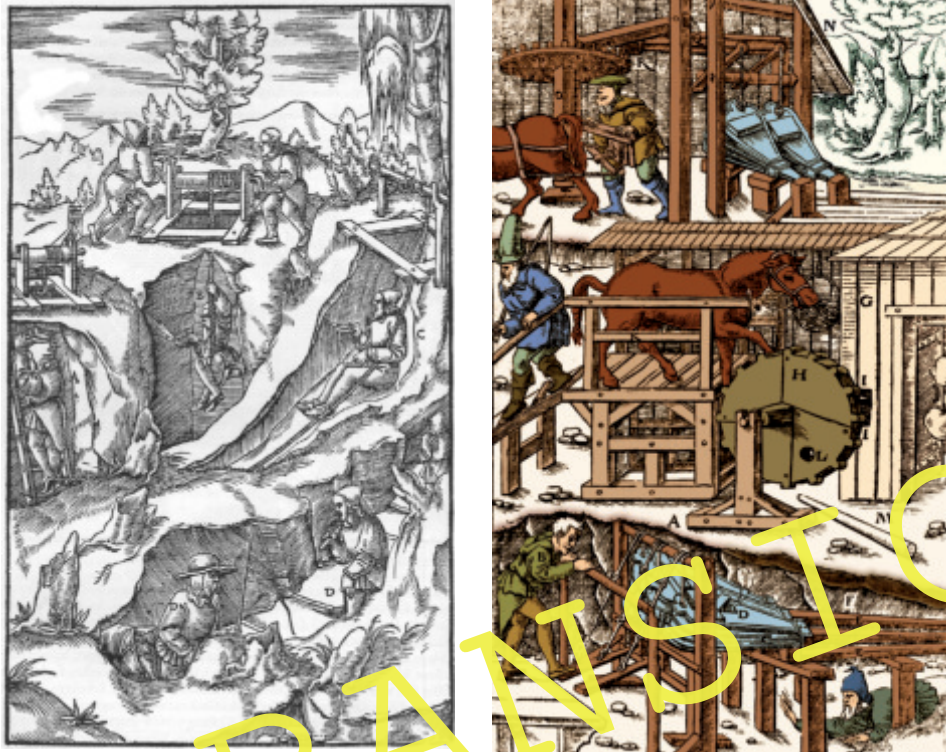


## Mining and the Trading Companies: Changes in the 16<sup>th</sup> Century. Veränderungen im Bergbau nachvollziehen (Kl. 7/8)

Frauke Vieregge, Hamburg



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Der Zusammenbruch des weltweiten Finanzwesens Anfang des 21. Jahrhunderts mit seinen weitreichenden Konsequenzen für Privatpersonen zeigte die Macht und den Einfluss von Bankhäusern in der heutigen Zeit.

Zu Beginn der Neuzeit waren die Familien Fugger und Welser mit den von ihnen neu gegründeten Handels- und Verlagshäusern in vergleichbaren Machtpositionen. Der „Fluch und Segen“ für den Bergbau in Sachsen stehen im Fokus dieser Unterrichtseinheit. Welchen Einfluss hatten die Handelshäuser auf den Arbeits- und Lebensalltag der Bergleute? Brachten sie nur Gutes oder auch Schlechtes? Wie veränderte sich nicht nur der lokale, sondern auch der europäische und letztendlich auch der weltweite Wirtschaftszweig des Bergbaus? Mithilfe der gewonnenen Erkenntnisse produzieren die Schüler ein Hörspiel, das die Problematik der Bergleute wiedergibt.

