

James Lind and the story on scurvy

It was a cloudy morning, May 20, 1747 year. Liner HMS "Salisbury" under full sail riped waters of the Gulf of Biscay. Captain George Edgcumbe stood on the bridge and smiled at the memory of the battle less than a week before. Fleet Sir George Anson, the French broke convoy numbering 30 ships, escorted by a squadron of Admiral the Marquis de La Jonquiere. "Salisbury" had a large share in the victory, its fifty guns rumbled in the Battle of Cape Finisterre.



The quiet creak behind his back escaped him from this bliss. The captain turned and looked questioningly at Stewart, who just wanted to knock on the open door frame.

- Sir, the doctor wants to see you.
- I'm not sick, I did not call the doctor - joked captain
- Sir, the matter is probably serious...
- Ask him!

After a while, about thirty years old, slim, fair-haired man came to the bridge.

- Naval surgeon James Lind, Sir! – in accordance with the rules reported to and fell silent. The captain frowned and asked with concern:
- Does God forbid something happened to our wounded, dear James?
- No, Sir, all the wounded recovering. Welfare requires only three, the rest does not have to lie.
- So, what's the point?
- Scurvy, Sir. Suffer from it a few dozen of sailors, soon not only will not be able to guide the cannons, but who will work on the sails?... We are in the sea since 2 April, it is almost seven weeks.

Captain sadly looked down and sighed quietly. - That is what I feared. You know, dear James, that scurvy killed more British sailors than the Spaniards and the French over the past 200 years? You're a doctor, so you know ...

They must somehow survive another two weeks, we will finish patrol and return to Portsmouth. We will probably not shoot from the cannons for the time being, the French should not oc-

cur, unless they had enough - he smiled at the memory of winning the battle...

- Captain, I have a request. It is well known that scurvy does not attack at the land. I think that scurvy is the result of putrefaction of the body, which can be aided by acids. On land that does not work. If I knew which alleviates the symptoms of scurvy, maybe I could help these poor...

- Sit down, please. You know that nothing will help them out to go ashore, said the captain - what you want to do?

- I have an idea. I have twelve patients with severe conditions, all have rotting gums, patches, they are tired, barely walk. I will put them in a cabin and give everyone the same diet: for breakfast - gruel sweetened with sugar and soggy biscuits, for lunch - mutton broth, and a light dessert, such as boiled biscuit with sugar, and for dinner - groats, sago, or rice with raisins and wine. Then divide them into six groups.

- That is after two? - Said the captain, giving to understand that and listens and understands.
- Yes, Sir! - Lind confirmed. He took out from his pocket a sheet of written paper and with enthusiasm continued. - Due to which I have already mentioned, I will enrich their diet with acids. Two gets extra quart of cider¹ per day. Two more will have to take three times a day for twenty five drops of vitriol². The next two will get two tablespoons of vinegar three times a day. Two patients in the most serious in the worst condition will get a half a mug of sea water. Two sailors will get an additional two

oranges and one lemon per day and the last two with each meal gets a spoonful of acute paste of garlic and mustard and a few tablespoons of Barley's³ water.

- I see that you have prepared for this conversation. When do you want to start, young man? - Quietly asked the captain.

-So, you agree, Sir? - James Lind with disbelief look on Captain Edgcumbe. He jumped to his feet and shouted enthusiastically – *Even just!*

-Slowly, Sir James. Remember that a ship is also the crew, without her the boat and her fifty guns are just a pile of scrap metal, wood, ropes and canvas not worth a pound of straw. Your principle of "primum non nocere" here will be checked for sure; suffering from scurvy probably can not hurt, and as you can help - why not try it? - The captain smiled and added - *Fly to that unfortunates, and may you succeeded!*

Six days later, Captain James George Edgcumbe called Lind to his cabin.

- How is the situation developing on the frontline fighting with scurvy? Are you as effective as our fleet, dear James?- With a smile, asked the captain.

- Unfortunately, no, Sir, said Lind - but some success can be seen. In two sailors who drank cider there was a slight improvement, but they are still weak and lie. In the other there is no improvement, but ... - here paused slightly and looked at the spark in his eye - *In eating citrus was a miracle!*

- It is probably a miracle that they live. The miracle would be if they could return to the sails. - Said the captain, doubtfully - *Well?*

- One of them returned to service today, the second is ready to the light work on board! - Triumphantly said Lind - *it seems to me that the oranges and lemons can help fight this nightmare of merchant navy.*

- So give citrus fruits to all patients, James. I finally will have a three hundred and fifty men to the end of the

cruise, not a hundred so far.

- But, Sir, there is no longer one orange or lemon on the board, -Lind said sadly - *Well that it was enough though for a week for these two...*

- Dear James! - Captain stood up and surrounded him with his arm – *We will finish patrol and if the wind is favorable we will reach Portsmouth in a few*

days. The sailors will rest a few days, we will repair the sails and replace the deck. And in the next cruise we will take more oranges and lemons....!

Something to drink?

Lind smiled and said - *If there is no orange juice, it remains for us only cider! Cheers!!!*

¹ (from Wikipedia), **cider, or apple pie** (French cidre, Ang cider) - an alcoholic drink, fermented juice of ripe apples (without sugar), the appearance – from turbid to the clear, about 2-7% content of alcohol. Cider is characterized by a fresh aroma and slightly sour-sweet, refreshing taste of apples, good thirst quencher. Produced by the fermentation of apple grape in a manner similar to the production technique of top-fermented beer. It is especially popular in Great Britain, northern France, Belgium, Ireland and Lithuania.

²**vitriol (glass oil)**, concentrated solution of sulfuric acid. Clear liquid with a yellowish color (glassy look) and an oily consistency.

Historically, this name also meant hydrated divalent metal sulfates, e.g. dihydrate iron sulfate, (II) $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ - (Roman Vitriol, Vitriol viride, Vitriol Goslariense) or pentahydrate copper sulfate (II) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ - (Vitriol coeruleum)

³ **Barley water** - is a traditional British drink of boiled barley or coarse barley with fruit juice (lemon or orange) and honey.

Ingredients:

3/4 cup of barley or pearl barley
Finely grated zest and juice of 2 lemons
1/2 cup of honey
6 cups of water

Preparation:

Place barley in a sieve and rinse in cold water until water runs clear.

Place barley in a saucepan with the grated lemon zest and pour six glasses of water.

Bring to a boil over medium heat. Cook over low heat for 10 minutes, then strain the mixture into heatproof dish. Discard the barley.

Add honey to a bowl and mix. Pour the lemon juice and let the mixture cool to room temperature.

Pour into bottles and store

Additional historical facts

The story Described here really happened. James Lind conducted the first controlled clinical test (medical research), and published his findings in 1753 (A Treatise of the Scurvy - The Treaty of scurvy). Unfortunately, this work was by the medical community ignored. James Lind was not the discoverer of the beneficial effect of citrus, as already in 1601 the British East India Company, and specifically Cpt. James Lancaster has provided its sailors with oranges and lemons, so the crew avoided scurvy. In the seventeenth century the Dutch founded citrus orchards along the oceanic route around Africa and conducted horticultural experiments on board of ships.

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