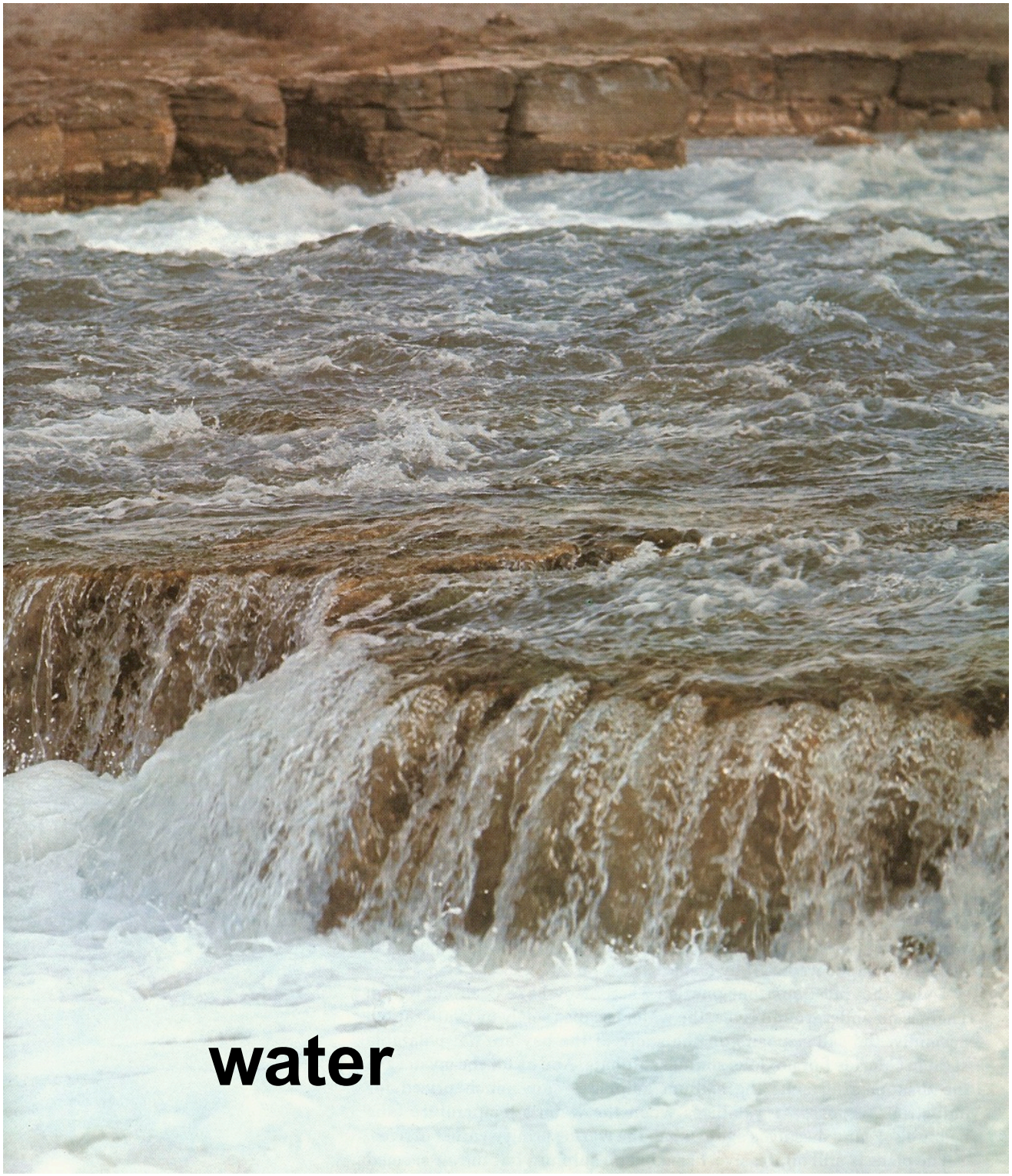
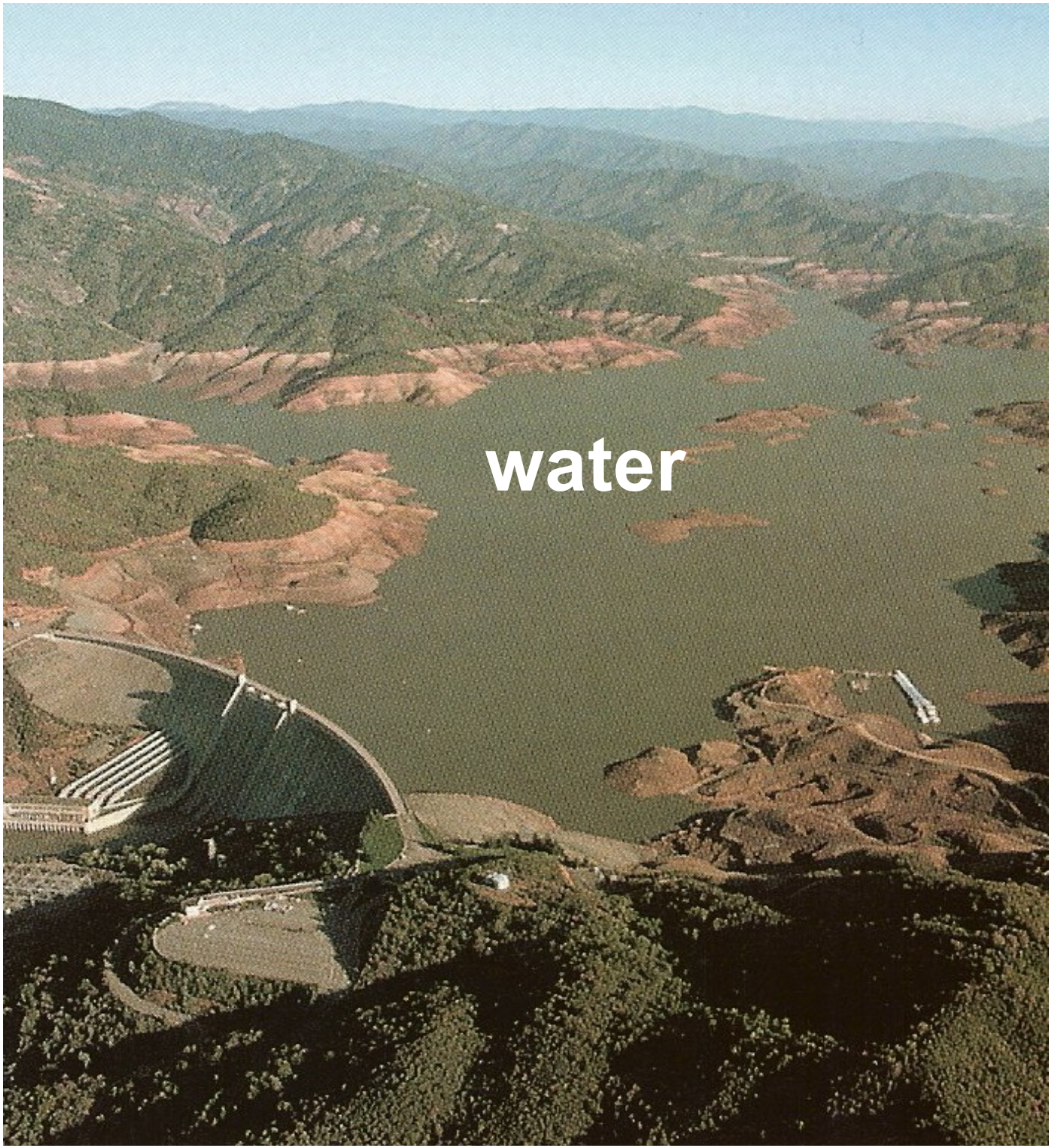