**Klassenstufe:** 7/8

**Dauer:** 8 Unterrichtsstunden  
(inklusive Hörspielproduktion)

**Bereich:** Frühe Neuzeit, Frühkapitalismus

**Kompetenzen:**

- die Veränderungen im Bergbau am Beispiel Sachsens im 16. Jahrhundert kennen
- den Einfluss von Handelsgesellschaften auf den Bergbau im Frühmittelalter kennen
- die Veränderungen für den Lebens- und Berufsalltag der Bergleute beurteilen

## Verlaufsübersicht zur Reihe

- 1./2. Stunde:** Silver mining in the Early Modern Age in Saxony  
**3./4. Stunde:** New markets – new ways of trade  
**5.–7. Stunde:** The production of a historical radio play

### Minimalplan

Im Fokus sollte die Erstellung eines Hörspiels zum Abschluss der Reihe stehen, welches auch bewertet wird. Es können einige Texte weggelassen werden, wenn Zeitnot besteht oder die Lerngruppe eher leistungsschwach ist. Hier bieten sich die Materialien M 3, M 4 oder M 6 an, die recht umfangreich sind.

## Verlaufsübersicht zu den Stunden

**1./2. Stunde:** Silver mining in the Early Modern Age in Saxony

Material	Verlauf
M 1	<b>A silver mine in the 16<sup>th</sup> century</b> / Einstieg ins Thema durch Analyse einer Bildquelle durch die Think-Pair-Share-Methode
M 2	<b>Silver mining in Saxony</b> / Erarbeitung einer Textquelle nach Lektüre (englischsprachiger Text)
M 3	<b>Working in a silver mine</b> / Erarbeitung anhand von Bildquellen und Texten
M 4	<b>Which problems did the miners have to deal with at work?</b> / Erarbeitung von Bild- und Textquellen in arbeitsteiliger Gruppenarbeit

**3./4. Stunde:** New markets – new ways of trade

Material	Verlauf
M 5	<b>Merchant houses in the mining business</b> / Analyse und Bearbeitung eines Diagramms
M 6 a/b	<b>How did the living and working conditions of the miners change after trading houses bought the mine's shares and operated the mine?</b> / Erarbeitung einer Textquelle

**5.–7. Stunde:** The production of a historical radio play

Material	Verlauf
M 7	<b>How to do a radio play</b> / Methodenblatt zur Erarbeitung eines Rollenspiels
M 8	<b>Role cards</b> / Rollenkarten zur Erarbeitung und Vorbereitung des Rollenspiels

## Materialübersicht

### 1./2. Stunde: Silver mining in the Early Modern Age in Saxony

M 1	(Fv)	A silver mine in the 16 <sup>th</sup> century
M 2	(Tx)	Mining in the Early Modern Age – silver mining in Saxony
M 3A	(Ab)	Working in a silver mine
M 3B	(Fo/Ab)	Working in a silver mine – pictures from “ <i>De Re Metallica</i> ” (1556)
M 4	(Tx)	“We need to dig deeper!” – Problems in mining

### 3./4. Stunde: New markets – new ways of trade

M 5	(Ab/St)	Times of change – merchant houses in the mining business
M 6A	(Tx)	How did the living and working conditions of the miners change after trading houses bought the mine’s shares and operated the mine?
M 6B	(Tx)	A miner’s opinion about the trading houses

### 5.–7. Stunde: The production of a historical radio play

M 7	(Tx)	How to do a radio play – helpful instructions
M 8	(Rk)	To sell or not to sell? – Creating a radio play about the problems of the miners of Freiberg

Ab: Arbeitsblatt – Fo: Folie – Fv: Folienvorlage – Rk: Rollenkarten – St: Statistik, Diagramm – Tx: Text

