) (Taiwan pr. (zhǐ) for this sense). **射击** (shè jī) to shoot; to fire (a gun).

射 (shè) to shoot; to launch; to allude to; radio- (chemistry). **损伤** (sǔn shāng) to harm; to damage; to injure; impairment; loss; disability.

组织 (zǔ zhī) to organize; organization; organized system; nerve; tissue.

You can't even see the binding wire anymore.

Some even penetrated,

It is life-threatening.

The angle is not particularly positive,

This kind of arrow is actually very common on the battlefield,

There will be a small deformation on its surface,

It's not easy to shoot through,

So this is also a composite material,

It has such characteristics.

Hejia has a good defensive effect on bronze arrows.

Under its protection,

The soldier was only slightly injured by the epidermis,

Basically it will not affect combat effectiveness.

Next, the armor worn by Wang Lao will undergo more severe tests.

What it is about to face is the main battle weapon that prevailed on the battlefield in that era-

Ge.

Li Xumin,

你看连**绑线**都**看不见**了。

有的甚至是**穿透**了，

就**危及**生命了。

角度不是特别正的，

这种**箭**实际上在战场上也很**常见**，

它**表层**会发生一个**小小形变**，

也不容易**射透**，

所以这也是作为一个**复合材料**，

它有这样的**特征**。

合甲对青铜**箭头**具有很好的防御效果。

在它的保护下，

士兵只是受到**表皮**的**轻伤**，

基本上不会影响**战斗力**。

接下来王僚所穿的铠甲**将要**接受**更为严酷**的测试，

它**即将**面对的是那个时代在战场上**叱咤风云**的主战兵器——

戈。

李旭民，

绑 (bǎng) to tie; bind or fasten together; to kidnap. **看不见** (kàn bu jiàn) unseen; to be invisible.

有的 (yǒu de) (there are) some (who are...); some (exist). **穿透** (chuān tòu) to penetrate.

危及 (wēi jí) to endanger; to jeopardize; a danger (to life, national security etc).

角度 (jiǎo dù) angle; point of view.

箭 (jiàn) arrow. **实际上** (shí jì shàng) in fact; in reality; as a matter of fact; in practice. **常见** (cháng jiàn) commonly seen; common; to see sth frequently.

表层 (biǎo céng) surface layer. **小小** (xiǎo xiǎo) very small; very few; very minor. **形变** (xíng biàn) deformation; bending.

透 (tòu) to penetrate; to pass through; thoroughly; completely; transparent; to appear; to show.

复合材料 (fù hé cái liào) composite material.

特征 (tè zhēng) characteristic; diagnostic property; distinctive feature; trait.

箭头 (jiàn tóu) arrowhead; arrow symbol.

士兵 (shì bīng) soldier. **表皮** (biǎo pí) epidermis; cuticle. **轻伤** (qīng shāng) lightly wounded; minor injuries.

基本上 (jī běn shàng) basically; on the whole. **战斗力** (zhàn dòu lì) fighting strength.

接下来 (jiē xià lái) to accept; to take; next; following. **将要** (jiāng yào) will; shall; to be going to. **更为** (gèng wéi) even more. **严酷** (yán kù) bitter; harsh; grim; ruthless; severe; cut-throat (competition).

即将 (jí jiāng) on the eve of; to be about to; to be on the verge of. **面对** (miàn duì) to confront; to face. **叱咤风云** (chì zhà fēng yún) lit. to rebuke Heaven and Earth (idiom); fig. shaking the whole world; all-powerful.

Martial arts enthusiasts,	武术爱好者,	武术 (wǔ shù) military skill or technique (in former times); all kinds of martial art sports (some claiming spiritual development); self-defense; tradition of choreographed fights from opera and film (recent usage); also called kungfu 功夫. 爱好者 (ài hào zhě) lover (of art, sports etc); amateur; enthusiast; fan.
Years of martial arts,	多年习武,	武 (wǔ) martial; military.
The punches are fast and powerful.	出拳速度快且力量大。	拳 (quán) fist; boxing. 力量 (lì liang) power; force; strength.
He will complete a fatal blow.	他将完成致命的挥戈一击。	致命 (zhì mìng) fatal; mortal; deadly; to sacrifice one's life. 挥戈 (huī gē) to brandish a spear. 击 (jī) to hit; to strike; to break; Taiwan pr. (jí).
peck,	啄,	啄 (zhuó) to peck.
It is Ge's most ferocious move.	是戈最为凶狠的招式。	凶狠 (xiōng hěn) cruel; vicious; fierce and malicious; vengeful. 招式 (zhāo shì) style; manner.
An armor made of cowhide and thin wood,	由牛皮和薄木板制成的合甲,	牛皮 (niú pí) cowhide; leather; fig. flexible and tough; boasting; big talk.
Facing a fierce pecking,	面对猛烈的啄击,	猛烈 (měng liè) fierce; violent (criticism etc).
What kind of defensive performance will it show?	会表现出什么样的防御性能呢?	表现 (biǎo xiàn) to show; to show off; to display; to manifest; expression; manifestation; show; display; performance (at work etc); behavior. 什么样 (shén me yàng) what kind?; what sort?; what appearance?.
Pecking intensively for a while,	一阵子密集的啄击,	一阵子 (yī zhèn zi) a while; a spell; a short time; a burst. 密集 (mì jí) concentrated; crowded together; intensive; compressed.
This Hejia was hit four times,	这合甲中了四下,	四下 (sì xià) everywhere.
Got four hits,	中了四下,	
Three of them passed through,	其中有三次透了,	三次 (sān cì) third; three times; (math.) degree three, cubic (equation).
Penetrated the armor,	穿透了甲,	
But organizationally,	但是在组织上,	
The wound left on this pigskin is not deep,	在这猪皮上留下的创口并不深,	创口 (chuāng kǒu) a wound; a cut.
The deepest one is less than one centimeter,	最深的一个不足一公分,	不足 (bù zú) insufficient; lacking; deficiency; not enough; inadequate; not worth; cannot; should not. 公分 (gōng fēn) centimeter; gram.
None of them affected much of their combat effectiveness.	都没有影响到什么多大的战斗力。	有影响 (yǒu yǐng xiǎng) influential. 多大 (duō dà) how big; how much; how old etc.

