

**How can
artists tackle
contemporary
challenges?**

**The relationship between
the arts and sciences.**

STEM

STEAM



Prifysgol Cymru

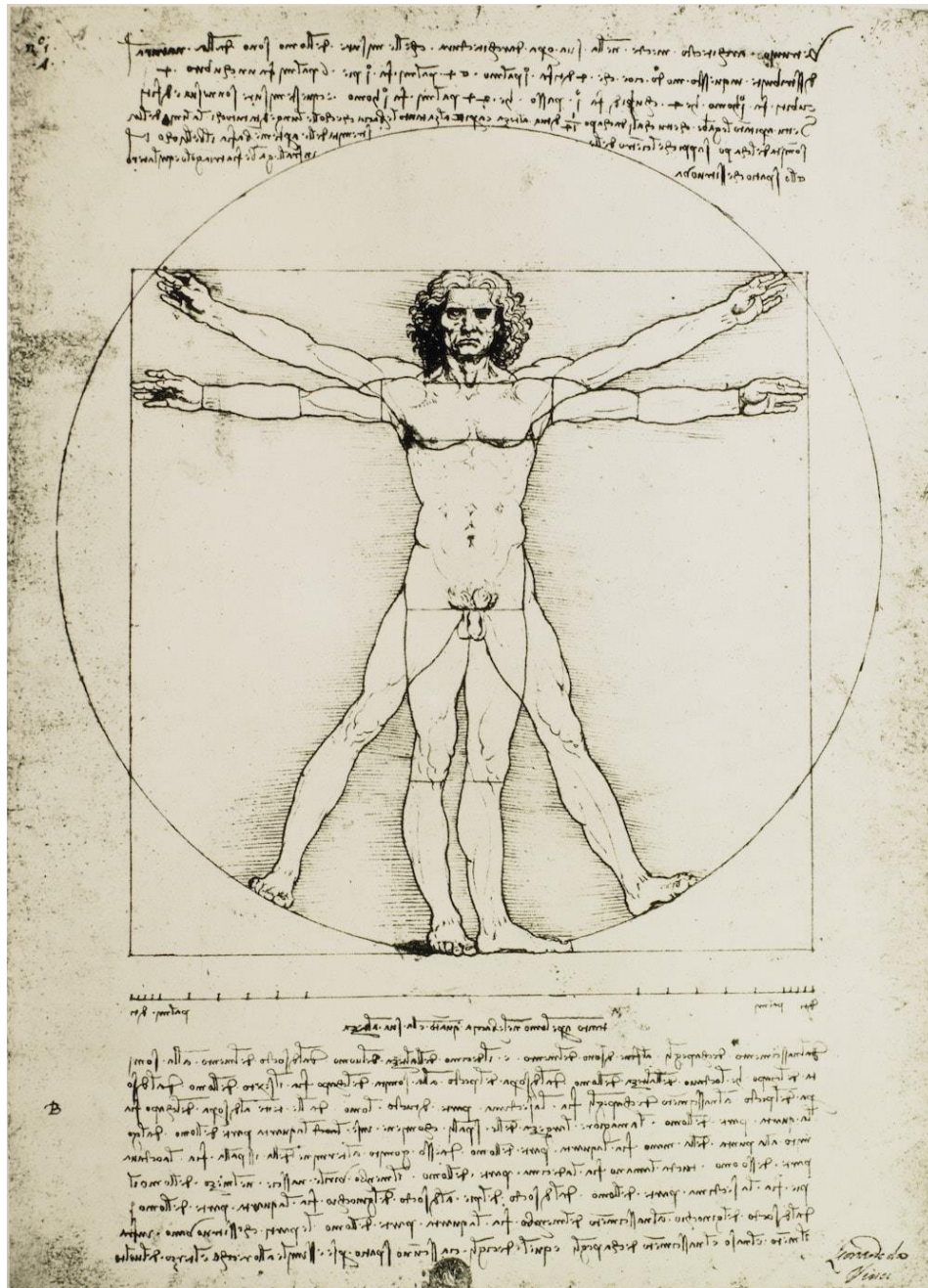
Y Drindod Dewi Sant

University of Wales

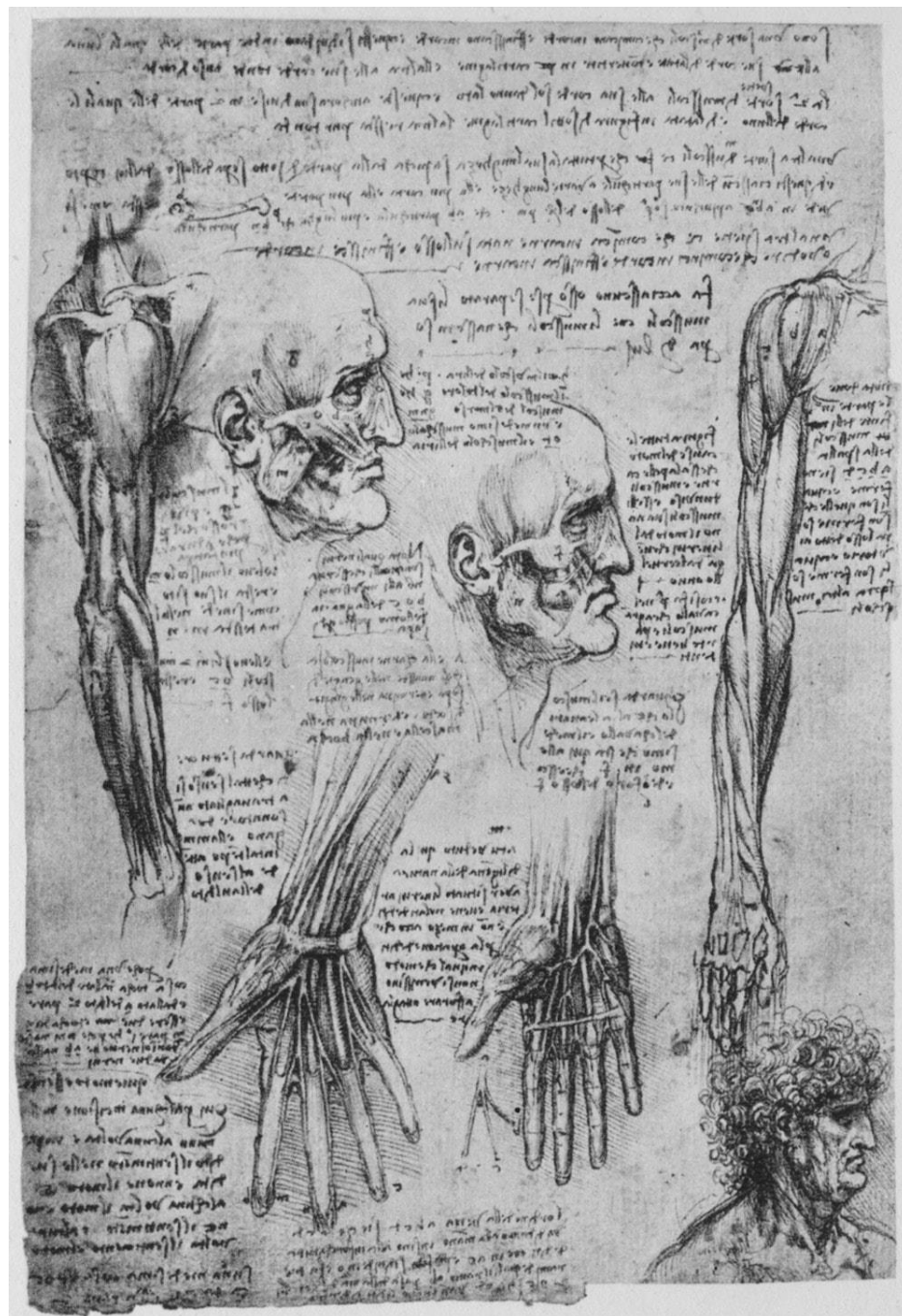
Trinity Saint David

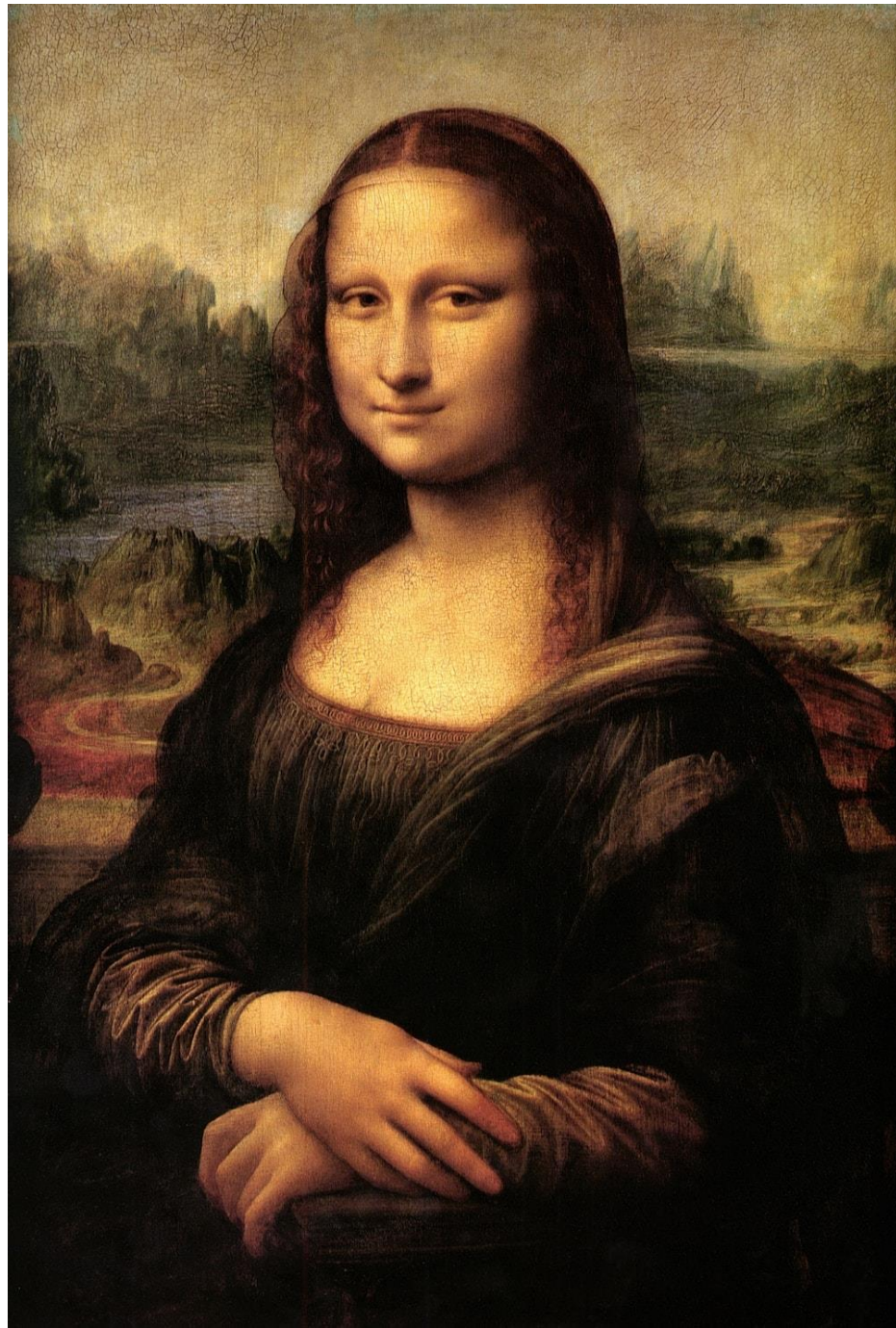
WISA

‘Science is actually a very creative venture. It requires thinking outside of box. It requires an ability to be open to new experiences and an ability to change course in the middle, try a different path, or go about things in a new way.’ – Cara Santa Maria