### M 3A Working in a silver mine



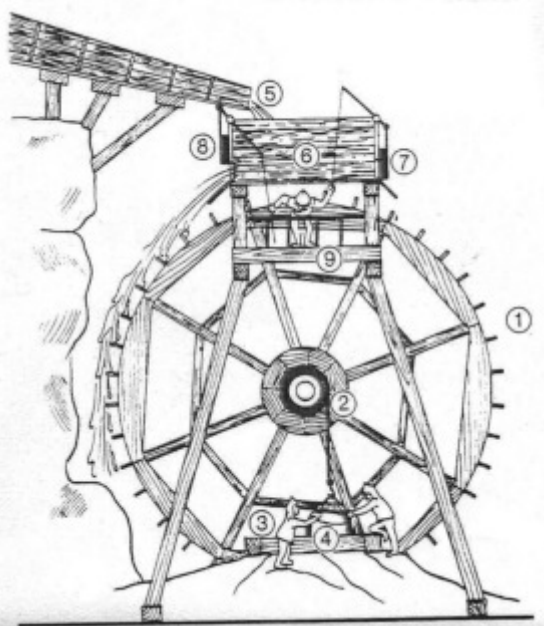
Silver mine in Saxony, Woodcut (around 1528)

**Task 1:** Describe the work of a miner: Put the working stations in the correct order. The picture will help you.

**pikeman:** Hauer – **mine/tunnel:** Stollen – **cart:** kleiner Wagen – **shaft:** Schacht – **winch:** Seilwinde – **to unearth:** zutage fördern – **lump of ore:** Erzblocken – **to grind:** zerkleinern – **screen:** Sieb – **ore washing:** Erzwäsche – **forge:** Schmiede

1 <i>Pikemen make tunnels and shafts.</i>	4
2	5
3	6

**New technique:** Wheel driven by water from a river etc. is used to get water out of the mine:



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**Task 2:** Look at the picture and write the numbers in the gaps in the text. An example is done for you.

The wheel ( 1 ) is turned by water that runs through a wooden gutter<sup>1</sup> (     ). It is collected in a large storage container (     ) just above the mounted platform (     ) of the *Wasserknecht*. The *Wasserknecht* – a pitman specialised in this kind of work – opens a flap<sup>2</sup> (     ).

The water runs on top of the wheel which starts turning. At the same time, the rope (     ) rolls up and pulls a container (     ) from the mine.

The helpers (     ) empty it and when the *Wasserknecht* opens the other flap (     ), the rope unrolls<sup>3</sup> and the container sinks back into the mine.

1 **gutter:** Rinne – 2 **flap:** Klappe – 3 **to unroll:** aufrollen

## M 4 "We need to dig deeper!" – Problems in mining

Of course, there were problems the miners had to face at work: broken machines, bad weather, falling prices on the market, to name just a few. In the following texts, those problems are mentioned, looking critically at the new technical inventions for the mines.

1. The most difficult work for the miners was *haspeln*, the winding up<sup>1</sup> of the silver ore from the tunnels to the surface<sup>2</sup>. It was exhausting<sup>3</sup> for the miners and they could not quarry as much silver as they wanted. So they invented<sup>4</sup> machines for the winding. First, horses were used to tread wheels (*Pferdegöpel*), later water wheels<sup>5</sup> were installed.

2. If there was not enough water to run a water wheel, the mine had to close down, because no ore could be quarried. The miners lost their jobs and had to look for new ones. Many of them had to move away to find work in other mines.

10 3. The biggest problem in mining in the 15<sup>th</sup> century was the use of water. The miners had to dig deeper into the mountains to quarry more ore. They were skilled in building tunnels and shafts<sup>6</sup>, but the control and use of water as a power to help them with their work was difficult. The deeper they dug<sup>7</sup> into the mountain, the more groundwater<sup>8</sup> ran  
15 into the tunnels and shafts and destroyed them. The miners had to find methods to control this. They tried different pumping systems: water wheels, treadmills and winches<sup>9</sup> run by horses (*Pferdegöpel*) or men.



Water wheel. Woodcut from "De Re Metallica" (1556)

© Mauritius Images

There were pumping systems called *Hebenkünstel*, which used chains with leatherballs, which ran through a wooden pipe<sup>10</sup>. The balls squeezed the water through the pipe up to the surface. This system did not work very well because the balls did not last very long. There were pumping systems that used chains with cups (*Handkurbeln*). The cups were filled with water and transported the water to the surface. But this system could only be used up to 14 meters into the mountain.  
25 Treadmills could get water from as deep as 20 meters, when horses were used they could go as deep as 70 meters. They needed 8 horses to work for 4 hours and so 32 horses were needed per day to operate this pumping system. Some mines combined<sup>11</sup> three of those pumping systems and could pump water up from 170 meters depth<sup>12</sup>. Water  
30 wheels could also only go as deep as 70 metres.