In the test, we saw that Wang Lao's armor has a very good protective effect.

This is entirely due to the composite structure composed of wood chips and cowhide.

This kind of composite armor design thought of the ancients continues to modern weapons more than 2000 years later.

The armor with the best defense performance today is the front armor of the tank.

The tanks of all countries in the world are without exception,

All use composite armor of different materials to achieve the best defense effect.

When the assassin drew his sword and stabbed Wang Lao,

Wang Liao believes that no weapon can pierce his armor.

But Zhuan Zhu believed that Wang Lao's life would be completely over at this moment.

It is the sword in his hand that gives all his confidence.

The sharp blade used by the assassins is the fish sausage sword made by the most legendary construction master Ou Yezi in Chinese history.

在测试中我们看到王僚的合甲有着非常出色的防护效果，

这完全得益于木片和牛皮所组成的复合式结构。

古人的这种复合甲的设计思想一直延续到了2000多年后的现代武器上。

在今天防御性能最好的装甲就是坦克的前装甲，

世界各国的坦克无一例外，

都采用不同材质的复合装甲来达到最佳的防御效果。

当刺客专诸拔剑刺向王僚的那一瞬间，

王僚认为没有任何一件兵器能够刺穿他身上的合甲，

而专诸此时却相信王僚的生命在这一瞬间就要彻底结束了。

给予专诸信心的是他手中的利剑。

刺客专诸用的利刃是中国历史上最传奇的筑建大师欧冶子亲手打造的鱼肠剑。

有着(yǒu zhe) to have; to possess. 出色(chū sè) remarkable; outstanding.

得益(dé yì) to derive benefit. 木片(mù piàn) flat piece of wood; wood chip. 组成(zǔ chéng) to form; to make up; to constitute.

古人(gǔ rén) people from ancient times; the ancients; the late (i.e. person who has passed away). 设计(shè jì) plan; design; to design; to plan. 延续(yán xù) to continue; to go on; to last. 现代(xiàn dài) modern times; modern age; modern era. 武器(wǔ qì) weapon; arms.

装甲(zhuāng jiǎ) vehicle armor. 坦克(tǎn kè) tank (military vehicle) (loanword).

各国(gè guó) each country; every country; various countries. 例外(lì wài) exception; to be an exception.

采用(cǎi yòng) to adopt; to employ; to use. 材质(cái zhì) texture of timber; quality of material; material (that sth is made of). 最佳(zuì jiā) optimum; optimal; peak; best (athlete, movie etc).

拔(bá) to pull up; to pull out; to draw out by suction; to select; to pick; to stand out (above level); to surpass; to seize. 一瞬间(yī shùn jiān) split second.

刺穿(cì chuān) to skewer; to impale; to pierce through. 身上(shēn shàng) on the body; at hand; among.

彻底(chè dǐ) thorough; thoroughly; complete.

给予(jǐ yǔ) to accord; to give; to show (respect). 利剑(lì jiàn) sharp sword.

利刃(lì rèn) sharp blade. 历史上(lì shǐ shàng) historical; in history. 筑(zhù) to build; to construct; to ram; to hit; Taiwan pr. (zhú). 建(jiàn) to establish; to found; to set up; to build; to construct. 大师(dà shī) great master; master. 欧(ōu) (used for transliteration); old variant of 讴(ōu). 冶(yě) to smelt; to cast; seductive in appearance. 亲手(qīn shǒu) personally; with one's own hands. 打造(dǎ zào) to create; to build; to develop; to forge (of metal). 肠(cháng) intestines.

Legend has it that Ou Yezi used the tin of Chijin Mountain when he was casting his sword.

The copper of Ruoyexi.

It can be speculated that

The fish intestine sword made by Ou Yezi should be a bronze sword.

We specially from the Shaoxing area where Ouyezi cast the fish intestine sword,

We invited Zhu Liyao, a famous expert in restoration of ancient bronze swords in China,

To complete the restoration of the Yuchang Sword.

Zhu Liyao wanted to restore the basis of the fish intestine sword,

It is a bronze dagger of the late Spring and Autumn Period.

This dagger has a special shape,

There is a reinforcing ridge on each side of it.

It seems to be designed to pierce heavy armor.

Whether it can recover the legendary Yuchang Sword is an unprecedented challenge for Zhu Liyao.

传说欧冶子在**铸剑**时他使用了**赤堇山之锡**,

若耶溪之铜。

可以**推测**,

欧冶子**铸造**的这把鱼肠剑应该是**青铜剑**。

我们**特地**从**当年**欧冶子铸鱼肠剑的**绍兴地区**,

请来了国内著名的**古青铜剑复原专家朱利尧**,

来完成对鱼肠剑的**复原**。

朱利尧要复原鱼肠剑的**依据**,

是一把**春秋末期**的**青铜短剑**。

这把短剑**造型特殊**,

在它的两侧各有一条**加强用的脊线**。

似乎就是为了**刺破重甲**而设计。

能否复原出极具**传奇色彩**的鱼肠剑对于朱利尧来说是一个**前所未有的挑战**。

铸 (zhù) to cast or found metals. **赤** (chì) red; scarlet; bare; naked. **堇** (jǐn) clay; old variant of 仅 (jǐn); violet (plant). **锡** (xī) tin (chemistry); to bestow; to confer; to grant; Taiwan pr. (xí).