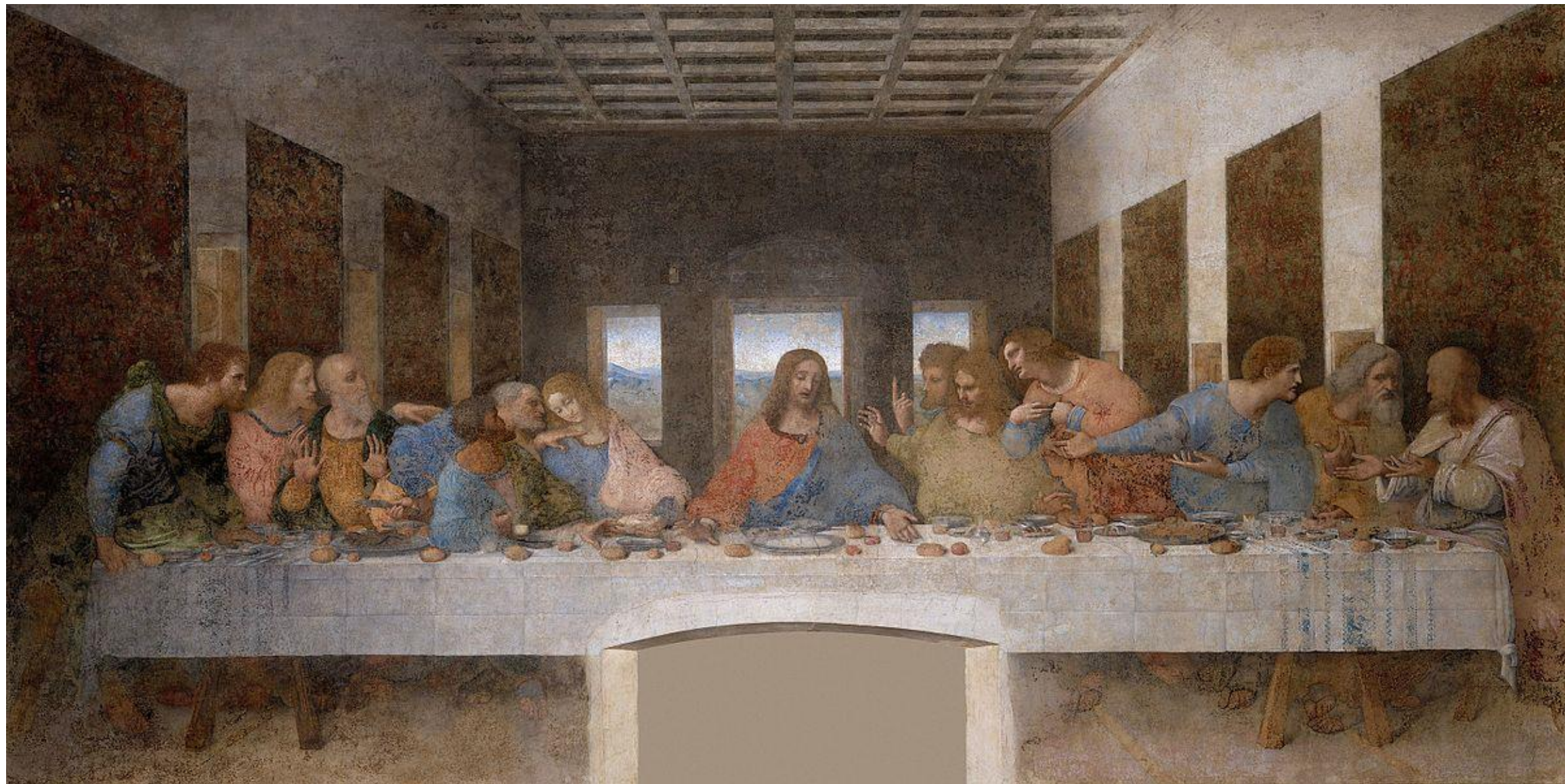










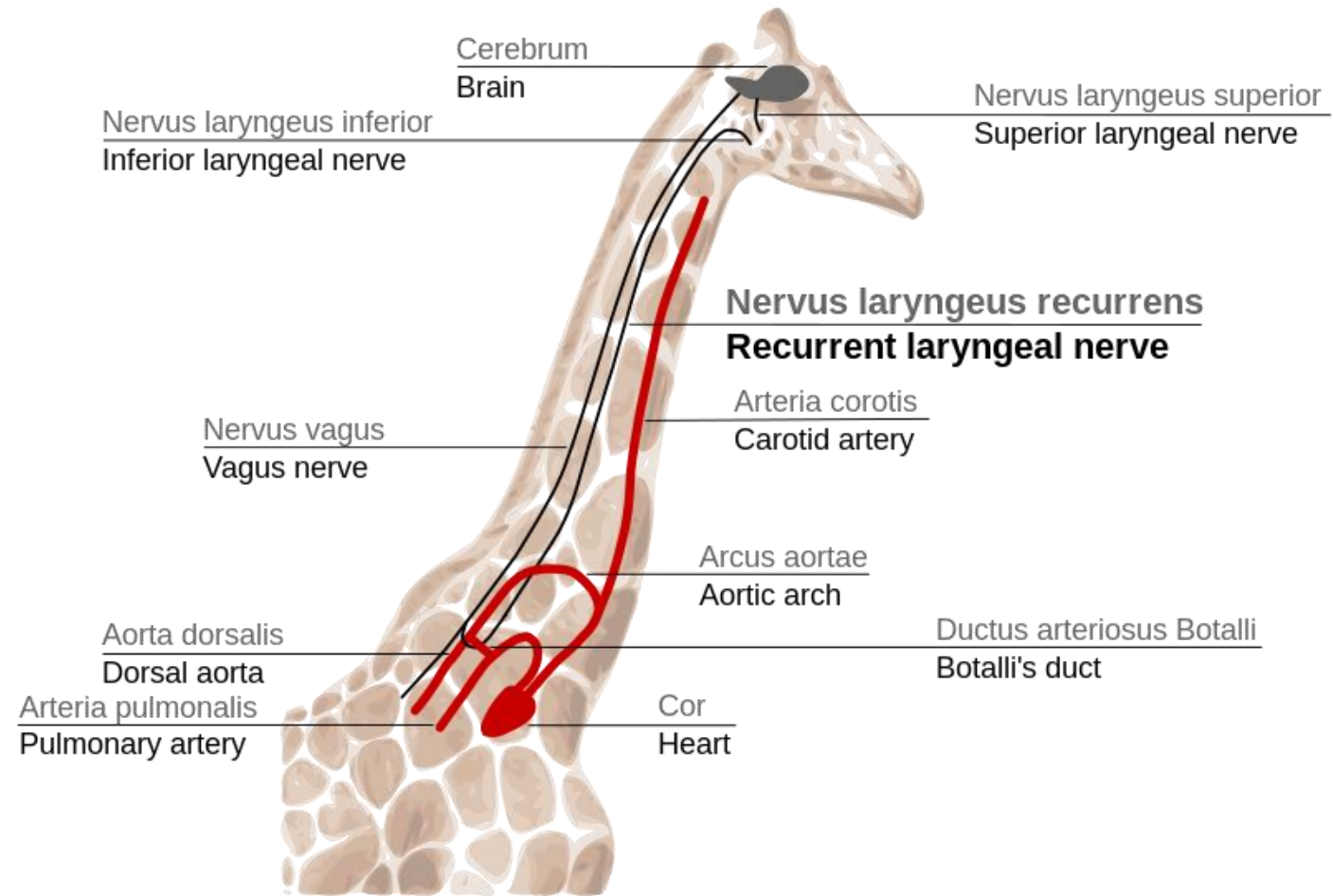


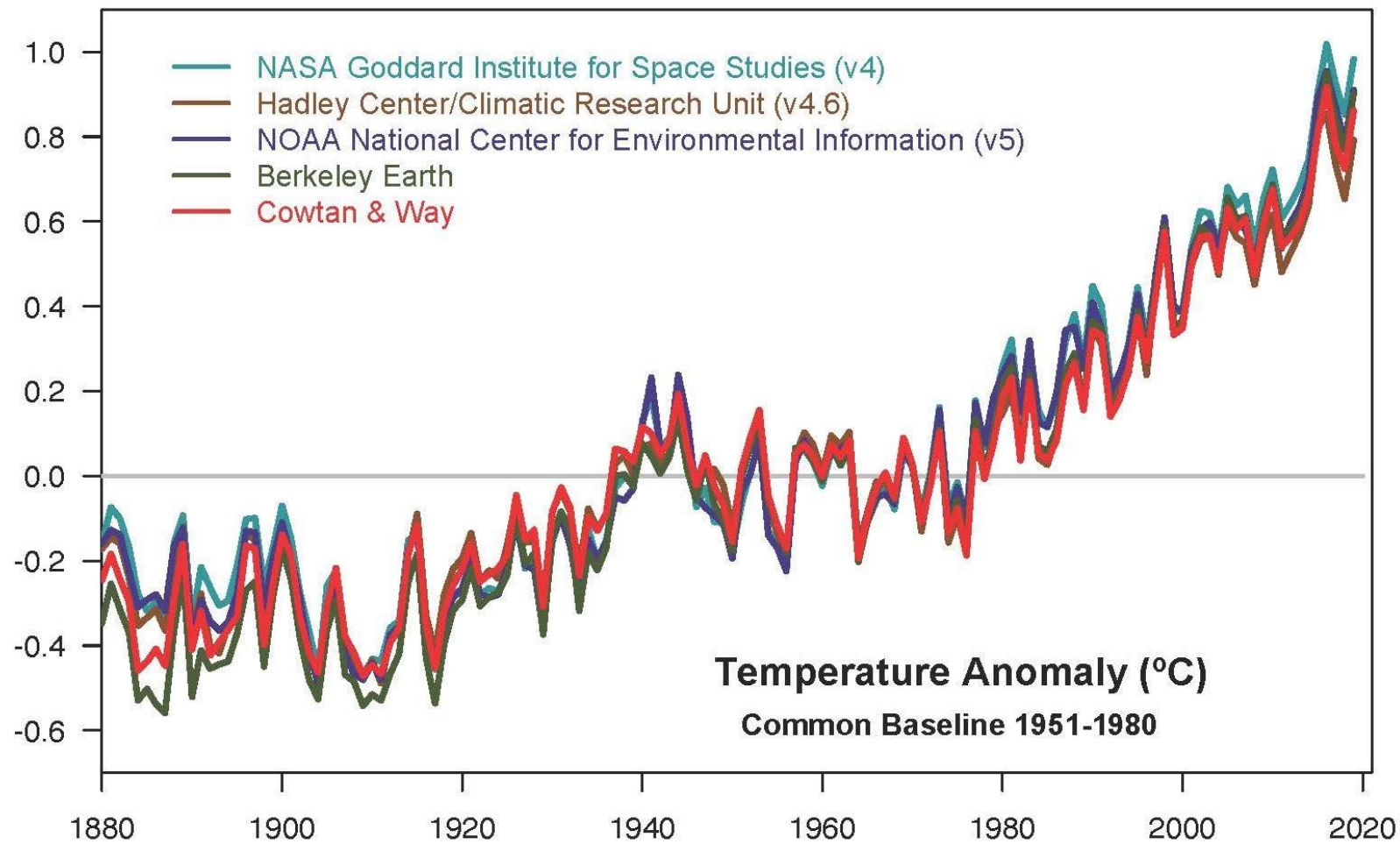
**How do we know
what's really real in
a world that's
increasingly fake?**

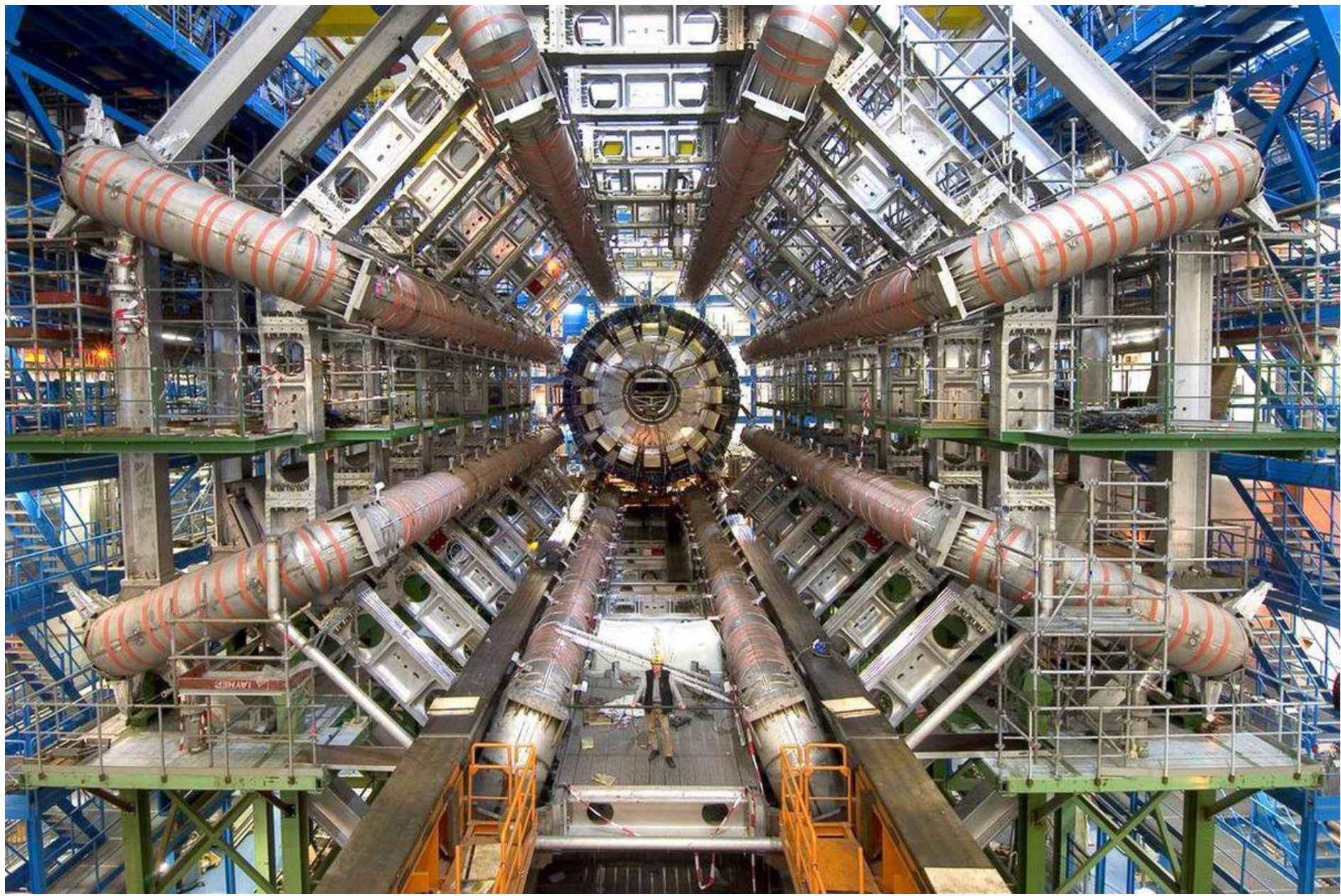
“What do you think science is? There's nothing magical about science. It is simply a systematic way for carefully and thoroughly observing nature and using consistent logic to evaluate results. Which part of that exactly do you disagree with? Do you disagree with being thorough? Using careful observation? Being systematic? Or using consistent logic?”