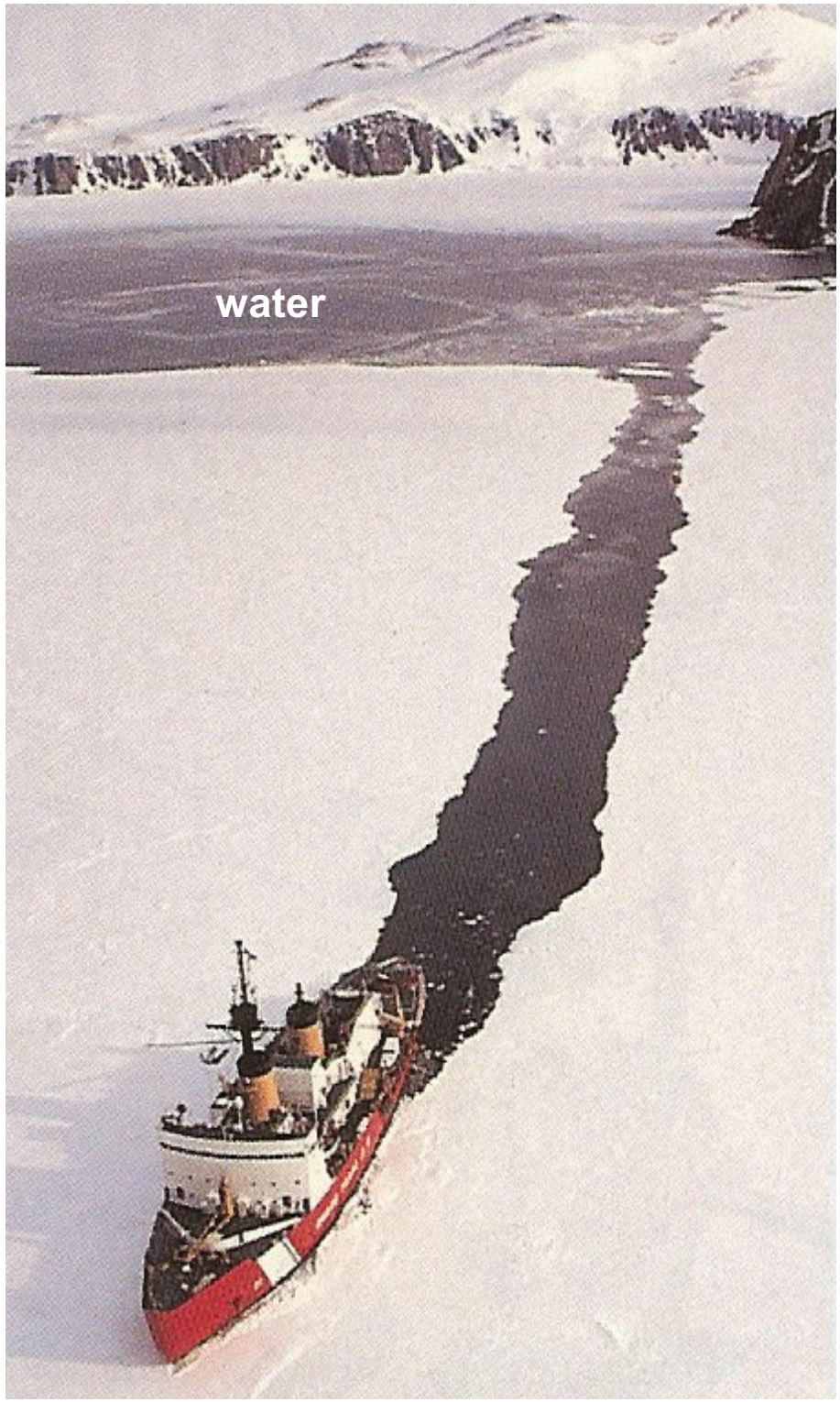
WATER, AIR, EARTH & FIRE