若 (ruò) to seem; like; as; if. **耶** (yē) (phonetic ye). **溪** (xī) creek; rivulet. **铜** (tóng) copper (chemistry); see also **红铜** (hóng tóng).

推测 (tuī cè) speculation; to conjecture; to surmise; to speculate.

铸造 (zhù zào) to cast (pour metal into a mold).

特地 (tè dì) specially; for a special purpose. **当年** (dàng nián) that very same year. **绍兴地区** (shào xīng dì qū) Shaoxing prefecture, Zhejiang.

古 (gǔ) ancient; old; paleo-. **尧** (yáo) surname Yao; Yao or Tang Yao (c. 2200 BC), one of Five legendary Emperors **五帝** (wǔ dì), second son of Di Ku **帝喾** (dì kù).

依据 (yī jù) according to; basis; foundation.

春秋 (chūn qiū) Spring and Autumn Period (770-476 BC); Spring and Autumn Annals, chronicle of Lu State (722-481 BC). **末期** (mò qī) end (of a period); last part; final phase.

造型 (zào xíng) to model; to shape; appearance; style; design; form; pose. **特殊** (tè shū) special; particular; unusual; extraordinary.

加强 (jiā qiáng) to reinforce; to strengthen; to increase. **脊线** (jǐ xiàn) ridge line.

似乎 (sì hū) apparently; to seem; to appear; as if; seemingly. **刺破** (cì pò) to puncture; to pierce.

能否 (néng fǒu) whether or not; can it or can't it; is it possible?. **色彩** (sè cǎi) tint; coloring; coloration; (fig.) flavor; character. **前所未有** (qián suǒ wèi yǒu) unprecedented. **挑战** (tiǎo zhàn) to challenge; challenge.

The bronze sword is made by casting,

First, the sword shape is pre-made in the fan,

Finish casting again.

What determines the quality of bronze swords is the ratio of copper to selenium content.

The higher the selenium content,

The harder the bronze sword,

But the content is too high,

It will also cause the bronze sword to break easily.

And Zhu Liyao after years of research and testing,

Find out a set that is in line with ancient records,

It also has a simultaneous ratio formula with excellent performance.

The fish intestine sword restored by Zhu Liyao is 28 cm long,

As can be seen from his extremely sharp shape,

His push and assassination is extraordinary.

青铜剑采用的是铸造**方式**制成，

首先在范内**预先**制作出**剑形**，

再完成**浇铸**。

决定青铜剑**品质**的是**铜硒含量**的**比例**，

含硒量越高，

青铜剑越**硬**，

但是**含量**太高，

又会**导致**青铜剑容易**断裂**。

而朱利尧经过多年的研究和测试，

摸索出一套既符合**古籍**记载，

又具有**优异性能**的**同期比例配**方。

朱利尧复原的鱼肠剑长28厘米，

从他**极为尖锐**的造型能够**看出**，

他的推刺**杀伤力**非同**寻常**。

方式 (fāng shì) way; manner; style; mode; pattern.

预先 (yù xiān) beforehand; in advance. **制作** (zhì zuò) to make; to manufacture. **形** (xíng) to appear; to look; form; shape.

浇铸 (jiāo zhù) to cast (molten metal); to mold.

品质 (pǐn zhì) character; intrinsic quality (of a person); quality (of a product or service, or as in "quality of life", "air quality" etc). **硒** (xī) selenium (chemistry). **含量** (hán liàng) content; quantity contained. **比例** (bǐ lì) proportion; scale.

含 (hán) to keep; to contain; to suck (keep in your mouth without chewing).

导致 (dǎo zhì) to lead to; to create; to cause; to bring about. **断裂** (duàn liè) fracture; rupture; to break apart.

摸索 (mō suo) to feel about; to grope about; to fumble; to do things slowly. **一套** (yī tào) suit; a set; a collection; of the same kind; the same old stuff; set pattern of behavior. **古籍** (gǔ jí) ancient text; antique books.

异性 (yì xìng) the opposite sex; of the opposite sex; heterosexual; different in nature. **同期** (tóng qī) the corresponding time period (in a different year etc); concurrent; synchronous. **配方** (pèi fāng) prescription; cooking recipe; formulation; completing the square (to solve quadratic equation, math).

极为 (jí wéi) extremely; exceedingly. **尖锐** (jiān ruì) sharp; intense; penetrating; pointed; acute (illness). **看出** (kàn chū) to make out; to see.

杀伤力 (shā shāng lì) destructive power; harmfulness. **寻常** (xún cháng) usual; common; ordinary.

After the famous ancient bronze sword Yue Wang Goujian was unearthed,

在著名的古青铜剑**越王勾践剑**出土后，

越王勾践 (yuè wáng gōu jiàn) King Gou Jian of Yue (c. 470 BC), sometimes considered one of the Five Hegemons 春秋五霸. **出土** (chū tǔ) to dig up; to appear in an excavation; unearthed; to come up out of the ground.

The paper can be easily cut without any sanding.

未经任何**打磨**便可以**轻易**地划开纸张。

未经 (wèi jīng) not having undergone; without (having gone through a certain process). **打磨** (dǎ mó) polish; grind. **轻易** (qīng yì) easily; lightly; rashly. **纸张** (zhǐ zhāng) paper.

Sleeping underground for 2000 years,

沉睡地下2000年，

沉睡 (chén shuì) to be fast asleep; (fig.) to lie dormant; to lie undiscovered. **地下** (dì xià) underground; subterranean; covert.