— **Steven Novella**







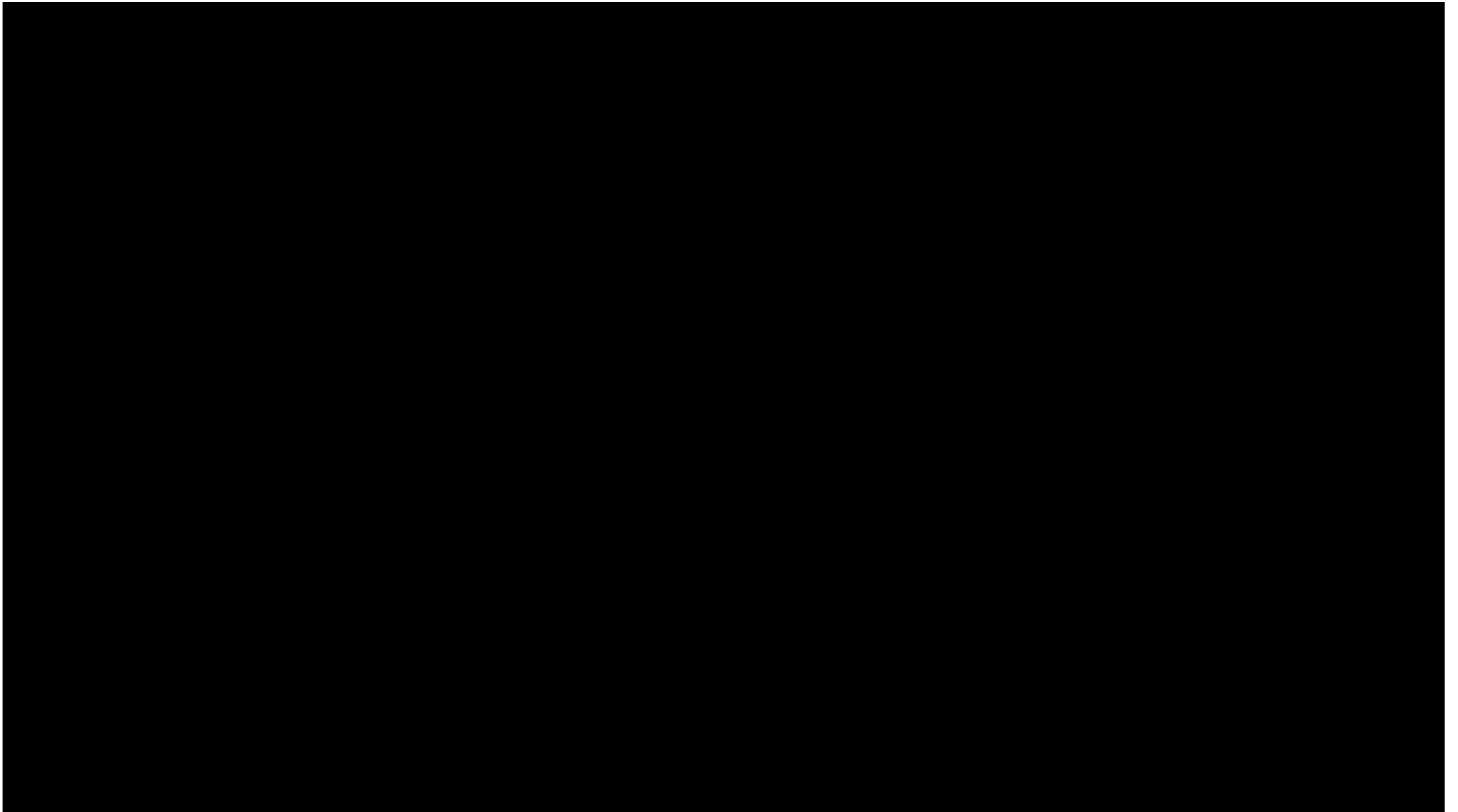


Artists & Artworks

Examples of the relationship between the arts and the sciences and of work tackling contemporary challenges.