Ron Suter, Melbourne


water


water

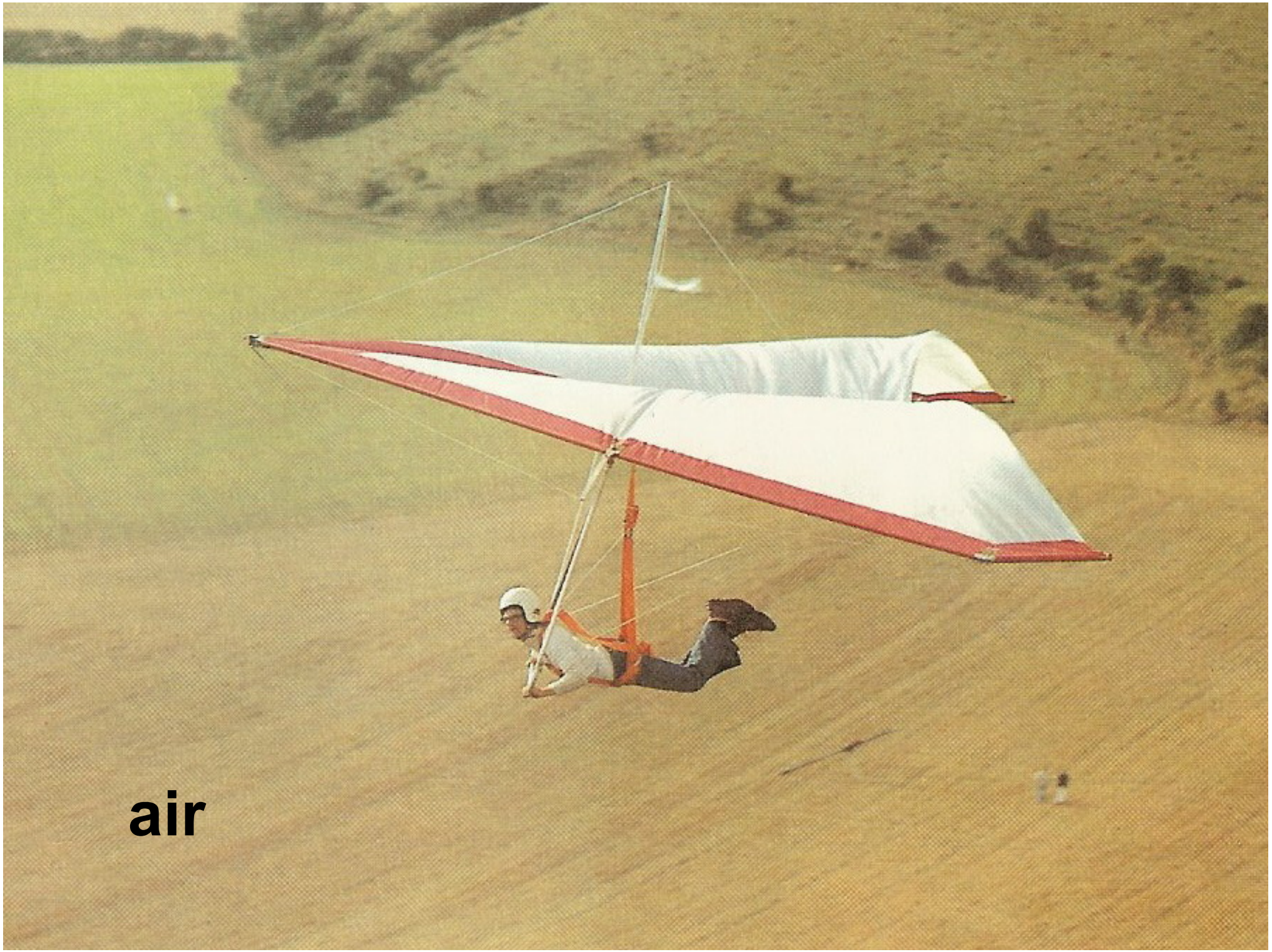


Antarctic Ice-Breaker

WATER... is a compound

- A compound is a chemical combination of two or more elements. Examples: CO_2, $C_6H_9O_6$.
- A compound may look quite different from its component elements. Examples: NaCl, H_2O.
- Water (usually a liquid) is a combination of the two gases: hydrogen & oxygen.