Still sharp.

锋利依旧。

锋利 (fēng lì) sharp (e.g. knife blade); incisive; to the point. **依旧** (yī jiù) as before; still.

How sharp can the restored Yuchang Sword be?

复原的鱼肠剑到底能够达到**何等**的**锋利****程度**呢？

何等 (hé děng) what kind?; how, what; somewhat. **程度** (chéng dù) degree (level or extent); level.

We imitated the archaeologists' test method on the Yuewang Goujian sword to test the sharpness of this fish intestine sword.

我们**效仿**考古**人员**对越王勾践剑的测试方式来**检验**这柄鱼肠剑的**锋利**度。

效仿 (xiào fǎng) see 仿效 (fǎng xiào). **人员** (rén yuán) staff; crew; personnel. **检验** (jiǎn yàn) to inspect; to examine; to test.

The strength of forty sheets of printing paper,

四十张打印纸所**构成**的**强度**，

四十 (sì shí) forty; 40. **构成** (gòu chéng) to constitute; to form; to compose; to make up; to configure (computing). **强度** (qiáng dù) strength; intensity.

For blades made with modern technology,

对于用现代**工艺**打造的**刀刃**来讲，

工艺 (gōng yì) arts and crafts; industrial arts. **刀刃** (dāo rèn) knife blade; crucial point. **来讲** (lái jiǎng) as to; considering; for.

It is a very difficult challenge.

都是一个**难度****极大**的挑战。

难度 (nán dù) trouble; problem. **极大** (jí dà) maximum; enormous.

What is the sharpness of the bronze fish intestine sword made by the ancient method?

采用古法制作而成的青铜鱼肠剑会达到一个怎样的**锋利**程度呢？

较为 (jiào wéi) comparatively; relatively; fairly.

Yuchangjian cuts 16 sheets of paper relatively easily.

鱼肠剑**较为**轻松地切开16张纸。

Because of the texture of the copper weapon,

铜兵器它由于**质地**的原因，

质地 (zhì dì) texture; background (texture); grain; quality; character; disposition.

Its opening angle is larger than iron,

它的**开封**的角度比铁要大，

开封 (kāi fēng) Kaifeng prefecture-level city in Henan, old capital of Northern Song, former provincial capital of Henan; old name Bianliang 汴梁.

After all, it is not as tough as steel weapons.

毕竟不像钢铁兵器有那么好的韧性。

毕竟 (bì jìng) after all; all in all; when all is said and done; in the final analysis. 钢铁 (gāng tiě) steel. 韧性 (rèn xìng) toughness.

We see that the cut is still very sharp,

我们看到切口这件还是很锋利的,

切口 (qiē kǒu) incision; notch; slit; gash; margin of a page; trimmed edge (of a page in a book).

Because it cuts more paper layers.

因为它切的纸的层数比较多。

数 (shù) to count; to count as; to regard as; to enumerate (sb's shortcomings).

The fish intestine sword from Zhu Liyao,

出自于朱利尧之手的鱼肠剑,

出自 (chū zì) to come from.

Has shown the excellent sharpness of the bronze sword,

已经展示出青铜剑优异的锋利性能,

展示 (zhǎn shì) to reveal; to display; to show; to exhibit sth. 优异 (yōu yì) exceptional; outstandingly good. 性能 (xìng néng) function; performance.

In the previous test, Hejia had an excellent defensive effect on the sword and Ge of that era.

而在之前的测试中合甲对那个时代的剑和戈都有着出色的防御效果。

Can the restored Yuchang Sword pass through Wang Lao's armor to complete the assassination recorded in history?

复原的鱼肠剑能否穿王僚的合甲完成这次载入史册的刺杀呢?

载入 (zǎi rù) to load into; to record; to write into; to enter (data); to go into (the records); to go down (in history). 史册 (shǐ cè) annals. 刺杀 (cì shā) to assassinate; (military) to fight with a bayonet; (baseball) to put out (a baserunner).

This is still an unknown thing.

这依然是一个未知的事情。

依然 (yī rán) still; as before. 未知 (wèi zhī) unknown.

In the era when the bronze sword was popular, pushing and stab was its main attack method.

在青铜剑盛行的时代推刺是它的主要进攻方式,

盛行 (shèng xíng) to be in vogue; to be prevalent. 进攻 (jìn gōng) to attack; to assault; to go on the offensive; attack; assault; offense (sports).

Because the bronze material is easy to break,

因为青铜材料容易折断,

折断 (zhé duàn) to snap sth off; to break.

So the bronze sword is not suitable for chopping,

所以青铜剑不适合劈砍,

劈 (pī) to hack; to chop; to split open; (of lightning) to strike. 砍 (kǎn) to chop; to cut down; to throw sth at sb.

Although the dagger is easy to hide,

而专诸使用的短剑虽然便于隐藏,

隐藏 (yǐn cáng) to hide; to conceal; to mask; to shelter; to harbor (i.e. keep sth hidden); to hide oneself; to lie low; to nestle; hidden; implicit; private; covert; recessed (lighting).

But its attack power is obviously far inferior to the long sword.

但是它的攻击力显然远远不及长剑。

攻击力 (gōng jī lì) potential for attack; firepower. 显然 (xiǎn rán) clear; evident; obvious(ly). 远远 (yuǎn yuǎn) distant; by far. 不及 (bù jí) to fall short of; not as good as; too late.

Therefore, the Assassin Zhuan must have conducted many drills before the assassination.