The Water Tank Project



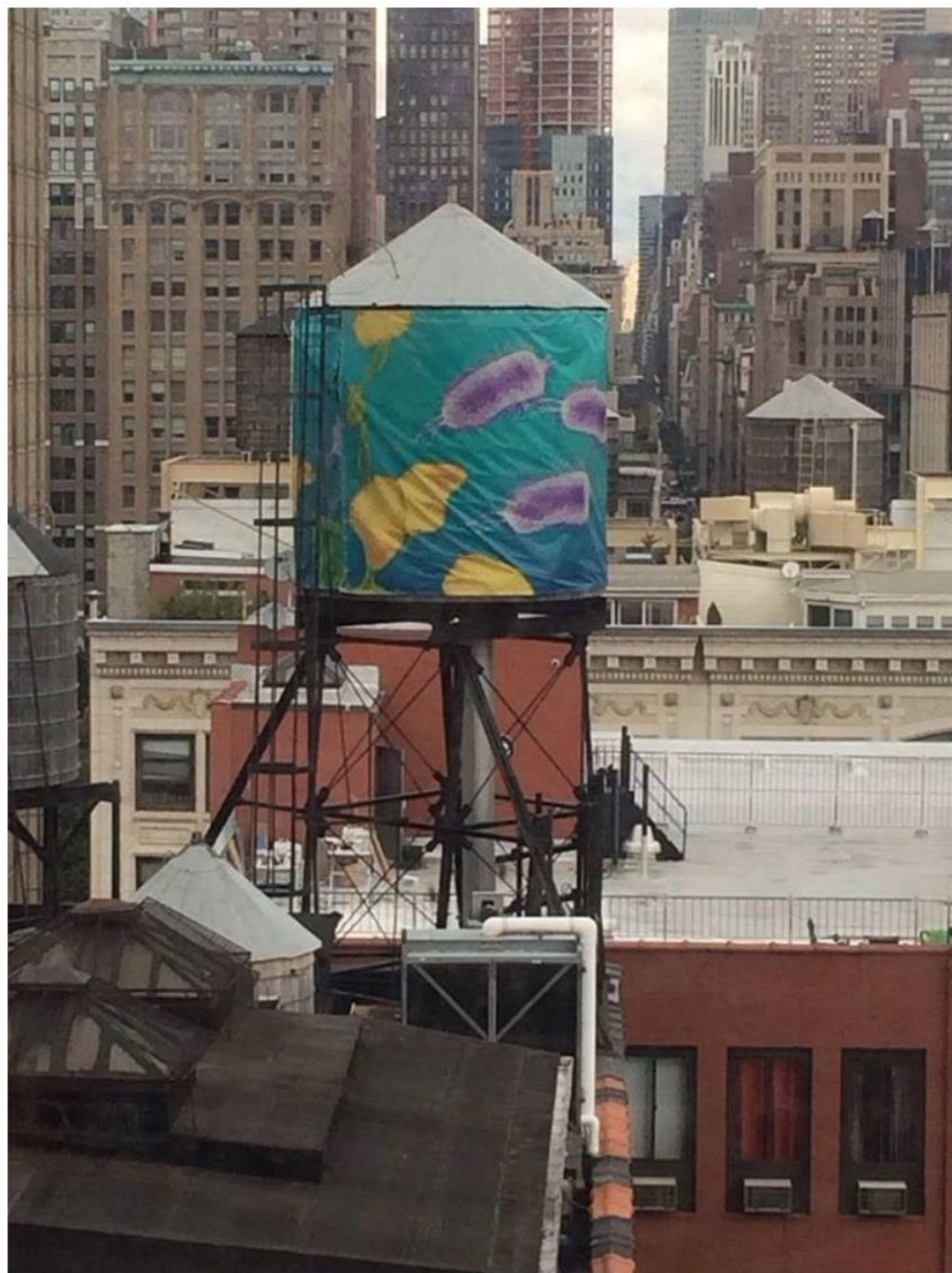






















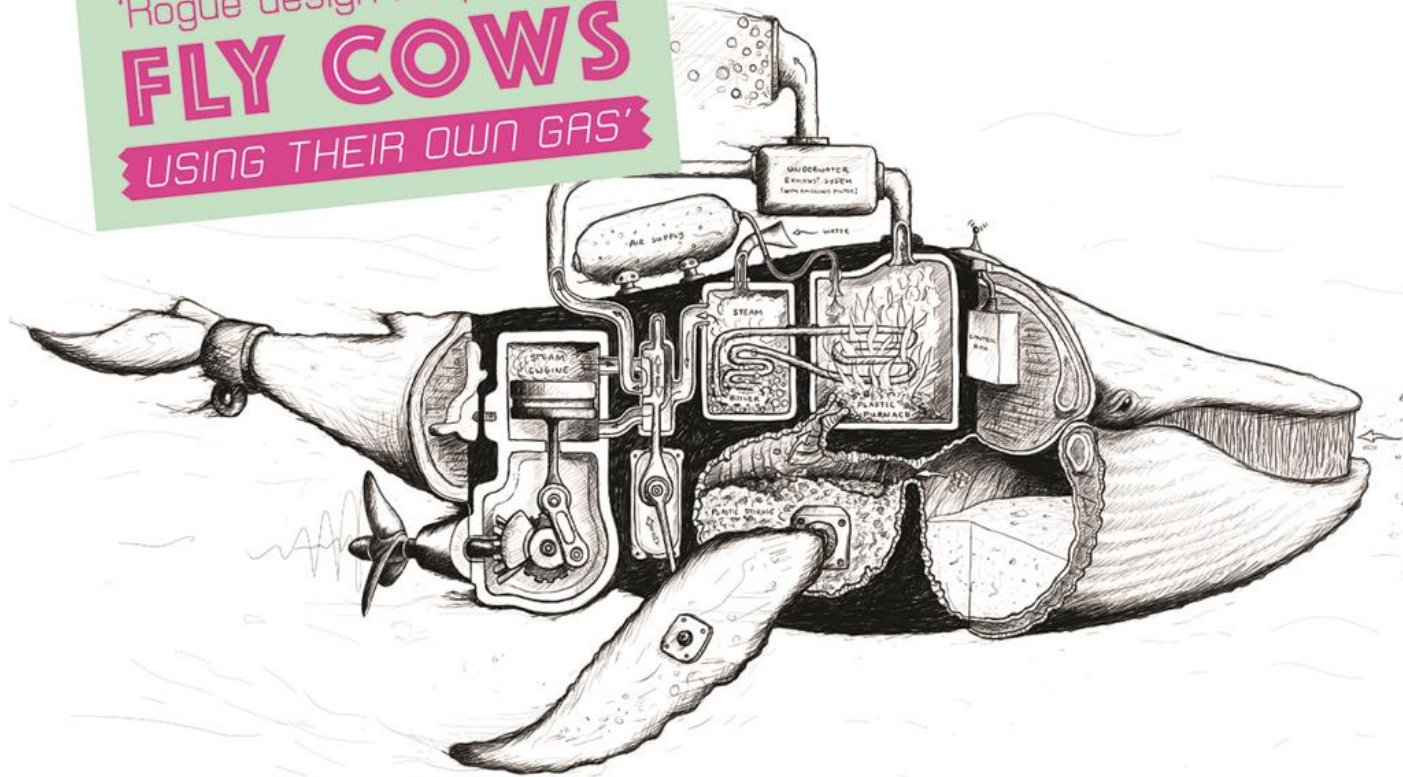




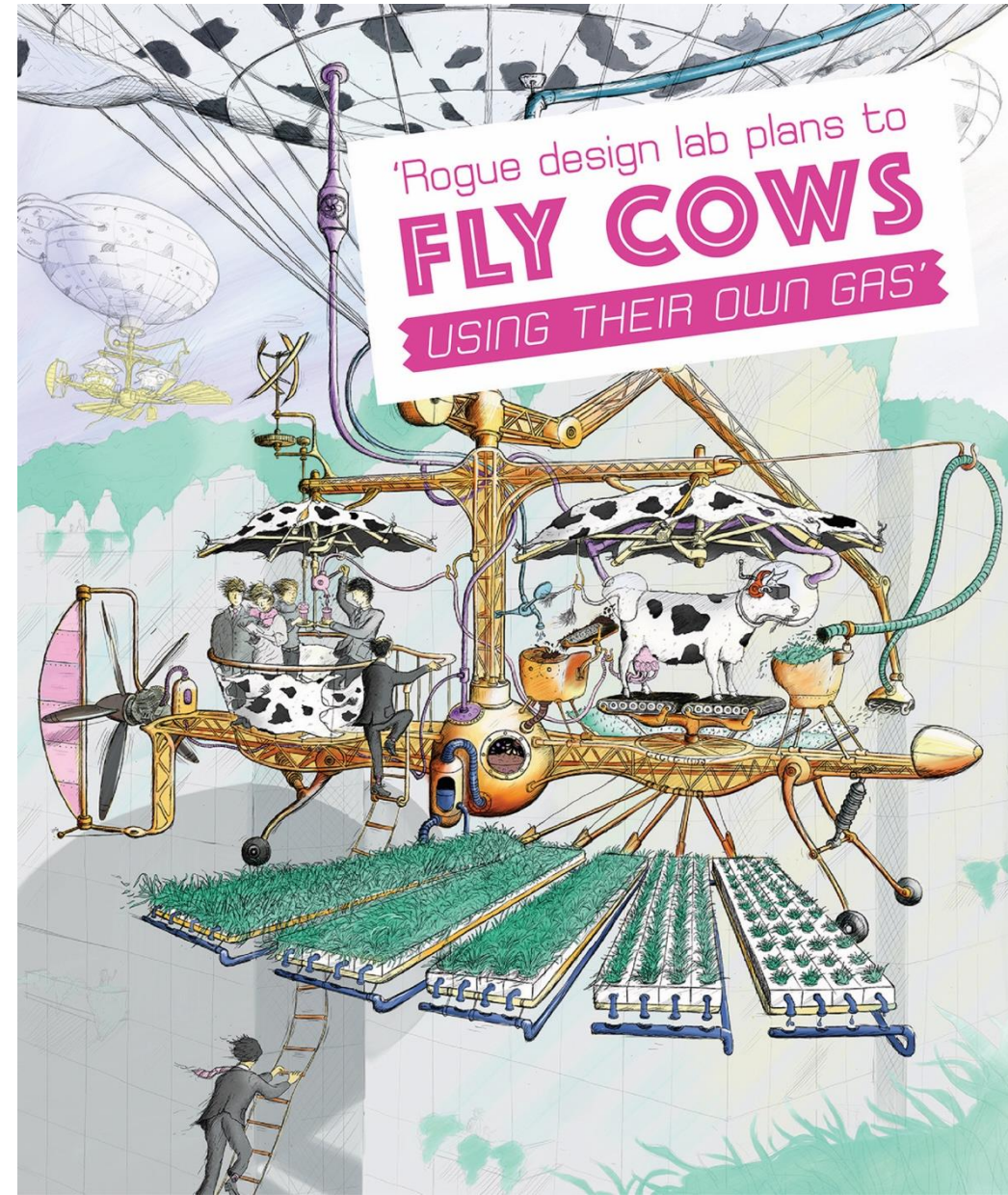
Stephen Mushin

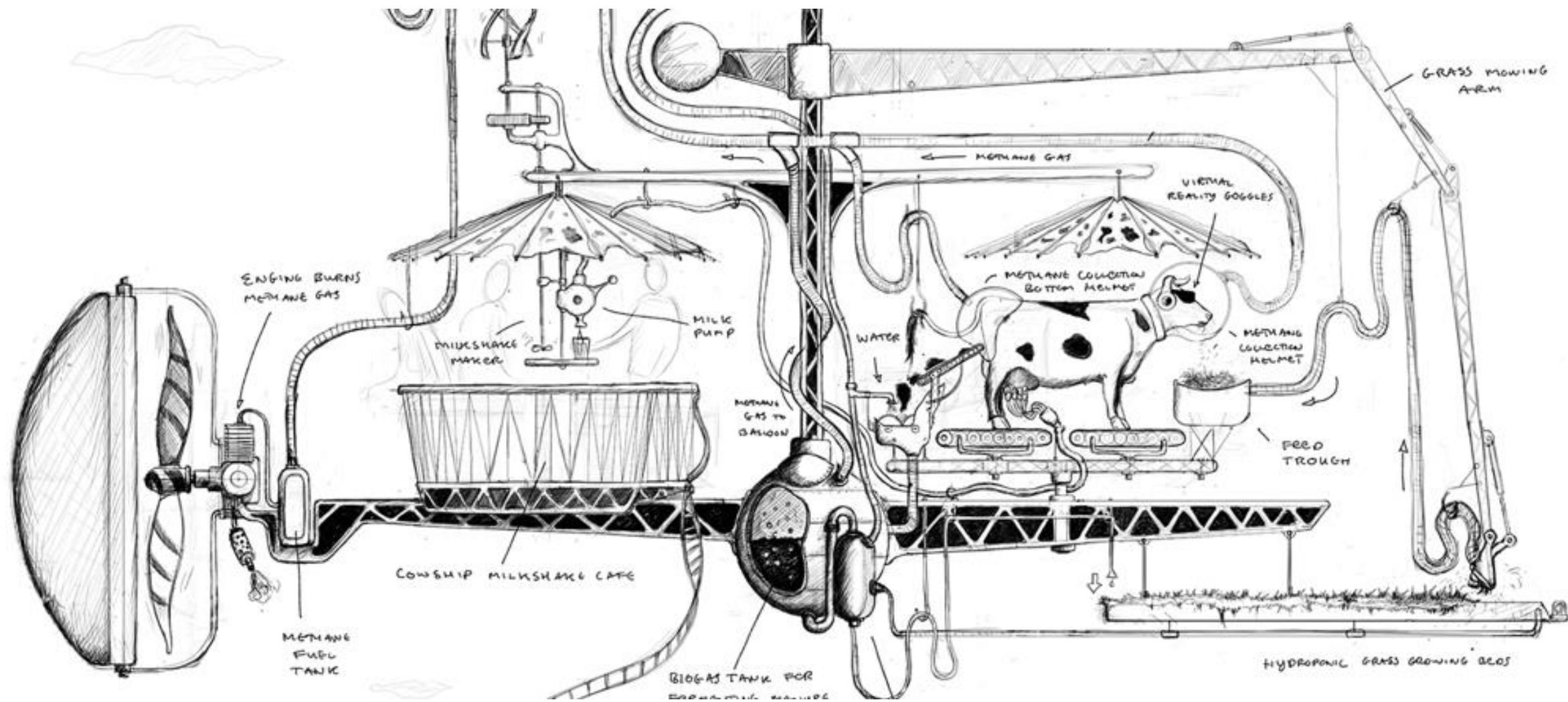
The Cowship Project

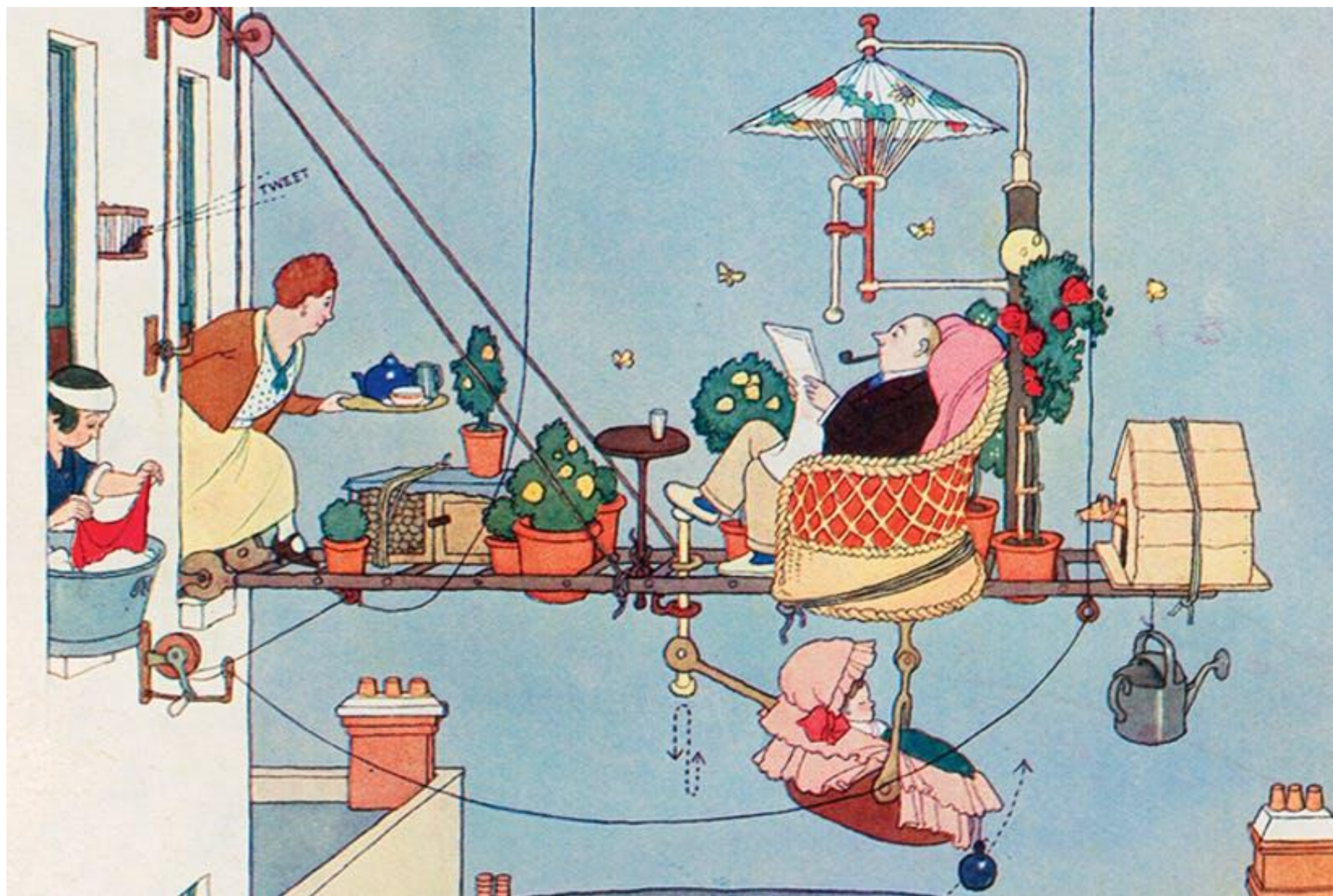
CLICK HERE FOR
'Rogue design lab plans to
FLY COWS
USING THEIR OWN GAS'