Otto Lilienthal 1895



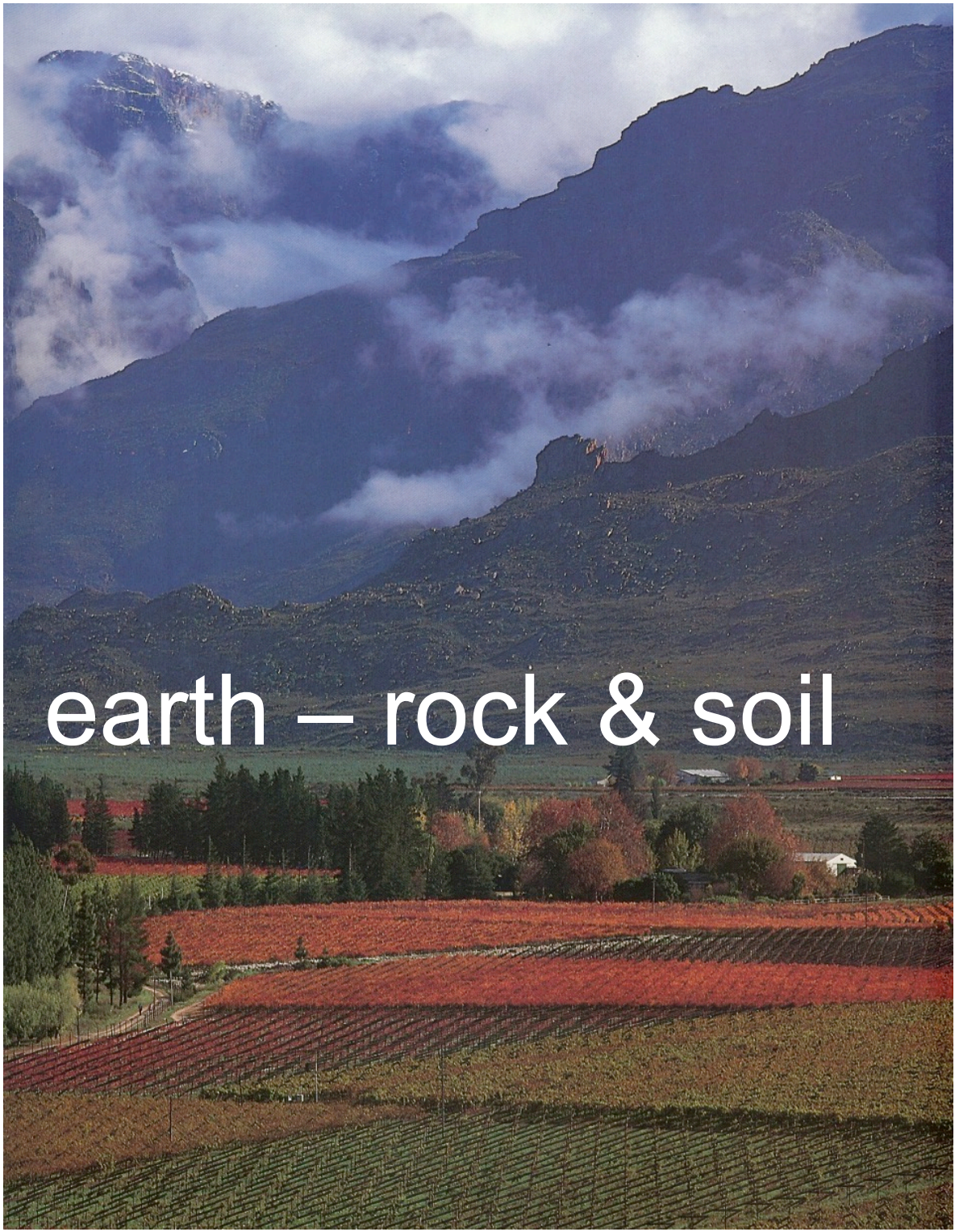
air


air

AIR... is a mixture

- About 78% pure nitrogen (gas)
- About 21% pure oxygen (gas)
- About 0.03% pure carbon dioxide
- Other gases, including water vapour, are present in much smaller amounts.

Folded Mountain, Alaska Highway.


earth – rock & soil


earth - soil

EARTH... is a mixture

- (Two-thirds of the earth's surface is covered with water, mostly salty water = the oceans.)
- The earth that is “dry land” consists of sands, rocks and soils.
- These sands, rocks and soils are mixtures of various mineral compounds, many of which are useful to mankind.
- The best soils include tiny living things as well as minerals.

Chemical Composition of the Earth's Crust

Element	% in Crust
oxygen	46.6
silicon	27.7
aluminium	8.1
iron	5.0
calcium	3.6
sodium	2.8
potassium	2.6
magnesium	2.1
titanium	0.4
hydrogen	0.14
copper	0.007
tin	0.004
lead	0.0016
silver	0.00001
gold	0.0000005

Mineral resources consist of fuels, metal-containing deposits, and non-metal deposits.

Coal, petroleum, & gas are the mineral fuels.

Metal deposits are usually found in combination with other metals or with a non-metal.

