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Workshop 2

SMALL TALKS

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Formal and Informal Greetings and Farewells

Hello
Hi
Good morning
Good afternoon
Good evening
Hey, *John*
How's it goin'?

Slang greetings in passing

Howdy
Hiya
Whazzup?
Yo
G'day (Australia)

Greetings with Conversation

Sometimes you stop and talk for a moment as you say hello. This type of greeting is followed by a conversation. Close friends often hug when they greet each other, especially after a long time without seeing one other. Men sometimes give each other a hand shake or a high-five (touch palms above the head).

Useful Phrases:

- Nice to see you.
- Long time no see. (*I haven't seen you in a while*.)
- What have you been up to?
- How are things?
- It's been a while. (*It's been a while since I've seen you*.)
- What's new?
- Not much. (answer to *What's new?*)

Pair Practice (casual between friends)

A: Hi Corey.
B: Hey, Jennifer. Good to see you. (hug)
A: You too. How've you been?
B: Busy. You?
A: Pretty good. How's your new job?
B: It's okay. There's a lot to learn. What's new with you?
A: Not much. The kids are back at school.

Greetings in Business

Proper etiquette is important in business greetings. Make sure to use polite language such as "please" and "thank you". Appropriate titles and gestures should also be used. Shaking hands is common in most English speaking countries. It is also important to smile.

Useful Phrases

- **Please have a seat.**
- **Thanks for agreeing to meet with me.**
- **He'll be right with you.**
- **Can I offer you something to drink?**
- **My pleasure.**

Pair Practice

A: **Hello. I'm Mia Conners.**

B: **Hi Mia. I'm David Sinclair, and this is my partner Gina Evans.** (hold out hand to shake)

A: **Nice to meet you Mr. Sinclair, Ms Evans. Thank you for taking the time to meet with me today.**

B: **It's our pleasure. And please, call us David and Gina. Can I take your coat?**

A: **Thank you.**

B: **No problem. Please take a seat and we'll be right with you.**

Talking about the weather

- Beautiful day, isn't it?
- Can you believe all of this rain we've been having?
- It looks like it's going to snow.
- It sure would be nice to be in Hawaii right about now.
- I hear they're calling for thunderstorms all weekend.
- We couldn't ask for a nicer day, could we?
- How about this weather?
- Did you order this sunshine?

Talking about current events

- **Did you catch the news today?**
- **Did you hear about that fire on Fourth St?**
- **What do you think about this strike?**
- **I read in the paper today that the Sears Mall is closing.**
- **I heard on the radio today that they are finally going to start building the new bridge.**
- **How about those Reds? Do you think they're going to win tonight?**

Waiting somewhere

- **I didn't think it would be so busy today.**
- **You look like you've got your hands full (with children or goods).**
- **The bus must be running late today.**
- **It looks like we are going to be here a while, huh?**
- **I'll have to remember not to come here on Mondays.**
- **How long have you been waiting?**

Out for a walk

- How old's your baby?
- What's your puppy's name?
- The tulips are sure beautiful at this time of year, aren't they.
- How do you like the new park?
- Nice day to be outside, isn't it?

Home task #1

- **You should be ready to make small talks in Formal/Informal forms.**

Part 2.

ISSUES TO ADDRESS...

- **Why are dislocations observed primarily in metals and alloys?**

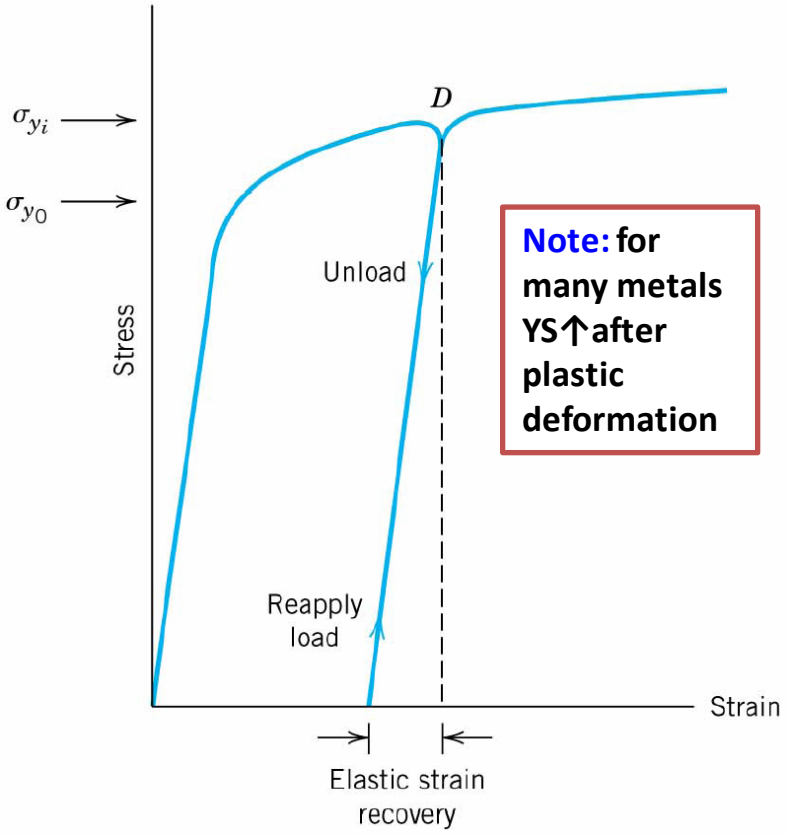
- **How are strength and dislocation motion related?**

