Und

Health and Safety Essentials

Lecture 1:
Introduction to Occupational Health and Safety

Understanding the origins, development, and importance of OHS

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21 ACADEMY

Undergraduate Diploma in
Occupational Health and Safety

Instructor Introductions

- Name: George Steve Darmanin
- Background: 22 Years of experience in OHS, current role, relevant experience & qualifications.
- Passion for OHS, not just a job

Student Introductions

- Name and current role (if working).
- Why are you interested in learning about Occupational Health and Safety?
- Experience in health and safety (if any) or a notable observation related to workplace safety.
- Expectations: What do you hope to learn or achieve from this module?

Learning Objectives

- Understand the origins and historical development of OHS.
- Learn about the influence of major industrial and legislative changes on OHS.
- Explore the impact of OHS practices on worker safety and business operations.

What is OHS?

- **Definition of OHS.**

ILO: "the science of the anticipation, recognition, evaluation, and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment"

It is not a natural state of affairs but a condition that must be achieved

- **Purpose of OHS: Protecting worker health, safety, and welfare.**

- **Importance in preventing accidents, injuries, and illnesses.**

Interaction

***Live Discussion:** Discuss what stood out for you from the different definitions of OHS (ILO, European Commission, WHO, Heinrich).*

***Interactive Prompt:** "Which of these definitions do you think best captures the essence of OHS today, and why?"*

Share your thoughts.

Why is OHS Important?

- Ensures worker safety and well-being.
- Reduces workplace accidents and associated costs.
- Enhances productivity and employee morale.
- Legal and ethical responsibilities of employers.

Early Origins of OHS

- Ancient civilisations and early worker safety practices (3500 BC Mesapotamia).

https://www.youtube.com/watch?v=H2eLoArInow

- Early guilds and protections for tradespeople.
- Introduction to the concept of occupational disease (e.g., Nikander of Colophon and Hippocrates identifying lead poisoning).

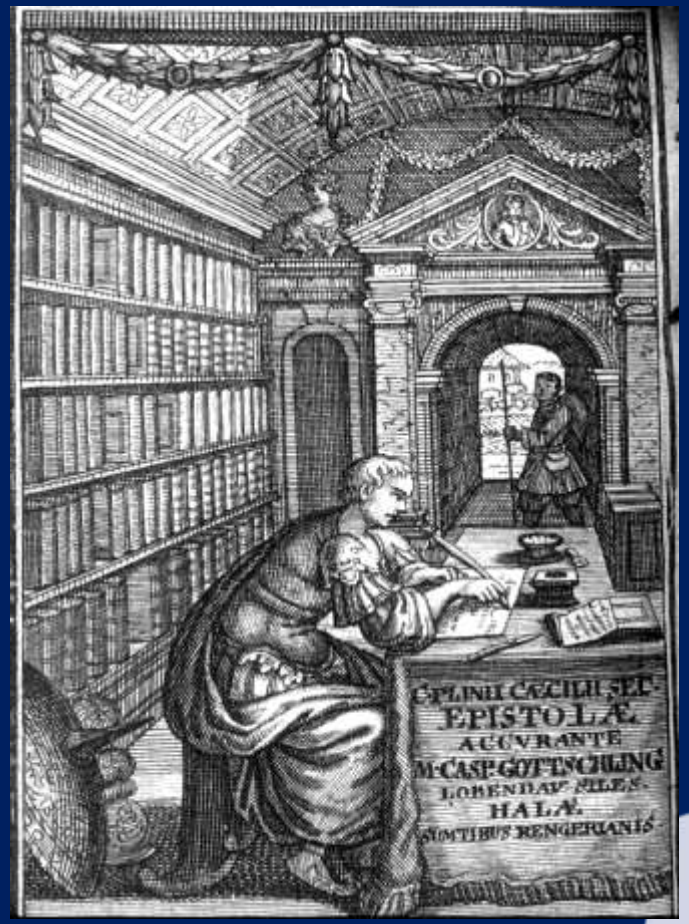
- https://www.lead.org.au/history_of_lead_poisoning_in_the_world.htm#:~:text=The%20Greek%20philosopher%20Nikander%20of,(%20450%2D380%20BC).