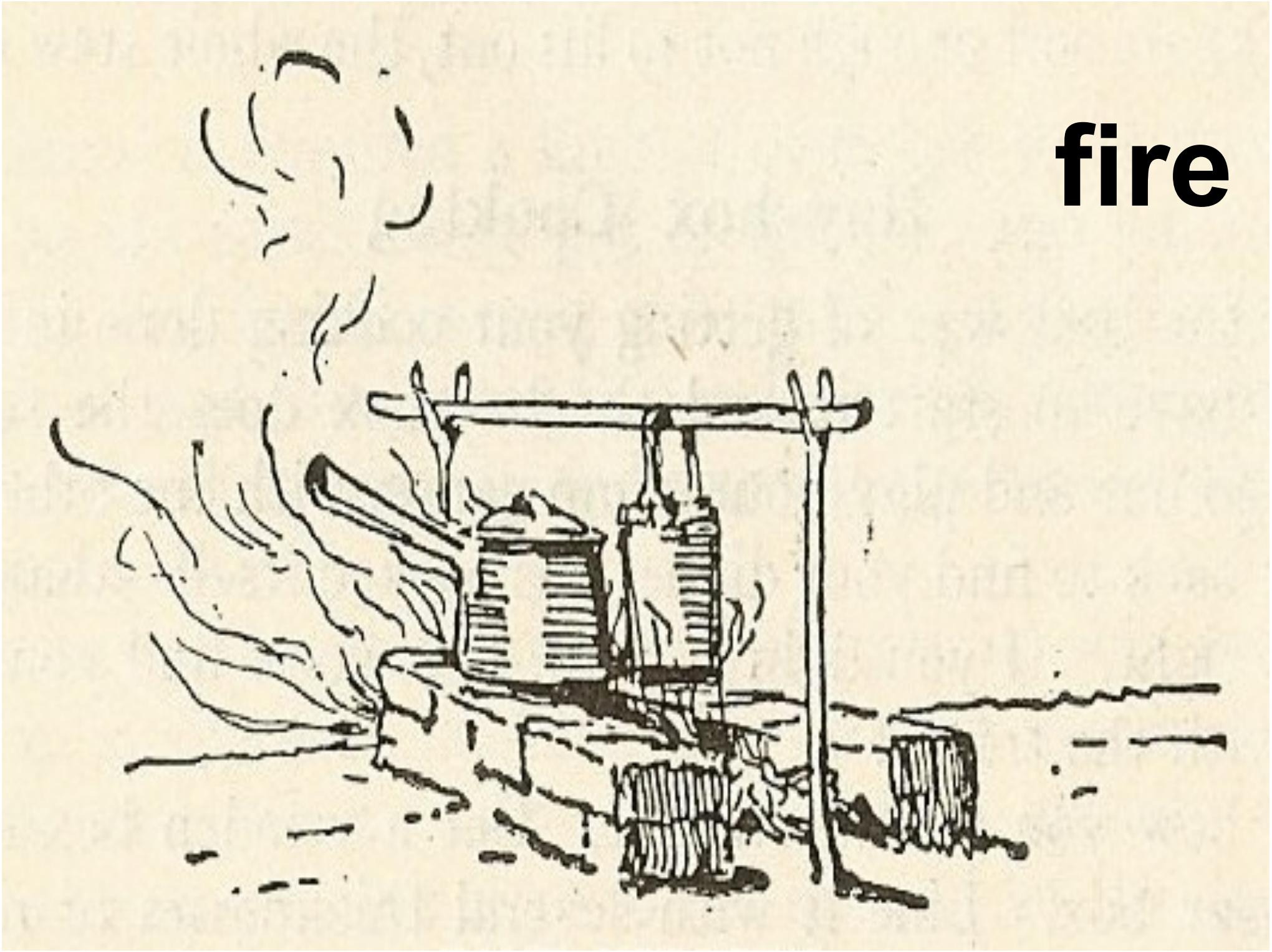
99% of the earth's crust comprises only 10 elements.

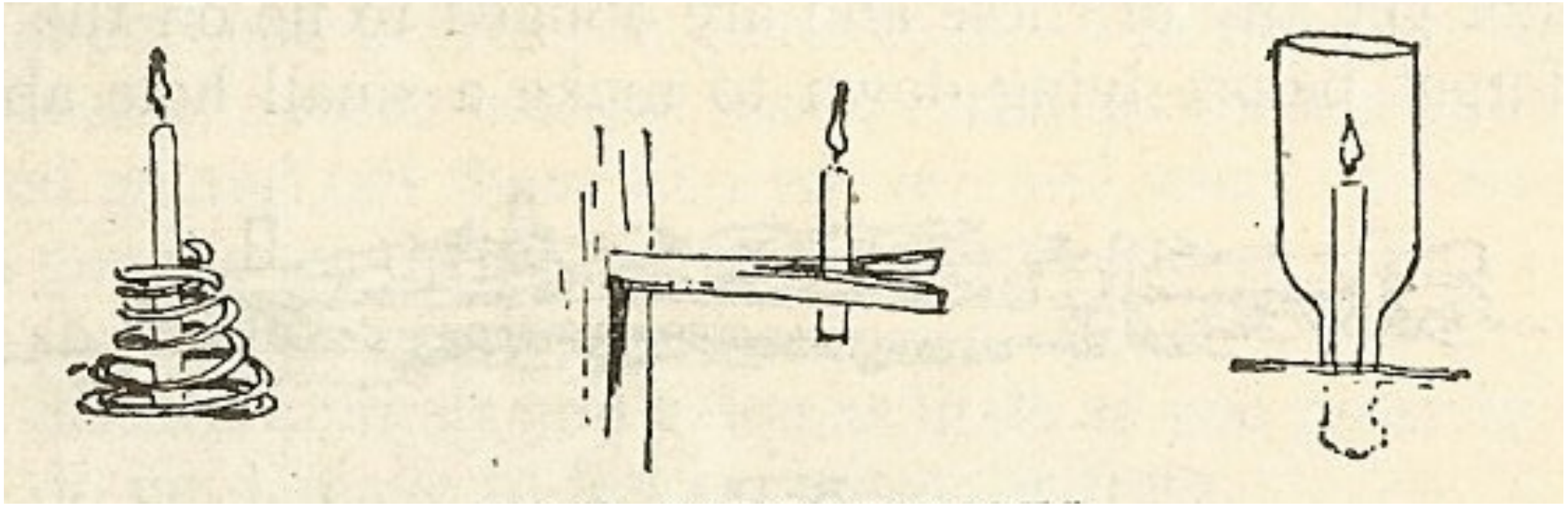
Only 4 (Al, Fe, Mg, & Ti) are industrial metals & only small amounts of these are available for mining.

The other industrial metals (Cu, Zn, Pb, Sn, Au, Ag) are found in only minute amounts.

The metal deposits are used commercially in trade, building & manufacturing.