- **How do we increase strength?**

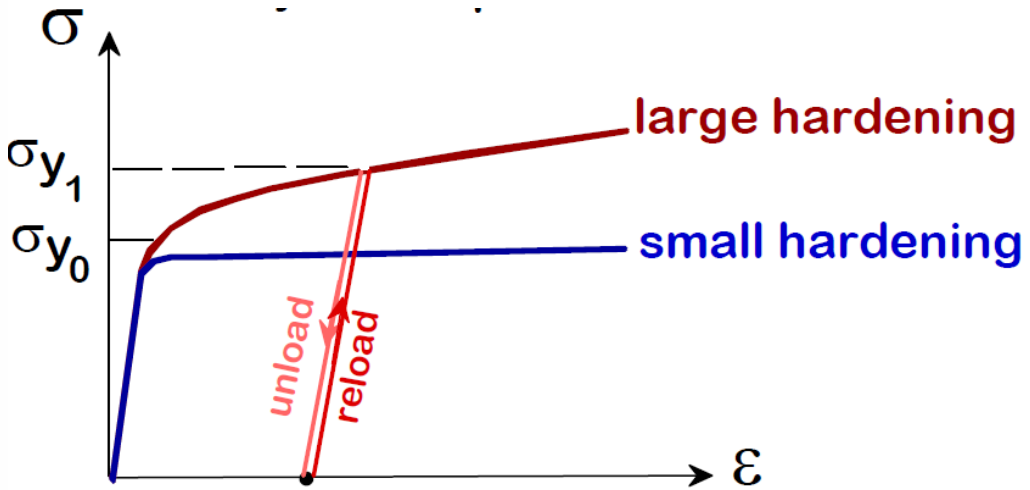
- **How can heating change strength and other properties?**

Hardening

An increase in σ_y due to plastic deformation



Note: for many metals YS↑after plastic deformation



urves fit to the
tress-strain response

$$\sigma_T = C(\varepsilon_T)^n$$

hardening exponent:
n=0.15 (some steels)
to n=0.5 (some copper)

"true" stress (F/A)

"true" strain: $\ln(L/L_o)$

Hardening of Metals

There are 4 major ways to strengthen metals, and all work because they make dislocation motion more difficult. They also reduce the ductility:

1) Cold work (*Strain Hardening*)
2) Reduce grain size (*Strengthening by Grain Size Reduction*)
3) Add other elements in solid solution (*Solid Solution Strengthening*)
4) Add second phase particles (*Precipitation or Age Hardening*)

These mechanisms may be combined.

Quiz

1. What is Hook’s law?
2. What is elastic and proportional limit?
3. How is the elastic modulus measured from the stress-strain curve?
4. What is yield stress?
5. What is 0.2% proof stress?
6. What is ductile and brittle behavior?
7. What is true stress and strain. Deduce the relationship between true and engineering stress and strain.
8. What is shear stress and strain
9. What is Poisson's ratio?
10. What are structure-sensitive and structure insensitive properties?

Checking your hometask #2

Calculate the equilibrium number of vacancies per cubic meter for silver at 800°C. The energy of vacancy formation is 1.10 eV/atom; the atomic weight and density (at 800°C) for silver are 107,9 g/mol and 9,5 g/cm^3, respectively. Boltzmann's constant k = 8,62 $x10^{-5}$eV / atom·K. Write your solution and be ready to explain it (orally). You should be able to read all mathematical expressions.

Checking your hometask #3

Q.3 For the solidification of iron, calculate the critical radius *r and the activation free energy G* if nucleation is homogeneous. Values for the latent heat of fusion and surface free energy are $-1.85.10^9$ J/m^3 and 0.204 J/m^2, respectively. Use the supercooling value found in Table 1. (b) Now calculate the number of atoms found in a nucleus of critical size. Assume a lattice parameter of 0.292 nm for solid iron at its melting temperature.**

metal	$\Delta T(^0C)$
Germanium	227
Silver	227
Gold	230
Copper	236
Iron	295
Nikel	319
Cobalt	330
Palladium	332

HomeTask 2. Questions

Discuss the following questions

1. ***Why did it take society so long to develop metals.***
2. ***Define an alloy.***
3. ***Why do metals break even though they are not stressed beyond their elastic limit? What conditions cause this type of failure?***
4. ***What effect on tensile strength does stretching copper have?***
5. ***What is effect of grain boundaries on strength of metals?***
6. ***Are grain boundaries desirable for high temperature structural application? Give reasons for your answer.***
7. ***How can a metallic system be made into an amorphous material?***