The solution to the problem was the further development of the *Kolbenpumpe* or *Handschwengelpumpe*. The new machine was called *Ehrenfriedersdörfer Kunstzeug* and could go as deep as 550 meters into the mountain. Between 1550 and 1557, 38 *Kunstzeuge* were built  
35 into the mines in Freiberg. 2000 miners lost their jobs through this.



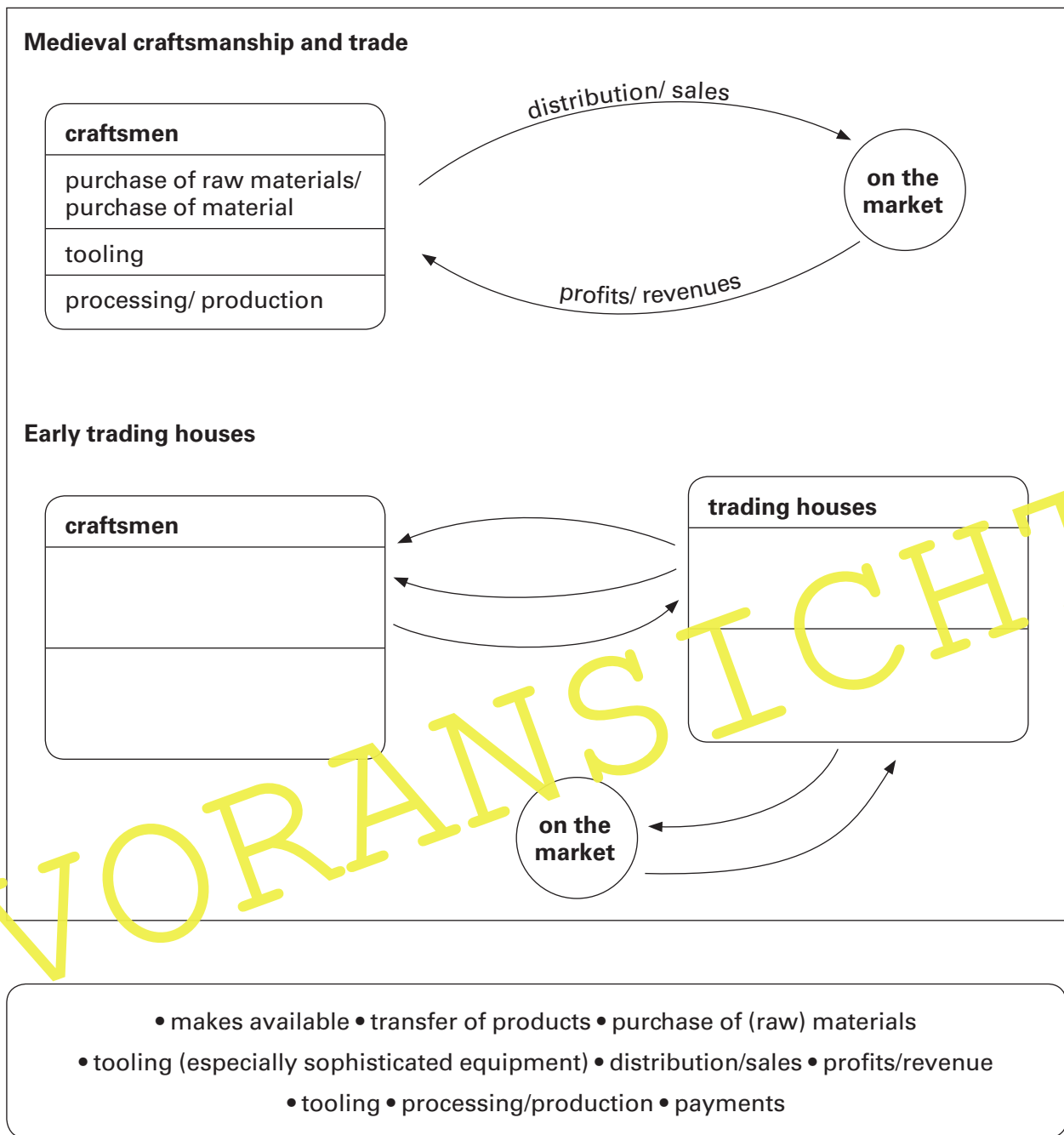
Pump system. Woodcut from "De Re Metallica" (1556)