因此刺客专诸在行刺前一定是进行了很多次演练,

在行 (zài háng) to be adept at sth; to be an expert in a trade or profession. 多次 (duō cì) many times; repeatedly. 演练 (yǎn liàn) drill; practice.

In order to make the short sword play the best killing effect.

以便让短剑发挥出最佳的杀伤效果。

以便 (yǐ biàn) so that; so as to; in order to. 发挥 (fā huī) to display; to exhibit; to bring out implicit or innate qualities; to express (a thought or moral); to develop (an idea); to elaborate (on a theme). 杀伤 (shā shāng) to kill or injure.

What everyone didn't expect was that Li Xumin, who was trained in martial arts, could not even pierce the armor with four swords.

让所有人都没有想到的是练武出身的李旭民连刺四剑都没能刺穿合甲。

出身 (chū shēn) to be born of; to come from; family background; class origin.

Zhu Liyao re-grinds the used fish intestine sword,

朱利尧对使用过的鱼肠剑进行了重新研磨,

研磨 (yán mó) milling; to grind; to polish by grinding; to abrade; whetstone; pestle.

He will conduct the test himself.

他将亲自进行测试。

Zhu Liyao practiced Tai Chi all year round,

朱利尧常年习练太极拳,

常年 (cháng nián) all year round; for years on end; average year. 太极拳 (tài jí quán) shadowboxing or Taiji, T'aichi or T'aichichuan; traditional form of physical exercise or relaxation; a martial art.

Has a strong explosive power.

具有很强的爆发力。

爆发 (bào fā) to break out; to erupt; to explode; to burst out.

Will his personal test achieve different results?

他的亲自测试会取得不一样的结果吗?

取得 (qǔ dé) to acquire; to get; to obtain. 不一样 (bù yí yàng) different; distinctive; unlike.

But it didn't penetrate.

但是没穿透。

From the test results,

我们从测试结果看,

In fact, I think both offense and defense actually have opportunities,

实际上我觉得攻防双方其实都有机会,

攻防 (gōng fáng) attack and defense; the midfield (in soccer). 双方 (shuāng fāng) bilateral; both sides; both parties involved.

If the assassin did a simulation experiment against a similar armor in advance,

假如说在事先刺客对付类似的甲做过模拟实验的话,

假如 (jiǎ rú) if. 事先 (shì xiān) in advance; before the event; beforehand; prior. 对付 (duì fu) to handle; to deal with; to cope; to get by with. 类似 (lèi sì) similar; analogous. 模拟 (mó nǐ) imitation; to simulate; to imitate; analog (device, as opposed to digital). 实验 (shí yàn) experiment; test; experimental; to experiment.

It should choose a sword that is narrower than this,

它应该选择一个比这个要更窄的剑,

The probability of its penetration is much greater.

它的穿透的几率就大得多了。

几率 (jī lǜ) probability; odds.

At the beginning, the stabbings didn't get through,

一开始刺击那几下子都没透,

Later, the stabbing may have been through two or three times,

If you can use it,

This can be pierced.

Can pierce through without passing through a few shots,

Did not penetrate.

In that situation,

It is estimated that it will not cause death if it is not infected.

Infection is hard to say,

It's hard to tell if you have tetanus.

Under Zhu Liyao's speculation,

The fish intestine sword penetrates the armor 8 cm deep,

Very lethal,

But it didn't penetrate the chest cavity,

Therefore, the doctor judged that this blow did not achieve a fatal effect.

We can make such a guess.

If we go back to that moment 2500 years ago,

Specially use this bronze fish intestine sword,

Maybe he could not stab Wang Lao to death with a single sword.

后来刺可能透了两三次，

如果要是会用的话，

这个是能刺透的。

能刺透不过也没**穿过**几枪，

没穿透。

在当时那个情况下，

估计着**要不**感染的话不会造成死亡。

感染就难说了，

得了破伤风就难说了。

在朱利尧的推测下，

鱼肠剑穿透合甲8厘米深，

杀伤力非常大，

但是并没有穿透**胸腔**，

因此医生**判定**这一击没有达到一击致命的效果。

我们可以做一种这样的**猜测**。

如果我们回到2500**年前**的那个瞬间，

专诸使用这把青铜鱼肠剑，

也许他无法一剑将王僚**刺死**。

穿过 (chuān guò) to pass through. **枪** (qiāng) gun; firearm; rifle; spear; thing with shape or function similar to a gun; to substitute for another person in a test; to knock; classifier for rifle shots.

要不 (yào bù) otherwise; or else; how about...?; either... (or...). **感染** (gǎn rǎn) infection; to infect; to influence. **造成** (zào chéng) to bring about; to create; to cause. **死亡** (sǐ wáng) to die; death.

得了 (dé liǎo) (emphatically, in rhetorical questions) possible. **破伤风** (pò shāng fēng) tetanus (lockjaw).

胸腔 (xiōng qiāng) thoracic cavity.

判定 (pàn dìng) to judge; to decide; judgment; determination.

猜测 (cāi cè) to guess; to conjecture; to surmise.

年前 (nián qián) before the end of the year; before the new year.

刺死 (cì sǐ) to stab to death.

And another legend about the fish sausage sword,

Let people seem to see another possibility.

It is said that its sword has a pattern similar in shape to fish intestines,

Hence the name Yuchangjian.

The iron sword is constantly folded during forging,

The blade will have a dim texture,

So does the fish intestine pattern imply that it is an iron sword?

Ou Yezi is the initiator of the Yuchang Sword.

According to legend, he once cast five famous bronze swords in Shaoxing area.

Later, he went to the present Longquan area and made three world-famous iron swords.

The most famous of these is the Dragon Abyss Sword,

It was later the Longquan sword.