Pliny the Elder

First century AD, :

- Mining exposure to zinc and sulphur
- face mask made from an animal bladder to protect workers from exposure to dust and lead fumes.

https://wellcomecollection.org/articles/a-history-of-medical-masks

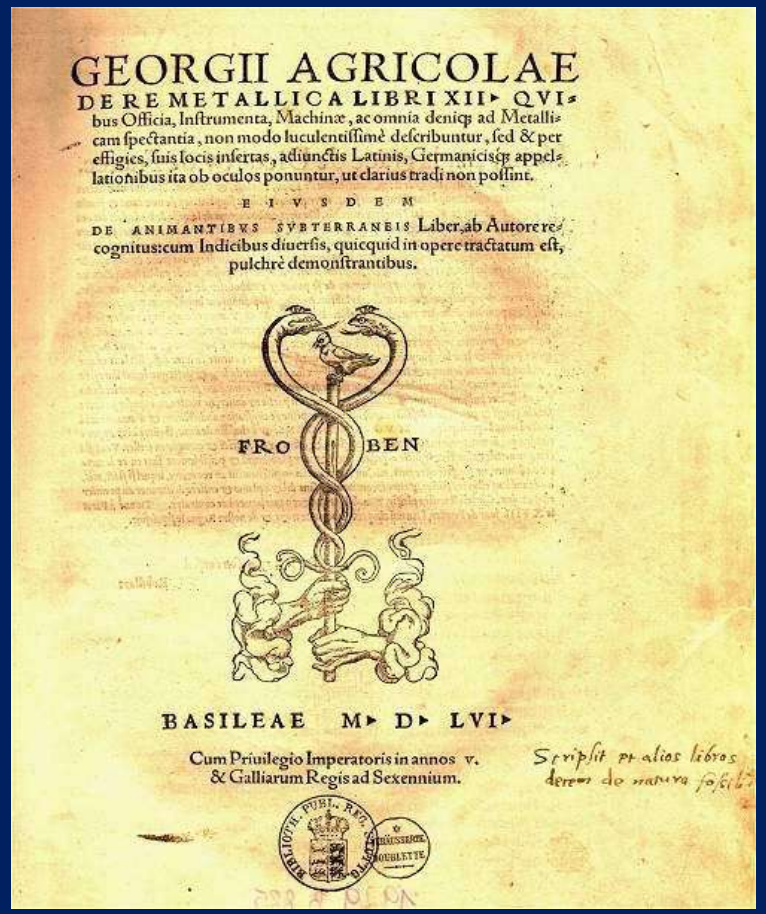


Georgius Agricola

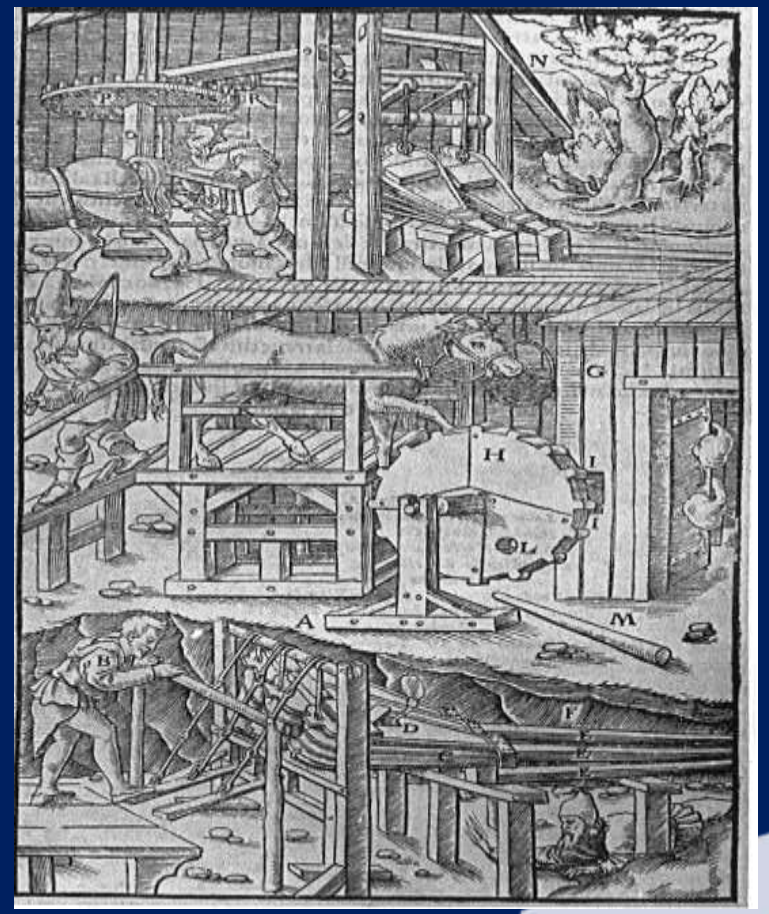
Georgius Agricola (24 March 1494 – 21 November 1555) was a German Humanist scholar, mineralogist and metallurgist. well known for his pioneering work De Re Metallica libri XII, that was published in 1556, one year after his death.