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### Annotations

1 **to wind sth. up:** to pull something up – 2 **surface:** Erdoberfläche – 3 **exhausting:** tiring – 4 **to invent sth.:** etw. erfinden – 5 **water wheel:** Wasserrad – 6 **shaft:** Schacht – 7 **to dig:** to make holes into the ground – 8 **groundwater:** Grundwasser – 9 **winch:** (Seil-)Winde – 10 **pipe:** Röhre – 11 **to combine sth.:** to make two or more things work together as a new machine – 12 **depth:** Tiefe – 13 **Kolbenpumpe:** Pumpe mit Handswengel, wie an alten Brunnen zum Wasserholen

### M 5 Times of change – merchant houses in the mining business



**Task:** Fill in the chart with the words from the box.

## M 8 To sell or not to sell? – Creating a radio play about the problems of the miners of Freiberg

**Task:** Create a radio play. Describe the situation of the pitmen and the changes that might happen to their lives. Use the information you have gathered in class (changes in the miners' living and working conditions). The play should last at least 10 minutes and not longer than 15 minutes.

### Role cards

**Speaker (Introduction):** Two pitmen are visited by an employee of a trading house who wants to buy their shares of the mine. The amount of silver they can deliver themselves is not enough for their landlord anymore. He is angry! And impatient! There is a new man in town who offers a lot of money to the pitmen for their shares. The situation is very difficult. In addition, the weather has been bad for weeks, so much rain that just will not stop.

### Veit Klinger (pitman)

You are a pitman and own a share of a silver mine together with your friend Hans Burgmeier. This has been like that for a long time. You have always been happy and satisfied with your life, you could deliver as much silver as the landlord, the duke, wanted and you have led a simple life with your family. You own a bit of land and some sheep, goats and chickens so that you can feed your family and you never had to go to war for the duke.

Now the situation has changed. The duke complains about your old tools and machinery. He wants you to buy better tools and machinery to get more silver from the mountain. He wants you to work faster and with more people. He does not want to wait the long time you need to dig new shafts into the mountain. He wants you to sell your share of the mine to a trading house because a trading house can buy new tools and machinery.

You are very insecure and afraid and seriously think about selling your share of the mine. You don't want to endanger your family. You want your friend Hans to sell, too, because you are convinced that there is no chance to get deeper into the mountain without any financial help. Your friend Hans is convinced that you can do just that, but he does not want to sell.

### Hans Burgmeier (pitman)

You are a pitman and own a share of a silver mine together with your friend Veit Klinger. This has been like that for a long time. You have always been happy and satisfied with your life, you could deliver as much silver as the landlord, the duke, wanted and you have led a simple life with your family. You own a bit of land and some sheep, goats and chickens so you can feed your family and you never had to go to war for the duke. Now the situation has changed. The duke complains about your old tools and machinery. He wants you to buy better tools and machinery to get more silver from the mountain. He wants you to work faster and with more people. He does not want to wait the long time you need to dig new shafts into the mountain. He wants you to sell your share of the mine to a trading house because a trading house can buy new tools and machinery.

You are in the same situation as your friend Veit, but you do not want to sell! You are convinced that you can solve the situation as a team and that you do not need the money from the trading house!