The non-metals (O, Si, & H) are used in glass, balloons, and in various chemical compounds.


fire

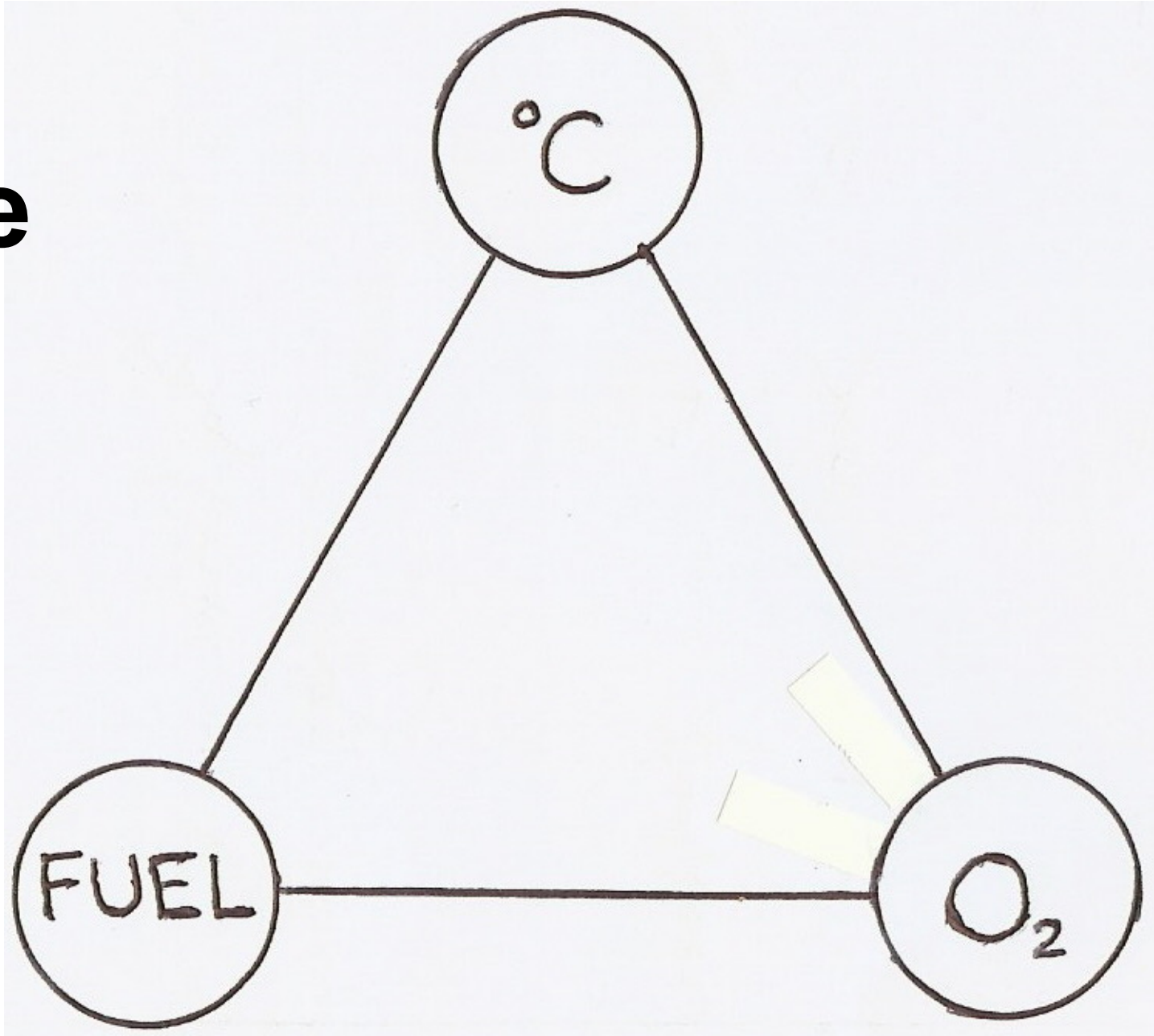


fire

This painting shows the burnt offerings to Shang Di being burnt at the end of the Border Sacrifice Ceremony.
Credit: Altar of Heaven Administration