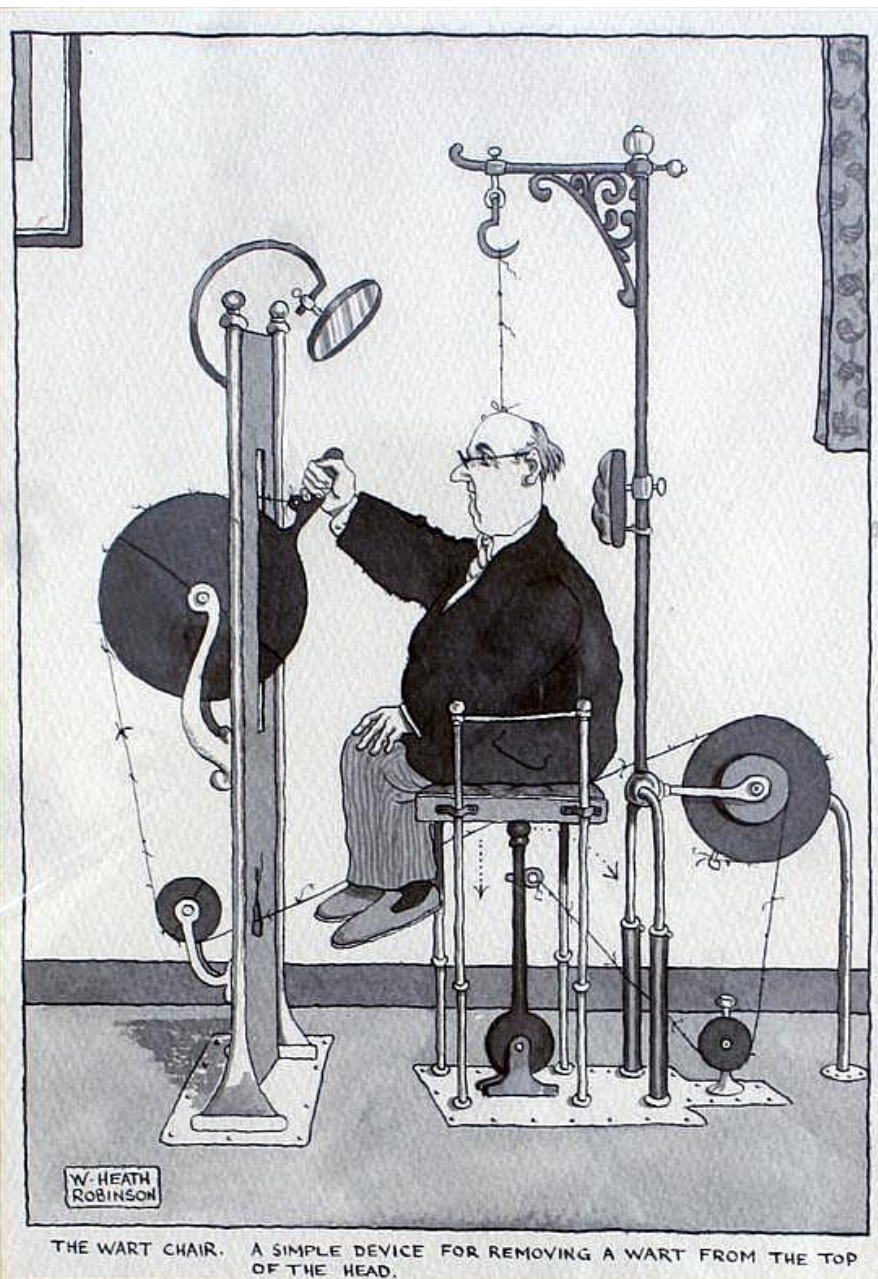


'Rogue design lab plans to
FLY COWS
USING THEIR OWN GAS'





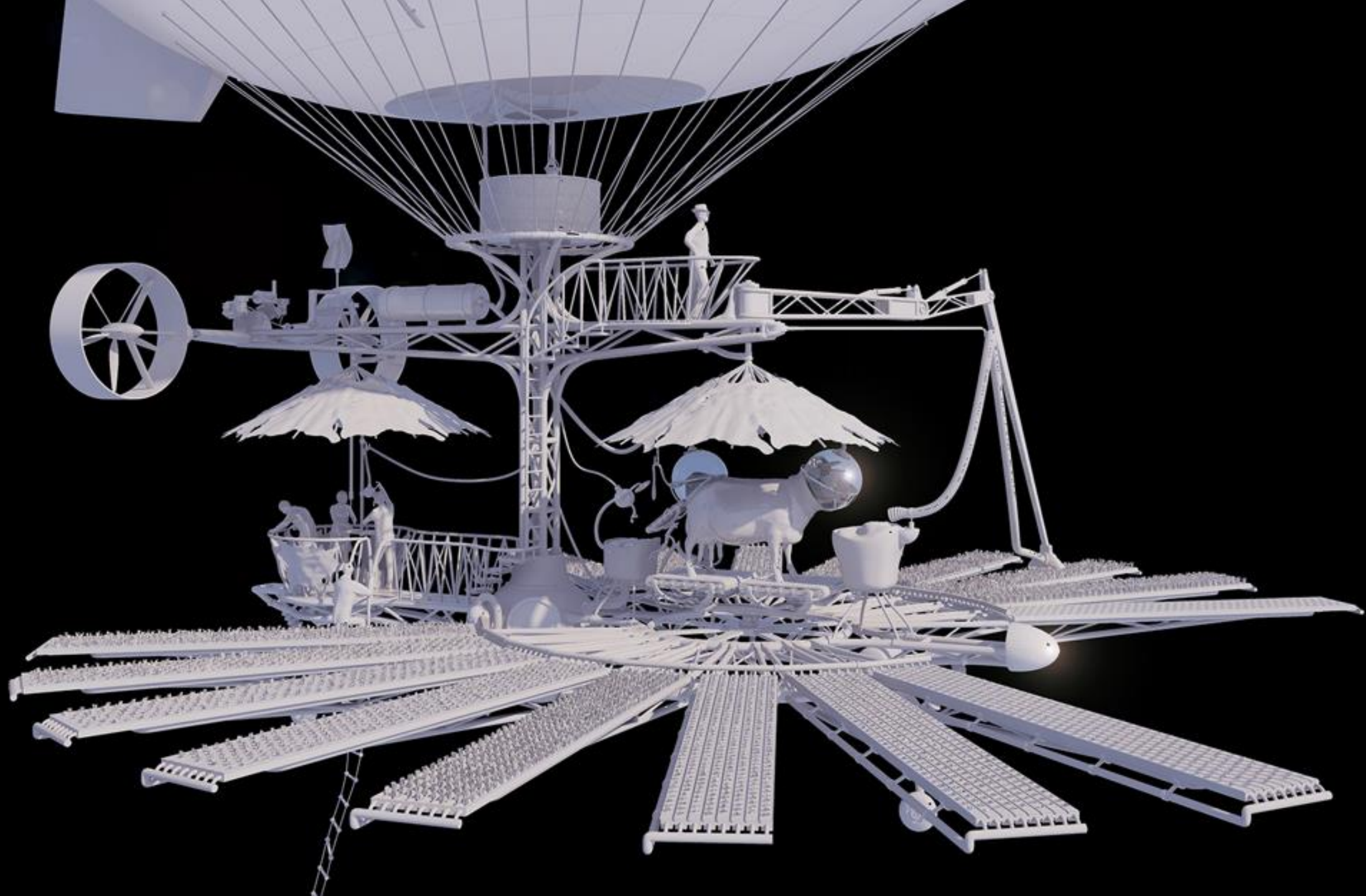


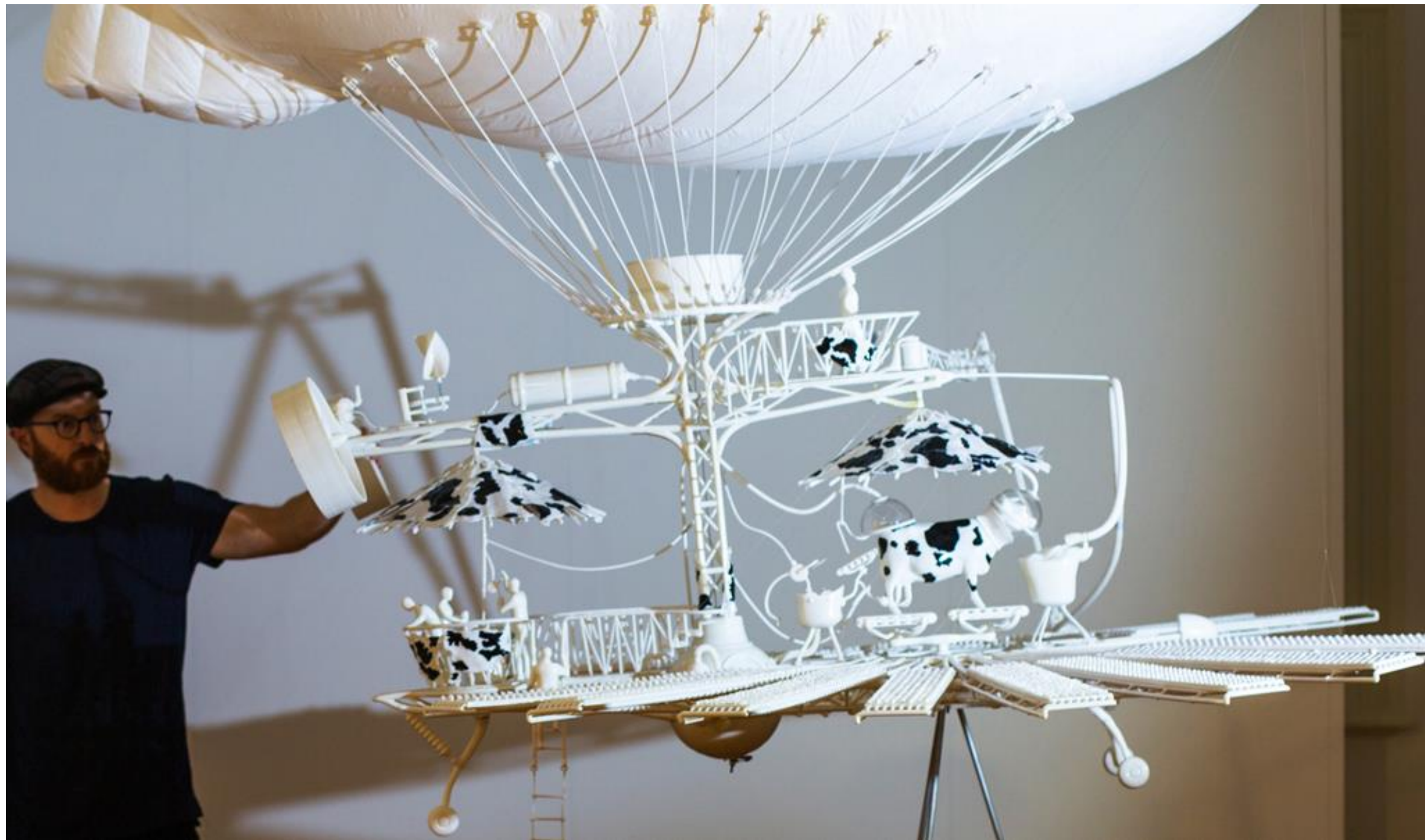


THE WART CHAIR. A SIMPLE DEVICE FOR REMOVING A WART FROM THE TOP OF THE HEAD.

**‘When the going gets weird, the weird
turn pro’**

Mushin's gonzo designs propose
preposterously provocative solutions to deadly
serious environmental problems.





‘The projects tap into deep feelings of shame we all carry about our impact on the world, the resources we consume, the animals that work for us to produce the lives we live’

Art Works for Change Collective

Art Works for Change was established in 2008 to expand upon the efforts of a team of dedicated artists and social change leaders who since 2005 had produced a series of acclaimed traveling museum exhibitions focused on social and environmental themes.

Alexis Rockman









WWF Campaigns



**PROTECT THE FORESTS,
THEY ARE THE CLIMATE UMBRELLA
OF OUR PLANET.**

www.panda.org/forests



**We cut off something
that doesn't grow again.**

Wherever the rain forest is cleared,
barren ground remains.





2015
European Year
for Development



Ugly

is what's happening in our oceans.

Ugly is to see overfishing destroy the future of
800 million people who depend on fish to survive.

Make a difference. Choose sustainable fish.

www.fishforward.eu

This project is co-funded by the European Union. The contents of this ad are the sole responsibility of WWF and can in no way be taken to represent the views of the EU.





2015
European Year
for Development



Shocking

is the practice of overfishing.

Shocking is to know that up to 30% of the fish
we eat are caught illegally and to do nothing about it.

Make a difference. Choose sustainable fish.

www.fishforward.eu

This project is co-funded by the European Union. The contents of this ad are the sole responsibility of WWF and can in no way be taken to represent the views of the EU.





2015
European Year
for Development



Pathetic

is to catch fish before they ever had a chance to
grow and reproduce.

Pathetic is not to fight this destructive practice.

Make a difference. Choose sustainable fish.

www.fishforward.eu

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Museo del Prado (Prado Museum) recently collaborated on a project with the World Wildlife Fund (WWF) designed to coincide with the 2019 UN Climate Change Conference in Madrid. Paintings from the museum's collection were digitally modified to reflect a future world destroyed by inaction. Rising sea levels, barren rivers, and refugee camps transform works by European painters into a campaign to save the environment.