Advanced the science of industrial hygiene:

- Diseases to miners
- Silicosis
- Ventilation


GEORGII AGRICOLAE
DE RE METALLICA LIBRI XII▸ QVIbus Officia, Instrumenta, Machinæ, ac omnia denique ad Metallicam spectantia, non modo luculentissimè describuntur, sed & per effigies, suis locis insertas, adiunctis Latinis, Germanicisque appellationibus ita ob oculos ponuntur, ut clarius tradi non possint.
EIVSDEM
DE ANIMANTIBVS SVBTERRANEIS Liber, ab Autore recognitus: cum Indicibus diuersis, quicquid in opere tractatum est, pulchrè demonstrantibus.
FROBEN
BASILEAE M▸ D▸ LVI▸
Cum Priuilegio Imperatoris in annos v. & Galliarum Regis ad Sexennium.

This 12-volume work is a comprehensive and systematic study, classification and methodical guide on all available factual and practical aspects, that are of concern for mining, the mining sciences and metallurgy, investigated and researched in its natural environment by means of direct observation.



Bernardo Ramazzini :
The Father of Occupational Medicine

"All sedentary workers ... suffer from the itch, are a bad colour, and in poor condition ... for when the body is not kept moving the blood becomes tainted, its waste matter lodges in the skin, and the condition of the whole body deteriorates."

- Bernardino Ramazzini

www.medicinalavorobologna.it

DE
MORBIS
ARTIFICUM
BERNARDINI RAMAZZINI
IN PATAVINO GYMNASIO
PRACTICÆ MEDICINÆ PROFESSORIS
PRIMARII
DIATRIBA
MUTINÆ OLIM EDITA.
Nunc accedit supplementum ejusdem argumenti,
AC DISSERTATIO
DE
SACRARUM VIRGINUM
VALETUDINE TUENDA.
PATAVII, M.DCC.XIII.
Per Jo: Baptistam Conzattum.
SUPER. PERM. AC PRIVIL.

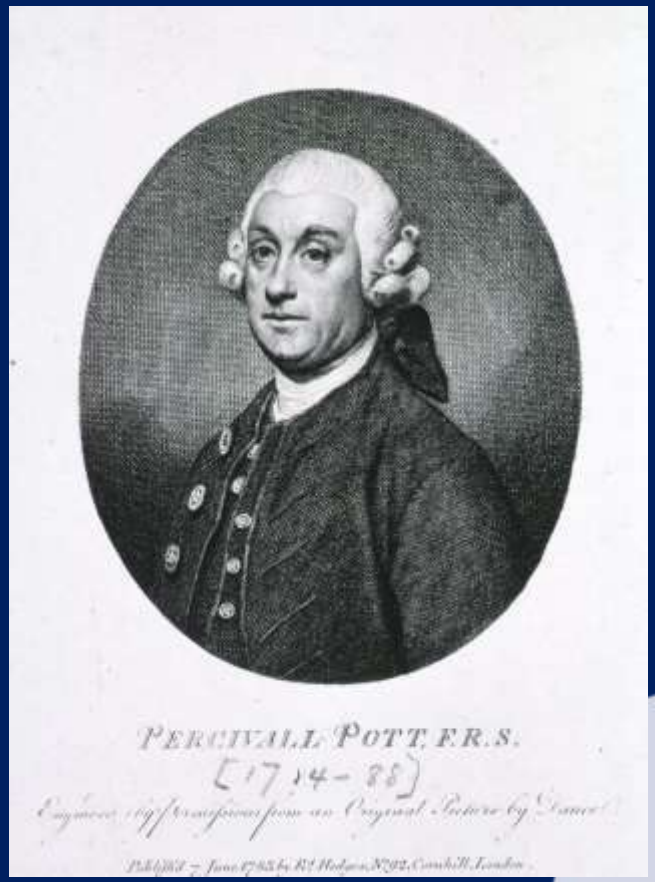
1700 Bernardo Ramazzini, “father of industrial medicine,"

- 1st comprehensive book on industrial medicine, *De Morbis Artificum Diatriba (The Diseases of Workmen).*
- accurate descriptions of the occupational diseases
- Occupational diseases should be studied in the work environment rather than in hospital wards.

Percival Pott

18th century, Percival Pott, as a result of his findings on the insidious effects of soot on chimney sweepers, was a major force in getting the British Parliament to pass the *Chimney-Sweepers Act of 1788.*

Pott's observations on chimney sweeps and scrotal cancer were a landmark milestone in medicine that began our understanding of chemical carcinogenesis besides helping save children from a horrible fate.