Based on this speculation,

Is it possible that the dagger used exclusively for use is an iron sword?

Zhou Zhengwu,

Famous swordsmith,

而另一个关于鱼肠剑的传说,

让人们似乎又看到了一种可能。

据说在它的剑身上有着形状和鱼肠相近的花纹,

因此得名鱼肠剑。

铁质的刀剑由于锻打时不断的折叠,

剑身会出现暗淡的纹理,

那么鱼肠纹是否在暗示它是铁剑呢?

鱼肠剑的始作俑者是欧冶子,

相传他曾经在绍兴地区铸造了五把著名的青铜剑。

后来他到了现在的龙泉地区造了三把闻名于世的铁剑。

这其中最为著名的就是龙渊剑,

也就是后来的龙泉剑。

以此推测,

专诸使用的短剑有没有可能是一把铁剑呢?

周正武,

著名铸剑师,

据说 (jù shuō) it is said that; reportedly. 形状 (xíng zhuàng) form; shape. 花纹 (huā wén) decorative design.

得名 (dé míng) to get one's name; named (after sth).

质 (zhì) character; nature; quality; plain; to pawn; pledge; hostage; to question; Taiwan pr. (zhí). 刀剑 (dāo jiàn) sword. 不断 (bù duàn) unceasing; uninterrupted; continuous; constant. 折叠 (zhé dié) to fold; collapsible; folding (bicycle, antenna, bed etc).

暗淡 (àn dàn) dark; dim (light); dull (color); drab; (fig.) gloomy; bleak. 纹理 (wén lǐ) vein lines (in marble or fingerprint); grain (in wood etc).

暗示 (àn shì) to hint; to suggest; suggestion; hint.

始作俑者 (shǐ zuò yǒng zhě) lit. the first person to bury funerary dolls (idiom); fig. the originator of an evil practice.

相传 (xiāng chuán) to pass on; to hand down; tradition has it that ...; according to legend. 曾经 (céng jīng) once; already; former; previously; ever; (past tense marker used before verb or clause).

龙泉 (lóng quán) Longquanyi district of Chengdu city 成都市 (chéng dū shì), Sichuan; Longquan county level city in Lishui 丽水 (lí shuǐ), Zhejiang. 闻名于世 (wén míng yú shì) world-famous.

龙 (lóng) dragon; imperial. 渊 (yuān) deep pool; deep; profound.

也就是 (yě jiù shì) that is; i.e..

以此 (yǐ cǐ) with this; thereby; thus; because of this.

有可能 (yǒu kě néng) possible; probable; possibly; probably; may; might.

He will restore another hypothesis about Yuchang Sword for us,

他将为我们**还原**关于鱼肠剑的另一种**假设**,

还原 (huán yuán) to restore to the original state; to reconstruct (an event); reduction (chemistry). **假设 (jiǎ shè)** to suppose; to presume; to assume; supposing that ...; if; hypothesis; conjecture.

Iron fish intestine sword,

铁质鱼肠剑,

Based on current archaeological findings,

依据**目前**的考古发现,

目前 (mù qián) at the present time; currently.

The earliest artificially smelted iron sword appeared in the Western Zhou Dynasty,

最早的**人工冶炼**铁剑出现在**西周**时期,

人工 (rén gōng) artificial; manpower; manual work. **冶炼 (yě liàn)** to smelt metal. **西周 (xī zhōu)** Western Zhou (1027-771 BC).

Iron swords unearthed during this period are extremely rare.

这一时期出土的铁剑极为**稀少**。

稀少 (xī shǎo) sparse; rare.

It can be seen that only a few craftsmen mastered the technology of iron smelting at that time.

可见在当时只有**极少数**的**工匠**掌握了冶铁的技术。

可见 (kě jiàn) it can clearly be seen (that this is the case); it is (thus) clear; clear; visible. **极少数 (jí shǎo shù)** extremely few; a small minority. **工匠 (gōng jiàng)** artisan; smith. **掌握 (zhǎng wò)** to grasp (often fig.); to control; to seize (initiative, opportunity, destiny); to master; to know well; to understand sth well and know how to use it; fluency.

The advent of the iron sword is the crystallization of the wisdom of the ancients,

铁剑的**问世**是古人**智慧**的**结晶**,

问世 (wèn shì) to be published; to come out. **智慧 (zhì huì)** wisdom; knowledge; intelligent; intelligence. **结晶 (jié jīng)** to crystallize; crystallization; crystal; crystalline; (fig.) the fruit (of labor etc).

The first technical obstacle that people had to overcome at that time,

那时人们要**克服**的第一个**技术障碍**,

那时 (nà shí) then; at that time; in those days. **克服 (kè fú)** (try to) overcome (hardships etc); to conquer; to put up with; to endure. **障碍 (zhàng ài)** barrier; obstruction; hindrance; impediment; obstacle.

It is the furnace temperature.

就是**炉温**。

炉 (lú) stove; furnace.

Forging an iron sword requires a high furnace temperature,

锻造铁剑需要很高的**炉温**,

锻造 (duàn zào) to forge (metal); forging.

The iron must be heated to a semi-molten state to be forged.

必须将铁**加热**到半**熔融**状态才能进行**锻打**。

加热 (jiā rè) to heat. **熔融 (róng róng)** to melt; to fuse. **状态 (zhuàng tài)** state of affairs; state; mode; situation.

This was an extremely difficult task in that historical period,

在那个**历史**时期这是一项极为**困难**的任务,

历史时期 (lì shǐ shí qī) historical period. **项 (xiàng)** back of neck; item; thing; term (in a mathematical formula); sum (of money); classifier for principles, items, clauses, tasks, research projects etc.

Only a handful of metallurgists can solve this problem.