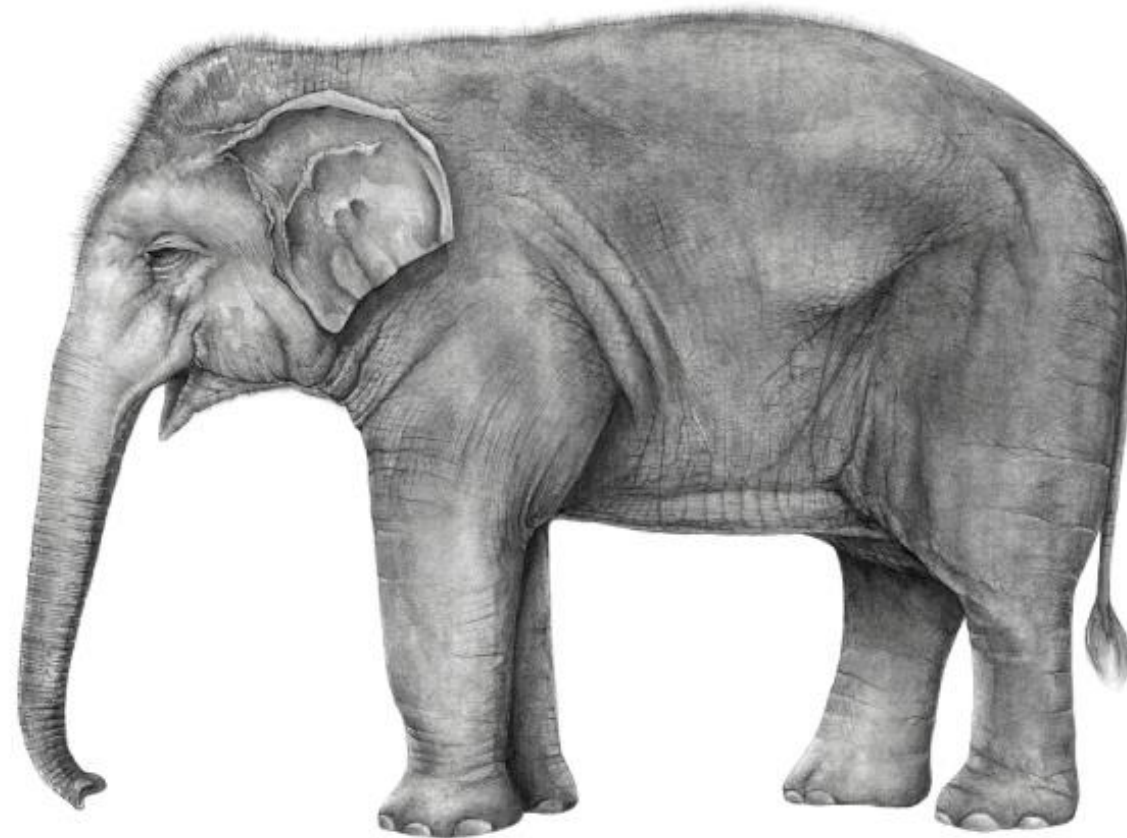








Dr Andrew Howells





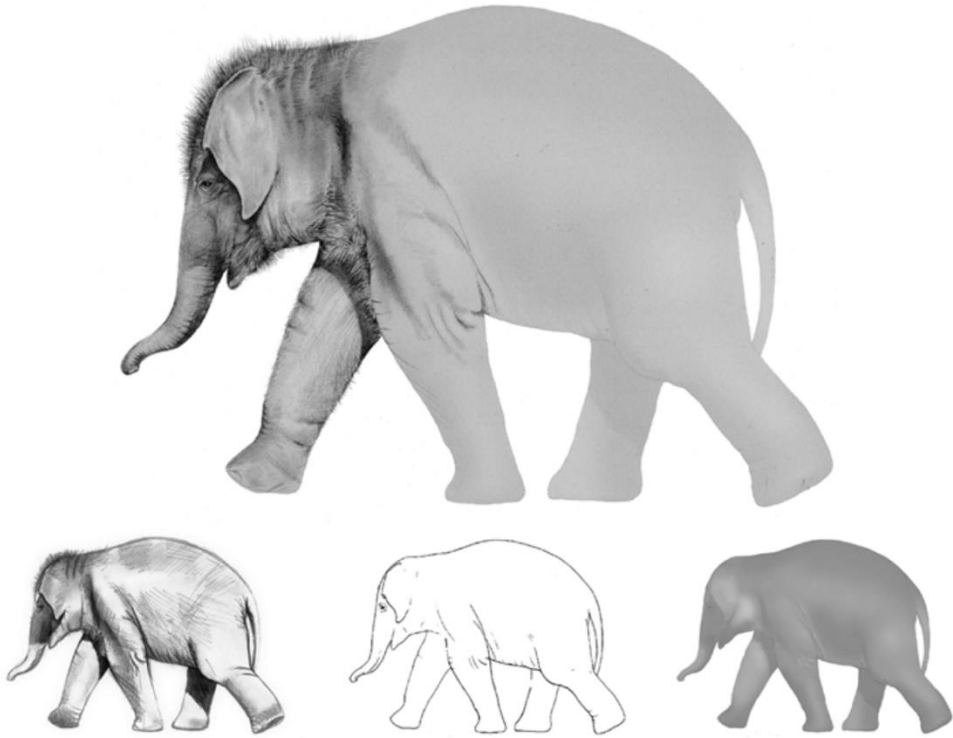


Figure 5: Illustration rendering process, A. Howells (see page 29)

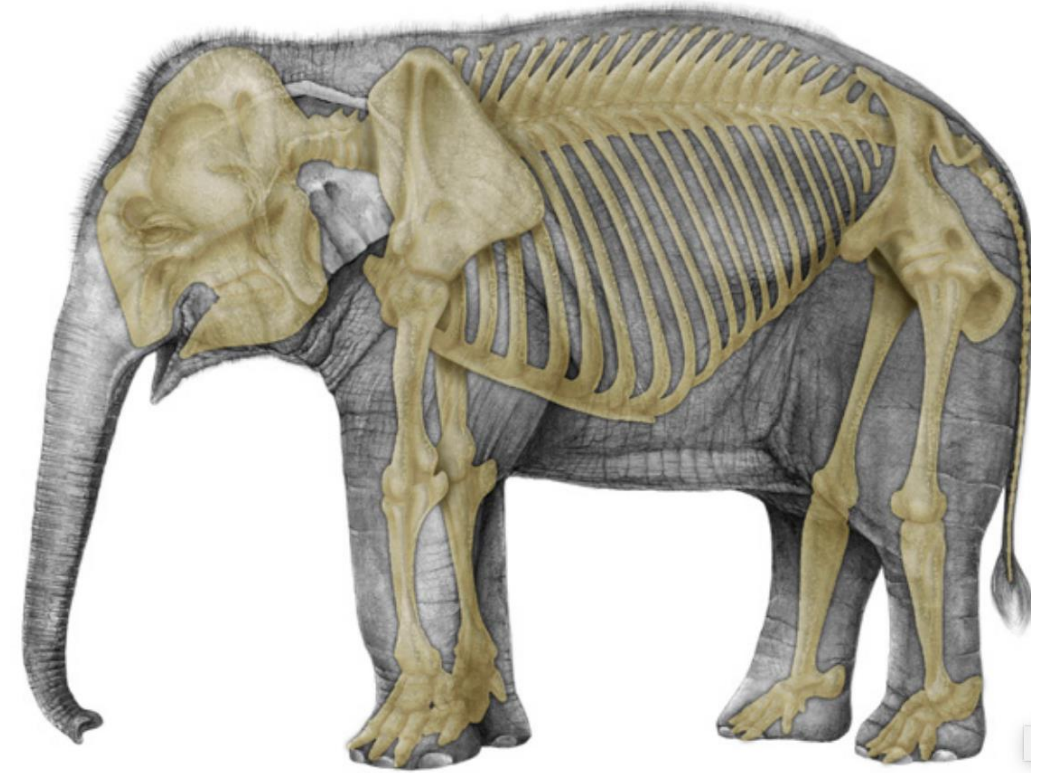
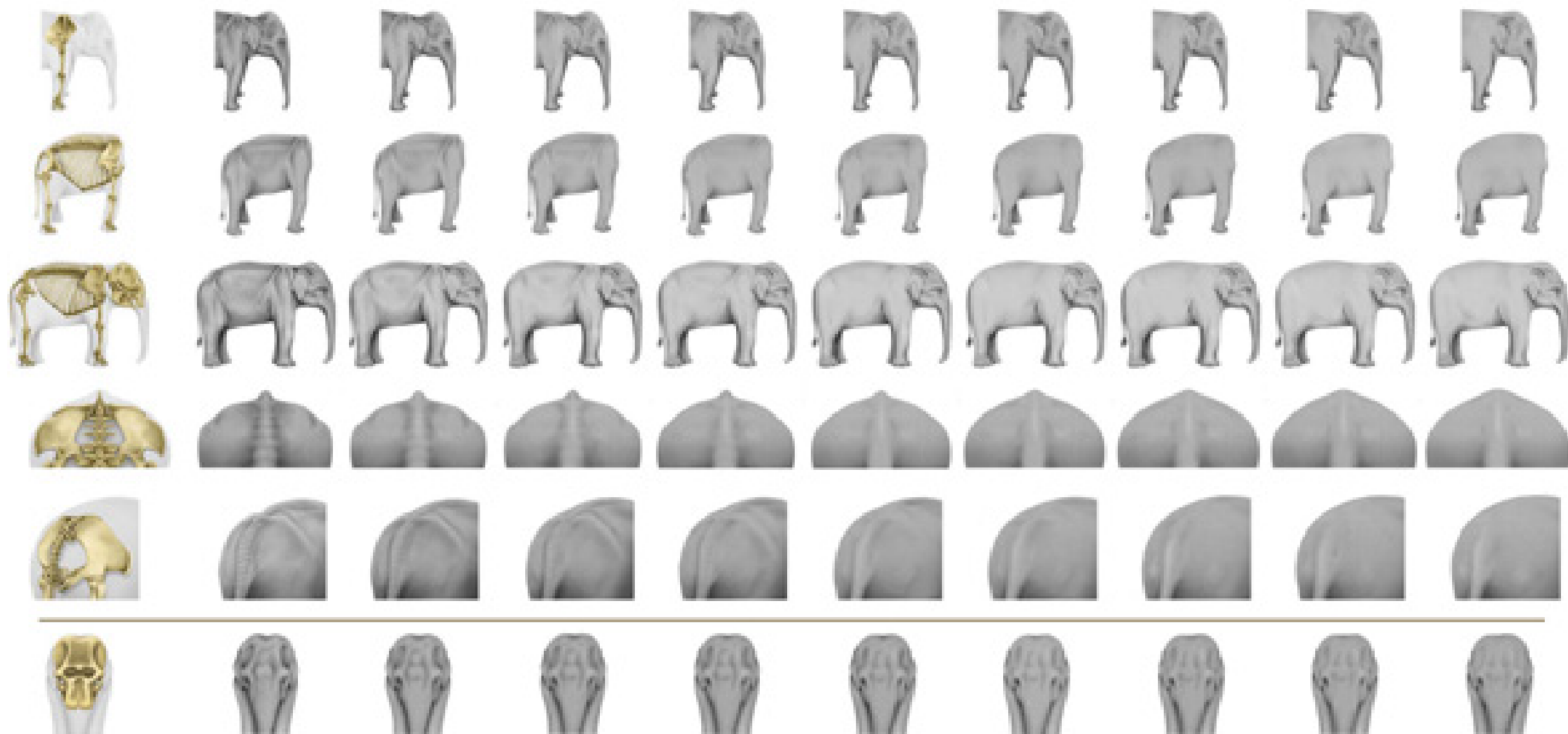


Figure 1: Reference of the relationship between the skin and skeleton, A. Howells

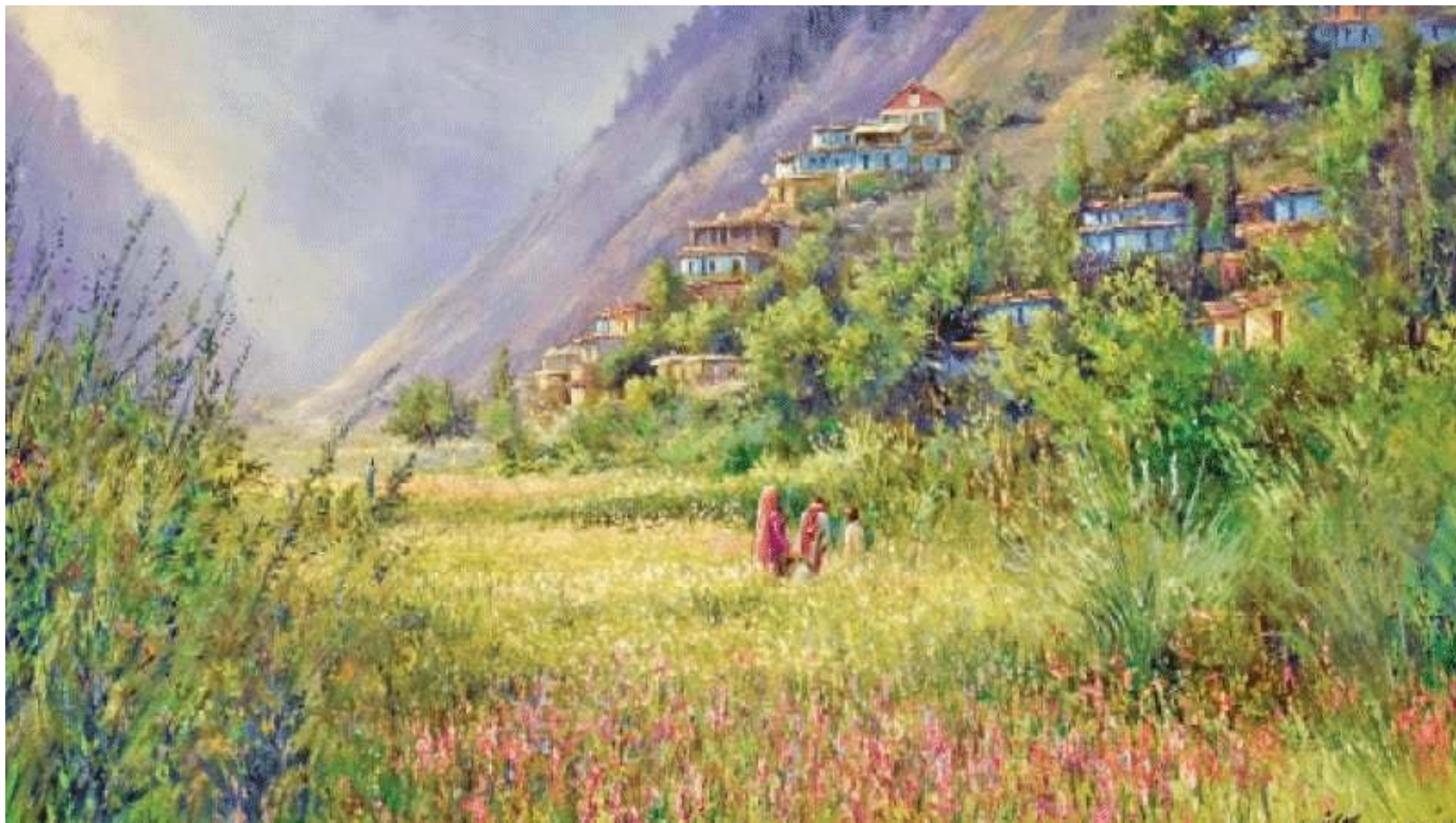


**More museum galleries
& exhibitions**



The exhibition was the outcome of the Art for Climate Change retreat organized by Gallery 6 in collaboration with the Pakistan Tourism Development.