The Industrial Revolution and Worker Safety

- Major changes in work environments (late 18th to 19th century).
- Dangerous conditions in factories, mines, and construction.
- Rise of worker movements demanding better conditions.

Interaction

- Live Discussion: Discuss the challenges workers faced during the Industrial Revolution compared to modern-day safety measures.

- Zoom Chat Exercise: Write one key difference between worker safety then and now.

The Factory Acts

- Introduction of early legislation in the UK (1802 onwards).
- Aimed at reducing child labour and improving conditions.
- The role of inspectors and the enforcement of basic safety standards.

Break

OHS History in the US

- A short history of workplace health and safety in the United States, up to the early 1920s. This was taken from the 1979 film, "Can't Take No More," from the Occupational Safety and Health Administration (OSHA). The entire film is posted on Google Video.
- https://www.youtube.com/watch?v=3eFwNk7I0hg&t=84s
- Narrated by Studs Terkel, this OSHA film documents the history of occupational safety and health in the U.S. from the early 1900s to the 1970s. Weaving archival film of unsafe conditions and tragedies with stories about improving worker safety in the 1970s, the film celebrates progress but argues that more must be done. This and two other 1980 Carter administration OSHA films were recalled in 1981 by the Reagan administration, but several labor unions and others retained copies and used them for training and education.
- https://www.c-span.org/video/?508421-1/cant-more

Historical Case Study: Triangle Shirtwaist Factory Fire

- Overview of the incident and its causes.
- Impact on worker safety legislation in the United States.
- Lessons learned: Fire safety, building codes, and emergency exits.

https://www.youtube.com/watch?v=FguWSsW21CQ

Interaction

- **Discussion:**

More than 100 years passed since this tragedy, and many others have followed elsewhere.

In your opinion, does the current state of affairs reflect the lessons learned and why?

The Asch Building's single fire escape collapsed under the weight of fleeing workers and the heat of the fire.

Photo source: International Ladies' Garment Workers' Union Archives, Kheel Center, Cornell University

The factory floor after the fire. Long work tables and back-to-back chairs became deadly obstacles to workers trying to escape when fire broke out

Fire-fighters could not extinguish the flames or reach the trapped workers, many of whom fell to their deaths from the windows attempting to escape the blaze

Seveso Disaster and EU Legislation

On July 10th 1976 Italy's worst industrial accident occurred in the small picturesque town of Seveso. A batch of chemicals left unattended over the weekend at the ICMESA chemical plant overheated, causing a chain reaction which led to a cloud of toxic material being released over the local area. At the time this incident was nicknamed "Italy's Hiroshima"....

The disaster prompted the European Union to establish the Seveso Directive (Directive 82/501/EEC), requiring industries handling hazardous substances to adopt robust safety measures, prepare for emergencies, and maintain transparency with surrounding communities. The directive laid the foundation for modern process safety management regulations to prevent chemical incidents and protect public health.

- https://www.youtube.com/watch?v=CdJ3ewJJOic

Bhopal: The Worst Industrial Accident in History

The Bhopal gas tragedy occurred on December 3, 1984, when methyl isocyanate gas leaked from a Union Carbide pesticide plant in Bhopal, India, causing over 3,000 immediate deaths and long-term health impacts on thousands of others. The disaster underscored the necessity of stringent chemical safety measures, hazard communication, and proper plant maintenance. It led to the introduction of stricter international standards and regulations, such as the "Right to Know" laws and the strengthening of emergency planning, industrial hygiene, and safety management systems to prevent chemical accidents.

- https://www.youtube.com/watch?v=207GjYAV4Ro
- https://www.youtube.com/watch?v=v-DnFRlqq30

Piper Alpha Disaster

The Piper Alpha oil platform disaster occurred in the North Sea on July 6, 1988, resulting in the death of 167 workers. A series of safety lapses, inadequate communication, and failure to isolate critical equipment led to a catastrophic explosion and fire. The incident highlighted the importance of effective risk management, maintenance protocols, and emergency response preparedness in offshore oil and gas operations. It prompted significant changes in regulations, such as the UK Offshore Safety Act, emphasising the need for safety case regulations and risk-based approaches to prevent similar incidents.

https://www.youtube.com/watch?v=V894kLskChM

https://www.youtube.com/watch?v=XAGl9codd9Y

Evolution of OHS Legislation in Malta

- Timeline of key legislative developments.
  - Since 1923…Match factory, Woodworking 1952, Docks 1966, Steam Boilers 1976
  - 1986 - L.N. 52/1986 - Factories (Health, Safety and Welfare) Regulations, 1986
  - 1994 – L.N. 97 OHS promotional Act (repealed by)
  - Act 27 of 2000 – Occupational Health & Safety Authority Act
    - https://www.ohsa.mt/legislation
  - Chapter 646 Act 33 of 2024 – Health and Safety at Work Act
    - https://legislation.mt/eli/cap/646/eng

- Adopting EU directives and international standards.
- Current Maltese OHS law and its impact on businesses.