只有**极少数**的**冶金**大师才能解决这个**难题**。

冶金 (yě jīn) metallurgy. **难题 (nán tí)** difficult problem.

Another factor in the emergence of the iron sword,

铁剑能够**横空出世**的另一个因素,

横空 (héng kōng) filling the atmosphere; covering the sky. **出世 (chū shì)** to be born; to come into being; to withdraw from worldly affairs. **因素 (yīn sù)** element; factor.

It is people who discovered the folding forging.

就是人们发现了**折叠锻打**。

Maybe the swordsmith inadvertently folded the iron block,

也许是铸剑大师在**无意中**对铁块进行了**折叠断打**,

无意中 (wú yì zhōng) accidentally; unintentionally; unexpectedly.

This process not only removes impurities in the ore,

这个过程**不但**去除了**矿石**中的**杂质**,

不但 (bù dàn) not only (... but also...). **矿石 (kuàng shí)** ore. **杂质 (zá zhì)** impurity.

And make the iron sword more uniform and dense.

而且让铁剑**更加均匀致密**。

更加 (gèng jiā) more (than sth else); even more. **均匀 (jūn yún)** even; well-distributed; homogeneous; well-proportioned (figure, body etc). **致密 (zhì mì)** fine; dense; compact.

2500 years ago,

在2500年前,

These iron swords made with original technology,

这些**依靠原始技术**制造出的铁剑,

依靠 (yī kào) to rely on sth (for support etc); to depend on. **原始 (yuán shǐ)** first; original; primitive; original (document etc). **制造 (zhì zào)** to manufacture; to make.

It has revealed the performance that the bronze sword can't match.

就已经**显露出**青铜剑无法**企及**的性能。

显露出 (xiǎn lù chū) to appear; to come out in the open. **企及 (qǐ jí)** to hope to reach; to strive for.

Whether Zhou Zhengwu built this iron sword with fish intestines according to the sword-making technique inherited by Ou Yezi can reach the record in ancient books,

周正武按照欧冶子所**遗传**下来的铸剑工艺而打造的这把鱼肠铁剑能否达到向古籍中记载的**那样**,

遗传 (yí chuán) heredity; to inherit (a trait); to pass on (to one's offspring). **那样 (nà yàng)** that kind; that sort.

How about piercing Wang Lao and his strong armor with one sword?

将王僚和他的**坚甲**一剑**刺穿**呢?

If it is the same material,

如果是**同样**的材料,

同样 (tóng yàng) same; equal; equivalent.

I think it is very likely that the words of the iron sword should penetrate.

我觉得铁剑的话应该**贯穿**的**可能性**就非常大。

贯穿 (guàn chuān) to run through; a connecting thread from beginning to end; to link. **可能性 (kě néng xìng)** possibility; probability.

The performance of iron sword is better than bronze sword,

铁剑的性能**优于**青铜剑,

优于 (yōu yú) to surpass.

But whether the iron sword can penetrate the armor and pierce the iron spear at once,

但是铁剑能否一下**穿透**合甲并**刺破**铁枪,

It depends on the assassin's on-the-spot performance,

还要看刺客的**临场**发挥，

要看 (yào kàn) it depends on.... **临场** (lín chǎng) to be at the scene (sitting for an exam, performing, competing, giving directions etc); firsthand (experience); impromptu (remarks etc).

Otherwise no sharp sword will help.

否则再锋利的剑也**无济于事**。

无济于事 (wú jì yú shì) to no avail; of no use.

This blow penetrated the armor,

这一击穿透了合甲，

Penetrated the chest wall,

穿透了**胸壁**，

胸 (xiōng) chest; bosom; heart; mind; thorax. **壁** (bì) wall; rampart.

Along the lower edge of the ribs,

沿着**肋骨**下缘，

沿着 (yán zhe) to go along; to follow. **肋骨** (lèi gǔ) rib. **缘** (yuán) cause; reason; karma; fate; predestined affinity; margin; hem; edge; along.

Reached the chest cavity,

达到了胸腔，

Two centimeters into the chest cavity,

进入胸腔两公分，

This is fatal enough.

这是足**以致命**了。

以致 (yǐ zhì) to such an extent as to; down to; up to.

At the time,

在当时来说，

People like this,

像专诸这种人，

They have done a lot of time to prepare for this kind of training,

他们已经做了大量的时间去准备去做这种**训练**，

训练 (xùn liàn) to train; to drill; training.

So this kind of him,

所以说他的这种，

If he were to stab him today,

如果今天让他来刺的话，

His final result must be better than now,

他的最后的结果一定是比现在做得**更到位**，

到位 (dào wèi) to get to the intended location; to be in place; to be in position; precise; well (done).

Stabbed deeper.

刺得**更深**。

更深 (gēng shēn) deep at night.

The bronze sword wears the armour twice,

青铜剑次穿合甲，

But did not pierce the body cavity,

但是没有刺破**体腔**，

体腔 (tǐ qiāng) body cavity; coelom (biology).

Failed to achieve the fatal effect on the spot,

没能达到**当场**致命的效果，

当场 (dāng chǎng) at the scene; on the spot.

The iron sword achieved a fatal effect of one blow.

而铁剑达到了一击致命的杀伤效果。

Can we make such an assumption?

Maybe the iron fish-intestine sword used by the prince of thorns.

In the assassination, Wang Li was fatally hit by a single blow.

The assassin was killed by the guards beside him.

And Gong Ziguang, the mastermind behind this assassination, succeeded in usurping the throne.

He is the famous Wu Wanghelu in history.

Bronze weapons due to the limitations of materials,

Easy to break during confrontation,

There are also big limitations on the size,

The appearance of iron weapons made a big difference.