Alexis Rockman - Bruce Museum

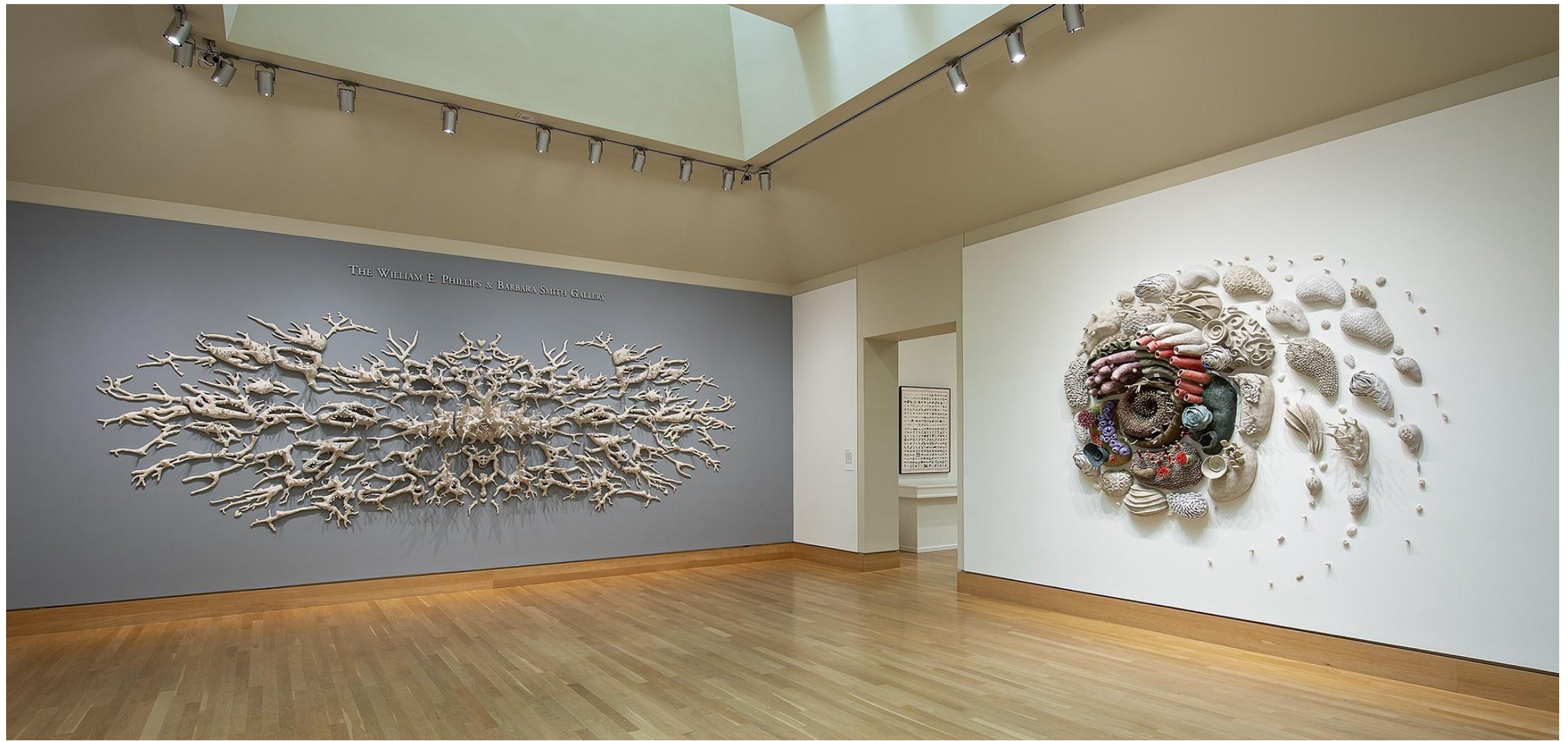
Can Art Drive Change on Climate Change?





“The Crucified Land,” by Alexander Hogue (1939), will be on display at the Peabody Essex Museum’s exhibition “Nature’s Nation: American Art and Environment.” Gilcrease Museum, Tulsa

Courtney Mattison
Malum Geminos and Afterglow
OurChanging Seas VI





Guerilla Art







Sean “Hula Yoro

Working across the world in some of the most extreme environments, Sean “Hula” Yoro and his twin Kapu have painted beautifully intricate murals which stress the dangers of rising sea levels and climate change. Their work embraces the transience of art as most are washed or eroded away after a mere few weeks





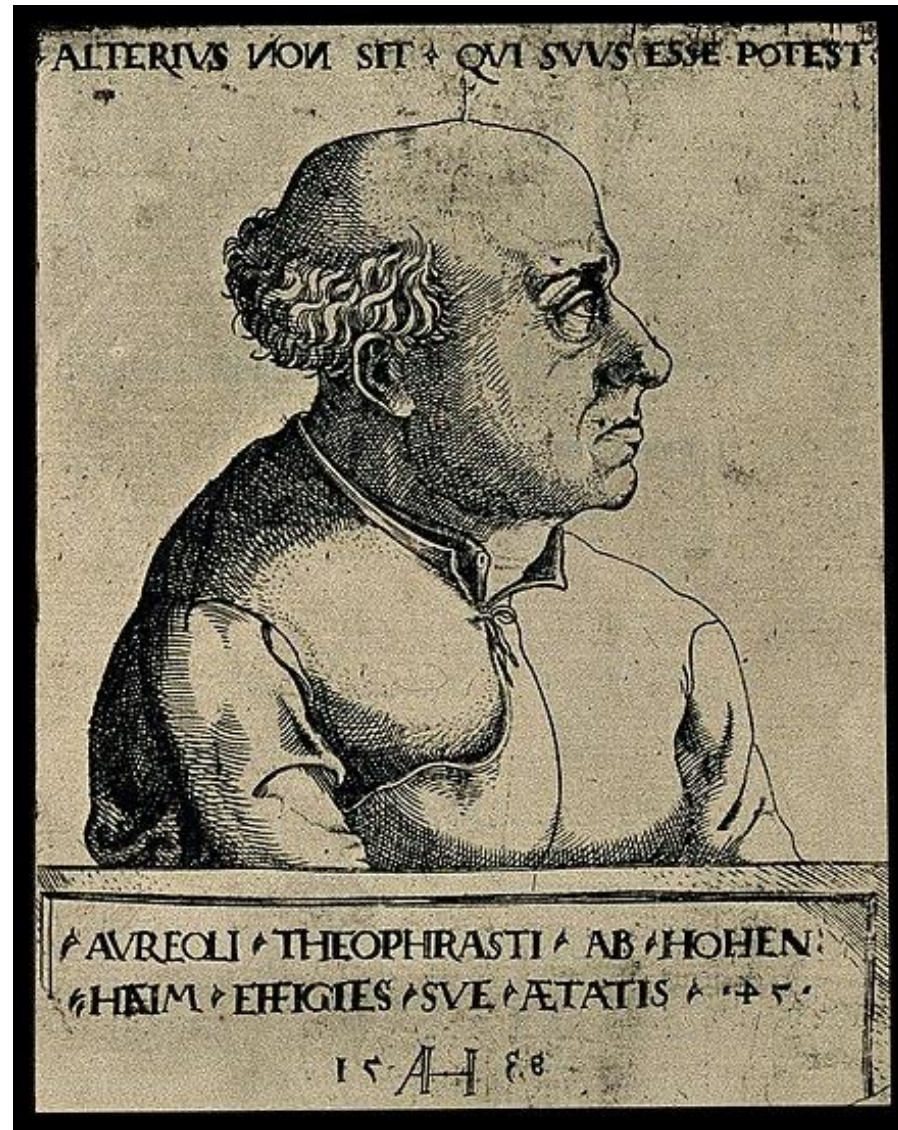


of our food is



clean.

Our food contains no artificial preservatives, sweeteners, flavors and no colors from artificial sources.



Paracelsus

AN ALL-NATURAL BANANA



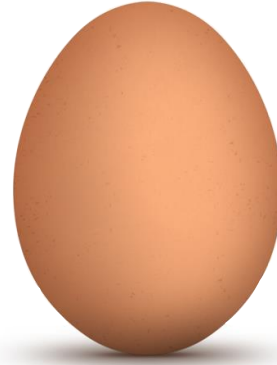
INGREDIENTS: WATER (75%), **SUGARS (12%)** (GLUCOSE (48%), FRUCTOSE (40%), SUCROSE (2%), MALTOSE (<1%)), STARCH (5%), FIBRE E460 (3%), **AMINO ACIDS (<1%)** (GLUTAMIC ACID (19%), ASPARTIC ACID (16%), HISTIDINE (11%), LEUCINE (7%), LYSINE (5%), PHENYLALANINE (4%), ARGININE (4%), VALINE (4%), ALANINE (4%), SERINE (4%), GLYCINE (3%), THREONINE (3%), ISOLEUCINE (3%), PROLINE (3%), TRYPTOPHAN (1%), CYSTINE (1%), TYROSINE (1%), METHIONINE (1%)), **FATTY ACIDS (<1%)** (PALMITIC ACID (30%), OMEGA-6 FATTY ACID: LINOLEIC ACID (14%), OMEGA-3 FATTY ACID: LINOLENIC ACID (8%), OLEIC ACID (7%), PALMITOLEIC ACID (3%), STEARIC ACID (2%), LAURIC ACID (1%), MYRISTIC ACID (1%), CAPRIC ACID (<1%)), ASH (<1%), PHYTOSTEROLS, E515, OXALIC ACID, E300, E306 (TOCOPHEROL), PHYLLLOQUINONE, THIAMIN, **COLOURS** (YELLOW-ORANGE E101 (RIBOFLAVIN), YELLOW-BROWN E160a), **FLAVOURS** (3-METHYLBUT-1-YL ETHANOATE, 2-METHYLBUTYL ETHANOATE, 2-METHYLPROPAN-1-OL, 3-METHYLBUTYL-1-OL, 2-HYDROXY-3-METHYL BUTANOATE, 3-METHYLBUTANAL, ETHYL HEXANOATE, ETHYL BUTANOATE, PENTYL ACETATE), 1510, NATURAL RIPENING AGENT (ETHENE GAS).