European Union Framework Directive (1989)

- Overview of Directive 89/391/EEC.
- Employer and employee responsibilities.
- Harmonisation of health and safety standards across member states.

https://osha.europa.eu/en/legislation/directives/the-osh-framework-directive/1

The European Agency for Safety and Health at Work (EU-OSHA)

- Mission and role in promoting workplace safety across the EU.
  - https://osha.europa.eu/en
- Resources and guidance provided to businesses and workers.
  - https://osha.europa.eu/en/tools-and-resources
- Examples of campaigns and projects.
  - https://osha.europa.eu/en/campaigns-and-awards/healthy-workplaces-campaigns

Health and Safety at Work Act 1974 (UK)

- Key features and its significance globally.
  - https://www.legislation.gov.uk/ukpga/1974/37/contents
  - https://www.hse.gov.uk/legislation/hswa.htm
- Introduction of the Health and Safety Executive (HSE).
  - https://www.hse.gov.uk/index.htm
- Duties imposed on employers and employees.

Impact of Legislative Changes on Modern OHS

- How historical regulations have shaped today's safety standards.
- Transition from a reactive to a proactive approach.
- Risk assessments, safety management systems, and employee rights.

Risk Assessment Methodologies

ILO defines risk assessment as 'a systematic examination of work to identify the hazards and assess the risk levels associated with them.'

1. Qualitative Risk Assessment
2. Quantitative Risk Assessment
3. Task-Based Risk Assessment (TBRA)
4. Dynamic Risk Assessment

Accident Investigation Techniques

1. Securing the Scene
2. Gathering Information
3. Root Cause Analysis:
    - 5 Whys
    - Fishbone Diagrams (Ishikawa)
4. Recommendations for Action

Modern OHS Practices

- Overview of risk management and prevention-focused OHS.
- The importance of training and awareness.
- Examples of how OHS practices are integrated into daily operations.

Interaction

- Use Zoom chat

Please provide examples of OHS practices you have observed in your current or past workplaces. Discuss a few examples live, focusing on how these practices are integrated into daily operations.

Health and Safety Training Programmes

1. **Induction Training**: For new employees, introducing them to the specific risks and safety procedures of the workplace.
2. **Task-Specific Training**: Focusing on the particular hazards of a job, such as operating machinery or working at height.
3. **Refresher Training**: Ensuring that workers' knowledge remains up-to-date, especially for high-risk tasks.
4. **Emergency Training**: Teaching workers how to respond during emergencies, such as evacuations, first aid, or chemical spills.

Communication and Consultation in OHS

- Toolbox Talks
- Safety Signage
- Training and Inductions
- Consultation
- Safety Committees
- Surveys and Suggestion Boxes

Interaction

- Use Zoom chat

Suggest how long a toolbox talk should last.

OHS Across Different Industries

- Manufacturing: Addressing machinery hazards and ergonomic issues.
- Construction: Safety at heights, PPE, and site management.
- Healthcare: Biological hazards, stress, and ergonomics.

Emerging OHS Challenges

- Psychosocial risks and mental health in the workplace.
- The impact of technology and automation on worker safety.
- Adapting OHS to address pandemics (e.g., COVID-19).

Future Trends in OHS

- Increasing emphasis on mental health and well-being.
- Integration of sustainability (CSRD and ESG) into OHS.
- Technological advancements, such as wearable safety tech and AI.

Sustainability, CSRD, and ESG in Occupational Health and Safety

- Sustainability in OHS
- CSRD
- ESG

Interaction - Class Discussion

- Reflect on the evolution of OHS and major turning points.
- How have historical events influenced current safety standards?
- Share thoughts on what challenges the future may hold for OHS.

Summary of Key Points

- Recap the origins and historical development of OHS.
- Key legislative milestones and their impact on today's practices.
- Key concepts and tools
- The importance of ongoing vigilance and adaptation in OHS.

Interaction

Final Reflection:

- Type in the **Zoom chat** one key takeaway from the lecture that you found particularly impactful.

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