Iron weapons have several outstanding features,

It is tough,
high strength,

Processing is more advantageous.

So the emergence of iron weapons,

Great changes have taken place in the way of war.

我们是否可以**做出**这样一种假设?

也许专诸刺王僚的时候使用的是铁质的鱼肠剑。

在刺杀**行动**中王僚被一击致命。

刺客专诸被旁边的**卫士**乱刃杀死。

而这次刺杀行动的**幕后**策划者**龚子光**篡位成功,

他就是历史上著名的**吴王阖闾**。

青铜兵器由于材质上的**局限**,

在**对抗**的时候容易折断,

尺寸上面也有很大的局限,

而铁质兵器的出现就带来了很大的不同。

铁制兵器有**几个**突出的特点,

它韧性强,

强度高,

加工更有利。

所以铁制兵器的出现,

使得是**战争**的方式也发生了很大的变化。

做出 (zuò chū) to put out; to issue.

行动 (xíng dòng) operation; action; to move; mobile. **撩** (liāo) to lift up (sth hanging down); to raise (hem of skirt); to pull up (sleeve); to sprinkle (water with cupped hands).

卫士 (wèi shì) guardian; defender. **杀死** (shā sǐ) to kill.

幕后 (mù hòu) behind the scenes. **策划** (cè huà) to plot; to scheme; to bring about; to engineer; planning; producer; planner. **龚** (gōng) surname Gong. **篡位** (cuàn wèi) to seize the throne.

吴王阖闾 (wú wáng hé lǘ) King Helu of Wu (-496 BC, reigned 514-496 BC), sometimes considered one of the Five Hegemons 春秋五霸; also called 吴王阖庐.

局限 (jú xiàn) to limit; to confine; to restrict sth within set boundaries.

对抗 (duì kàng) to withstand; to resist; to stand off; antagonism; confrontation.

尺寸 (chǐ cun) size; dimension; measurement.

制 (zhì) to manufacture; to make. **几个** (jǐ ge) a few; several; how many. **突出** (tū chū) prominent; outstanding; to give prominence to; to protrude; to project.

加工 (jiā gōng) to process; processing; working (of machinery). **有利** (yǒu lì) advantageous; to have advantages; favorable.

使得 (shǐ de) usable; workable; feasible; doable; to make; to cause. **战争** (zhàn zhēng) war; conflict.

Ou Yezi was probably the first craftsman who mastered iron smelting technology at the end of the Bronze Age.

It is under the impetus of a swordsmith like him,

The curtain of the Iron Age was opened by a gap.

With the development of iron smelting technology,

In the Western Han Dynasty,

The bronze sword was replaced by an iron sword.

But compared with the ring first knife of the same period,

Iron swords are expensive to manufacture,

Not conducive to mass production,

And it is not suitable for immediate use.

Because of these shortcomings,

In the Eastern Han Dynasty, the sword was replaced by a sword,

Withdrew from the stage of main battle weapons.

despite this,

Like Zhuan Zhu,

A knight like Jing Ke,

欧冶子很可能是青铜时代末期最先掌握冶铁技术的工匠，

正是在他这样的铸剑师推动下，

铁器时代的幕布被拉开了一道缝隙。

随着冶铁技术的发展，

在**西汉**，

青铜剑被铁剑**替代**。

但是与**同时期**的**环首刀**相比，

铁剑的**制造成本高**，

不利于大批量生产，

而且**不适合在马上使用**。

正因为这些**缺点**，

在**东汉**时期剑被刀代替，

退出了主战兵器的舞台。

尽管如此，

像**专诸**、

荆轲这样的**侠客**，

最先 (zuì xiān) (the) very first.

推动 (tuī dòng) to push (for acceptance of a plan); to push forward; to promote; to actuate.

铁器 (tiě qì) hardware; ironware. **幕布** (mù bù) (theater) curtain. **拉开** (lā kāi) to pull open; to pull apart; to space out; to increase. **缝隙** (fèng xì) small crack; chink.

西汉 (xī hàn) Western Han Dynasty (206 BC-8 AD), also called **前汉** (qián hàn), Former Han Dynasty.

替代 (tì dài) to substitute for; to replace; to supersede.

同时期 (tóng shí qī) at the same time; contemporary. **首** (shǒu) head; chief; first (occasion, thing etc); classifier for poems, songs etc. **相比** (xiāng bǐ) to compare.

不利 (bù lì) unfavorable; disadvantageous; harmful; detrimental. **批量生产** (pī liàng shēng chǎn) to mass produce.

东汉 (dōng hàn) Eastern or later Han dynasty, 25-220.

退出 (tuì chū) to withdraw; to abort; to quit; to log out (computing). **舞台** (wǔ tái) stage; arena; fig. in the limelight.

如此 (rú cǐ) in this way; so.

荆轲 (jīng kē) Jing Ke (-227 BC), celebrated in verse and fiction as would-be assassin of King Ying Zheng of Qin 秦嬴政 (later the First Emperor 秦始皇). **侠客** (xiá kè) chivalrous person; knight-errant.

Still left to future generations
the fashion of swordsmen and
the tradition of knights with
good swords.

仍然给后人留下了仗剑行侠的风
尚和侠士好剑的传统。

后人 (hòu rén) later generation. 仗 (zhàng) weaponry;
to hold (a weapon); to wield; to rely on; to depend on;
war; battle. 侠 (xiá) knight-errant; brave and chivalrous;
hero; heroic. 风尚 (fēng shàng) current custom; current
way of doing things. 侠士 (xiá shì) knight-errant. 传
统 (chuán tǒng) tradition; traditional; convention;
conventional.