fire

fire



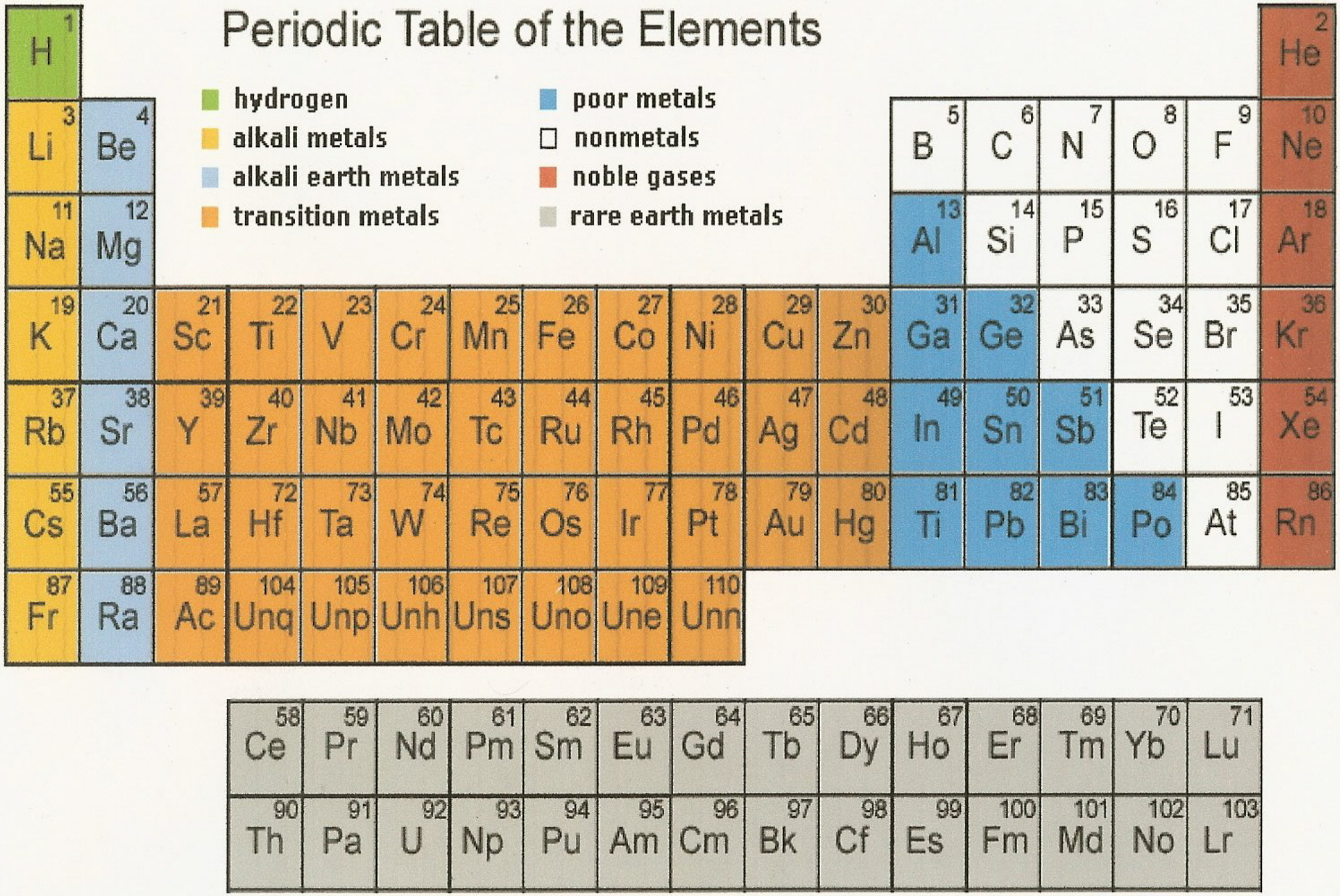
FIRE... is a process

- Most fuels contain carbon (= C).
- When the ignition temperature of a fuel is reached or exceeded it will start to burn.
- Burning gives off heat and light.
- The burning process allows the carbon to combine chemically with oxygen, thus forming CO_2 and CO.

Objective Science

- Water – a ***compound*** of two gases.
- Air – the atmosphere, a ***mixture*** of gases.
- Earth - a ***mixture*** of solids, mostly compounds, with a few elements.
- Fire – the ***process*** of combustion: fuel, heat & oxygen are all needed.

Periodic Table of the Elements



The Elements in Our Bodies:

oxygen	O	65%
carbon	C	18%
hydrogen	H	10%
nitrogen	N	3%
calcium	Ca	1.5%
phosphorous	P	1.0%
potassium	K	.35%
sulphur	S	.25%
sodium	Na	.15%
chlorine	Cl	.15%
magnesium	Mg	.05%
iron	Fe	.0004%
iodine	I	.00004%

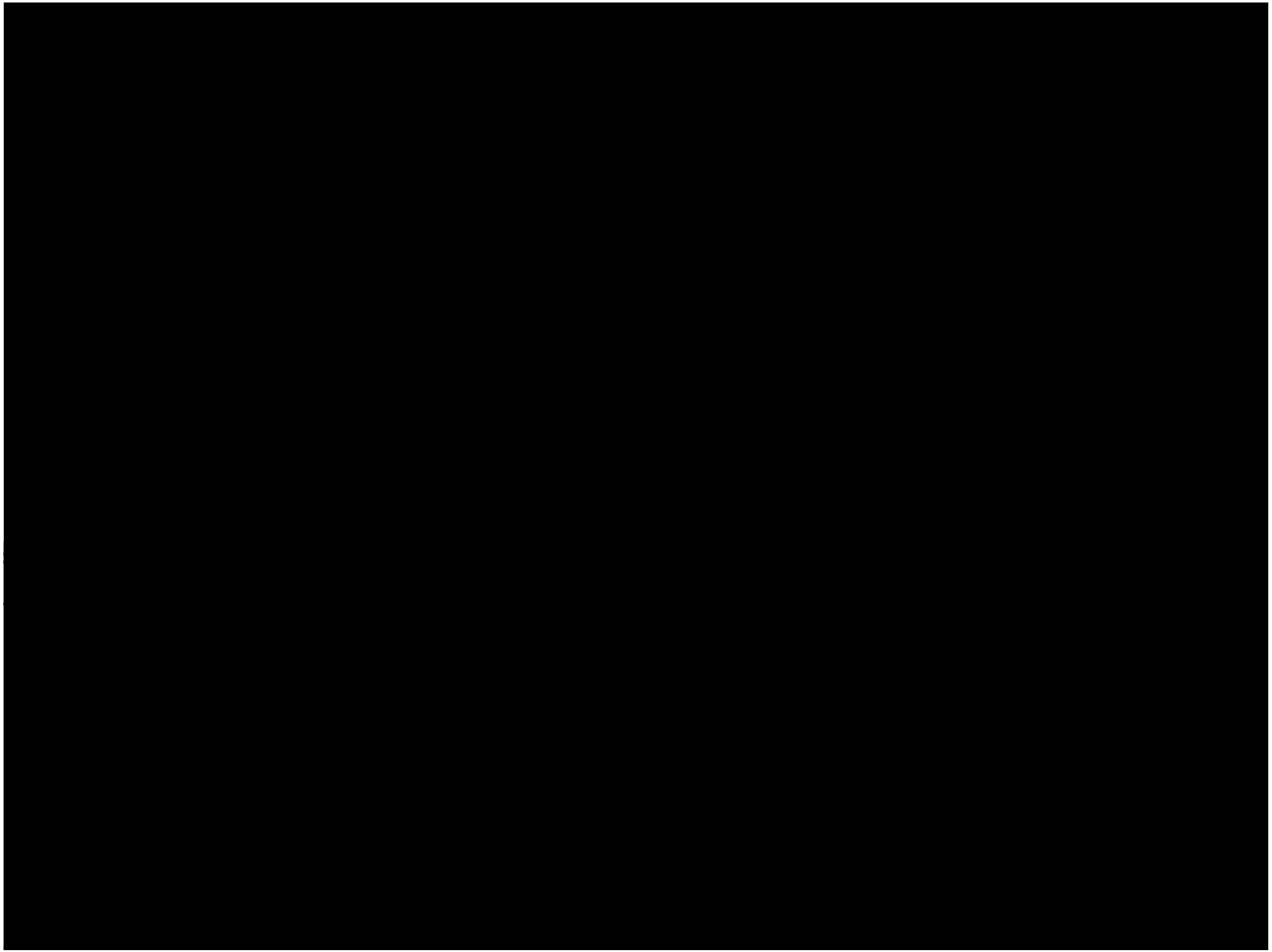
Plus faint traces of:

flourine	F
silicon	Si
manganese	Mn
zinc	Zn
copper	Cu
aluminium	Al
arsenic	As

Total, for all materials,
~ $160 USD;
For “living” tissue,
>45M USD

What is the Price of Salvation??

- “God showed His love for us by sending Christ to die for us while we were still sinners.”
- “For God so loved the world that he gave His only Son, so that whoever believes in Him should not perish but have everlasting life.”
- Romans 5:8; John 3:16.



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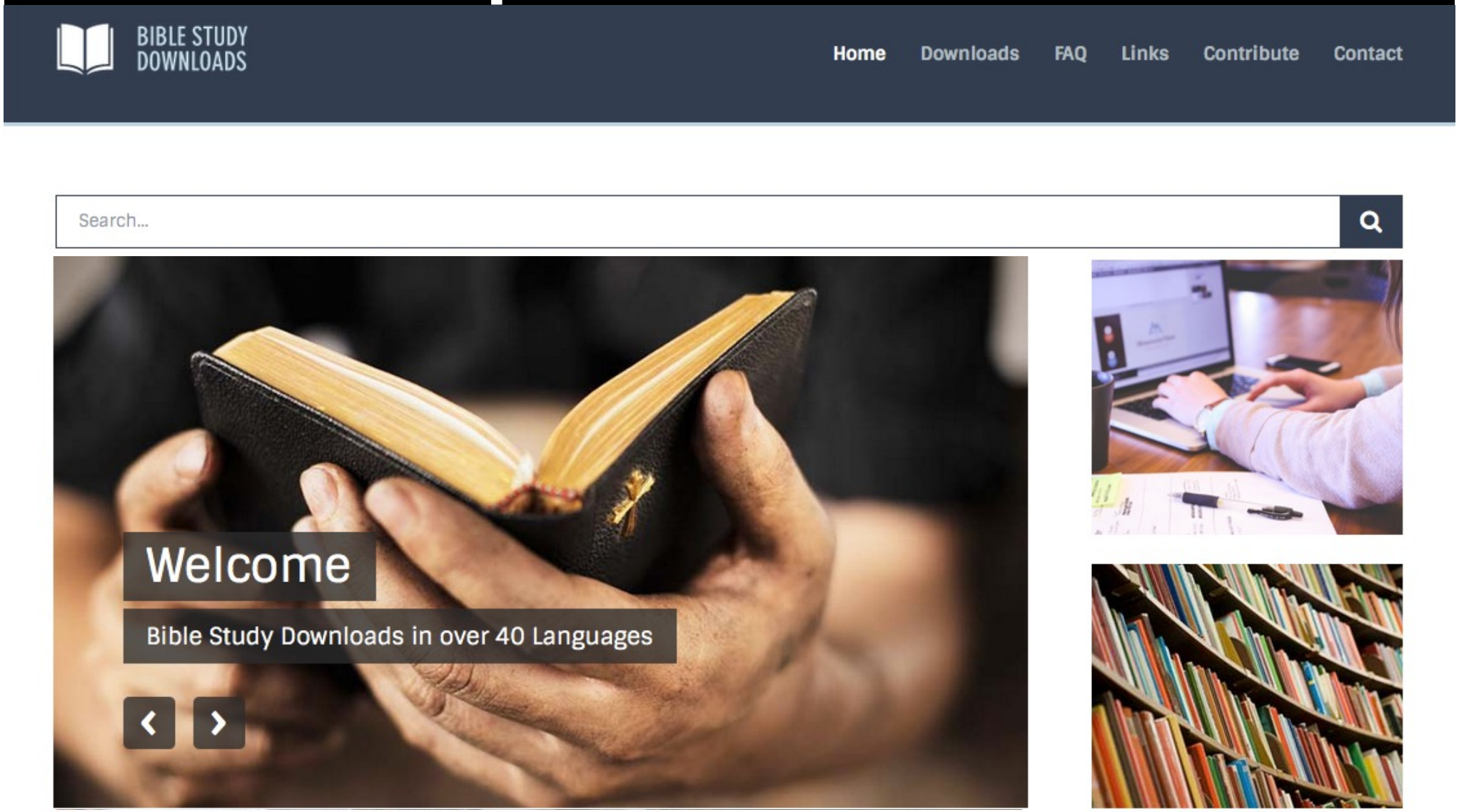

Creation link at BibleStudyDownloads.org