ALL-NATURAL BLUEBERRIES



INGREDIENTS: AQUA (84%), **SUGARS (10%)** (FRUCTOSE (48%), GLUCOSE (40%), SUCROSE (2%)), FIBRE E460 (2.4%), **AMINO ACIDS (<1%)** (GLUTAMIC ACID (23%), ASPARTIC ACID (18%), LEUCINE (17%), ARGININE (8%), ALANINE (4%), VALINE (4%), GLYCINE (4%), PROLINE (4%), ISOLEUCINE (3%), SERINE (3%), THREONINE (3%), PHENYLALANINE (2%), LYSINE (2%), METHIONINE (2%), TYROSINE (1%), HISTIDINE (1%), CYSTINE (1%), TRYPTOPHAN (<1%)), **FATTY ACIDS (<1%)** (OMEGA-6 FATTY ACID: LINOLEIC ACID (30%), OMEGA-3 FATTY ACID: LINOLENIC ACID (19%), OLEIC ACID (18%), PALMITIC ACID (6%), STEARIC ACID (2%), PALMITOLEIC ACID (<1%)), ASH (<1%), PHYTOSTEROLS, OXALIC ACID, E300, E306 (TOCOPHEROL), THIAMIN, **COLOURS** (E163a, E163b, E163e, E163f, E160a) **FLAVOURS** (ETHYL ETHANOATE, 3-METHYL BUTYRALDEHYDE, 2-METHYL BUTYRALDEHYDE, PENTANAL, METHYLBUTYRATE, OCTENE, HEXANAL, DECANAL, 3-CARENE, LIMONENE, STYRENE, NONANE, ETHYL-3-METHYLBUTANOATE, NON-1-ENE, HEXAN-2-ONE, HYDROXYLINALOOL, LINALOOL, TERPINYL ACETATE, CARYOPHYLLENE, ALPHA-TERPINEOL, ALPHA-TERPINENE, 1,8-CINEOLE, CITRAL, BENZALDEHYDE), METHYLPARABEN, 1510, E300, E440, E421 and **FRESH AIR** (E941, E948, E290).

AN ALL-NATURAL EGG



INGREDIENTS: AQUA (75.8%), **AMINO ACIDS (12.6%)** (GLUTAMIC ACID (14%), ASPARTIC ACID (11%), VALINE (9%), ARGININE (8%), LEUCINE (8%), LYSINE (7%), SERINE (7%), PHENYLALANINE (6%), ALANINE (5%), ISOLEUCINE (5%), PROLINE (4%), TYROSINE (3%), THREONINE (3%), GLYCINE (3%), HISTIDINE (2%), METHIONINE (3%), CYSTINE (2%), TRYPTOPHAN (1%)); **FATTY ACIDS (9.9%)** (OCTADECENOIC ACID (45%), HEXADECANOIC ACID (32%), OCTADECANOIC ACID (12%), EICOSATETRAENOIC ACID (3%), EICOSANOIC ACID (2%), DOCOSANOIC ACID (1%), TETRACOSANOIC ACID (1%), OCTANOIC ACID (<1%), DECANOIC ACID (<1%), DODECANOIC ACID (<1%), TETRADECANOIC ACID (<1%), PENTADECANOIC ACID (<1%), HEPTADECANOIC ACID (<1%), TETRADECENOIC ACID (<1%), HEXADECENOIC ACID (<1%), EICOSENOIC ACID (<1%), DOCOSENOIC ACID (<1%), OMEGA-6 FATTY ACID: OCTADECADIENOIC ACID (12%), OMEGA-3 FATTY ACID: OCTADECATRIENOIC ACID (<1%), EICOSAPENTAENOIC ACID (EPA) (<1%), OMEGA-3 FATTY ACID: DOCOSAHEXAENOIC ACID (DHA) (<1%)); **SUGARS (0.8%)** (GLUCOSE (30%), SUCROSE (15%), FRUCTOSE (15%), LACTOSE (15%), MALTOSE (15%), GALACTOSE (15%)); **COLOUR** (E160c, E160a), E306, E101; **FLAVOURS** (PHENYLACETALDEHYDE, DODECA-2-ENAL, HEPTA-2-ENAL, HEXADECANAL, OCTADECANAL, PENTAN-2-ONE, BUTAN-2-ONE, ACETALDEHYDE, FORMALDEHYDE, ACETONE); SHELL (E170), ALSO CONTAINS BENZENE & BENZENE DERIVATIVES, ESTERS, FURANS, SULFUR-CONTAINING COMPOUNDS AND TERPENES.

AN ALL-NATURAL PASSIONFRUIT



INGREDIENTS: AQUA (72.9%), **SUGARS (11.2%)** (FRUCTOSE (48%), GLUCOSE (48%), MALTOSE (2%), GALACTOSE (2%), SUCROSE (2%), FIBRE E460 (10.4%), ASH, **AMINO ACIDS (1.1%)** (GLUTAMIC ACID (17%), ASPARTIC ACID (12%), ARGININE (6%), LYSINE (6%), GLYCINE (6%), LEUCINE (6%), VALINE (5%), ISOLEUCINE (5%), ALANINE (5%), SERINE (5%), PHENYLALANINE (4%), PROLINE (4%), THREONINE (4%), HISTIDINE (3%), CYSTINE (3%), TYROSINE (3%), METHIONINE (3%), TRYPTOPHAN (1%), **FATTY ACIDS (<1%)** (OMEGA-6 FATTY ACID: OCTADECADIENOIC ACID (73%), OCTADECANOIC ACID (15%), HEXADECANOIC ACID (8%), OCTADECANOIC ACID (3%), OMEGA-3 FATTY ACID: OCTADECATRIENOIC ACID (<1%)), **PRESERVATIVES (<1%)** (E236, E296), **COLOURS (<1%)** (E163, E162, E160a, E161b, E140, E161d, E161e, E161g, E161h) E300, E307, FOLATE, CHOLINE, BETAIN, PHYTOSTEROLS, **FLAVOURS (<1%)** (LINALOOL (15.3%), OCTAN-1-OL (11.5%), ETHYL HEXANOATE (11.1%), ETHYL BUTANOATE (9.4%), HEXAN-1-OL (9.0%), ALPHA-TERPINEOL (8.0%), BENZALDEHYDE (4.8%), ETHYL BENZOATE (3.0%), 3-METHYL-1-BUTANOL (2.8%), GERANIOL (2.4%), METHYL CYCLOPENTANE (1.8%), BENZOIC ACID E210 (1.6%), UNDECANOL (1.5%), CYCLOPENTANONE (1.5%), PHENYLMETHYL ETHANOATE (1.4%), HEXEN-1-OL (1.2%), TERPENE-4-OL (1.1%), ACETAL 1-(4-DIETHOXYETHANE (1.0%), 3-HYDROXY-2-BUTANONE (1.0%), HEXANOIC ACID (<1%), OCTANOIC ACID (<1%), CIS-LINALOOL OXIDE (<1%), 3-METHYL-2-BUTEN-1-OL (<1%), BENZENE ACETALDEHYDE (<1%), FLAVOURS UNIQUE TO PASSIONFRUIT: (+)-CIS-2-METHYL-4-PROPYL-1,3-OXATHIANE, 3-MERCAPTOHEXAN-1-OL, 3-MERCAPTOHEXYL ETHANOATE, 3-MERCAPTO-3-METHYLBUTYL ETHANOATE, (S)-3-HEXAN-1-OL-L-CYSTEINE).

AN ALL-NATURAL KIWI



INGREDIENTS: AQUA (83.1%), **SUGARS (9.0%)** (FRUCTOSE (48%), GLUCOSE (46%), MALTOSE (2%), GALACTOSE (2%), SUCROSE (2%), FIBRE E460 (3.0%), ASH, **AMINO ACIDS (1.1%)** (GLUTAMIC ACID (17%), ASPARTIC ACID (12%), ARGININE (6%), LYSINE (6%), GLYCINE (6%), LEUCINE (6%), VALINE (5%), ISOLEUCINE (5%), ALANINE (5%), SERINE (5%), PHENYLALANINE (4%), PROLINE (4%), THREONINE (4%), HISTIDINE (3%), CYSTINE (3%), TYROSINE (3%), METHIONINE (3%), TRYPTOPHAN (1%), **FATTY ACIDS (<1%)** (OMEGA-6 FATTY ACID: OCTADECADIENOIC ACID (68%), OCTADECANOIC ACID (13%), OMEGA-3 FATTY ACID: OCTADECATRIENOIC ACID (12%), HEXADECANOIC ACID (4%), OCTADECANOIC ACID (3%)), **PRESERVATIVES** (E236, E296), **COLOURS** (E160a, E161b, E161c, E140, E161d, E161e, E161g, E161h) E300, E307, FOLATE, CHOLINE, BETAIN, PHYTOSTEROLS, **FLAVOURS** (2,5-DIMETHYL-4-HYDROXY-3(2H)-FURANONE, 3-HYDROXY-BETA-DAMASCONE, 4-VINYLGUAIACOL, (Z)-3-HEXEN-1-OL, UNRIPE FLAVOUR: (E)-2-HEXENAL, RPE FLAVOUR: ETHYL BUTANOATE, METHYL ETHANOATE, METHYL BUTANOATE, ETHYL BUTANOATE, METHYL HEXANOATE), E210.

AN ALL-NATURAL STRAWBERRY



INGREDIENTS: AQUA (90.9%), **SUGARS (4.9%)** (FRUCTOSE (50%), GLUCOSE (41%), SUCROSE (9%), FIBRE E460 (2.0%), ASH, **FATTY ACIDS (<1%)** (OMEGA-6 FATTY ACID: OCTADECADIENOIC ACID (42%), OMEGA-3 FATTY ACID: OCTADECATRIENOIC ACID (31%), OCTADECANOIC ACID (20%), HEXADECANOIC ACID (8%), OCTADECANOIC ACID (1%), HEXADECANOIC ACID (<1%)), **AMINO ACIDS (<1%)** (ASPARTIC ACID (26%), GLUTAMIC ACID (17%), LEUCINE (6%), ALANINE (6%), LYSINE (5%), GLYCINE (5%), ARGININE (5%), PROLINE (4%), SERINE (4%), TYROSINE (4%), THREONINE (4%), ISOLEUCINE (3%), PHENYLALANINE (3%), VALINE (5%), HISTIDINE (2%), TRYPTOPHAN (1%), CYSTINE (1%), METHIONINE (<1%)), **PRESERVATIVES** (E236, E296) **COLOURS** (E160a, E161b, E161c, E140, E161d, E161e, E161g, E161h) E300, E307, FOLATE, CHOLINE, BETAIN, PHYTOSTEROLS, **FLAVOURS** (2,5-DIMETHYL-4-HYDROXY-2H-FURAN-3-ONE, 2,5-DIMETHYL-4-METHOXY-2H-FURAN-3-ONE, GAMMA DECALACTONE, GAMMA-DODECALACTONE, 2-FURFURAL, 5-HYDROXY METHYL-FURFURAL, LIMONENE, LINALOOL, (E)-NEROLIDOL, E1510, HEXANOL, OCTANOL, METHYL BUTANOATE, ETHYL BUTANOATE, METHYL HEXANOATE, ETHYL HEXANOATE, HEXYL ETHANOATE, (E)-2-HEXEN-1-YL ETHANOATE, BUTYL ETHANOATE, METHYL OCTANOATE, ETHYL OCTANOATE, OCTYL-2-METHYL BUTANOATE, OCTYL HEXANOATE, DECYL BUTANOATE, DECYL ETHANOATE, METHANETHIOL, ETHYL-3-METHYLBUTANOATE, GERANIOL, E210, FARNESYL ACETATE, MESIFURANE, METHYL ANTHRANILATE, GAMMA-DECALACTONE, METHANOL, DIMETHOXYMETHANE, 1-BUTOXY-1-ETHOXYETHANE), 2-(4-HYDROXYPHENYL)-ETHYL BETA-D-GLUCOPYRANOSIDE).

AN ALL-NATURAL LEMON



INGREDIENTS: WATER (87.4%), FIBRE E460 (4.7%), **SUGARS (2.5%)** (GLUCOSE (40%), FRUCTOSE (36%), SUCROSE (24%)), **AMINO ACIDS (1.2%)** (GLUTAMIC ACID (19%), ASPARTIC ACID (16%), HISTIDINE (11%), LEUCINE (7%), LYSINE (5%), PHENYLALANINE (4%), ARGININE (4%), VALINE (4%), ALANINE (4%), SERINE (4%), GLYCINE (3%), THREONINE (3%), ISOLEUCINE (3%), PROLINE (3%), TRYPTOPHAN (1%), CYSTINE (1%), TYROSINE (1%), METHIONINE (1%), ASH (0.4%), **FATTY ACIDS (0.3%)** (OMEGA-6 FATTY ACID: LINOLEIC ACID (46.3%), PALMITIC ACID (24.9%), OMEGA-3 FATTY ACID: LINOLENIC ACID (19.1%), OLEIC ACID (7.4%), STEARIC ACID (1.5%), MYRISTIC ACID (0.4%), PALMITOLEIC ACID (0.4%)), PHYTOSTEROLS, E515, E300, PHYLOQUINONE, PERILLYL ALCOHOL, THIAMIN, NIACIN, **COLOURS** (HESPERIDIN (70%), ERIODIOL (29%), RUTIN (10%)), **FLAVOURS** (LIMONENE (65.9%), BETA-PINENE (13.8%), GAMMA-TERPINENE (8.4%), ALPHA-PINENE (2.0%), GERANIAL (1.5%), MYRCENE (1.5%), NEROL (0.9%), SABINENE (0.5%), BETA-BISABOLENE (0.5%), ALPHA-THIJUENE (0.4%), MEYL ACETATE (0.4%), GERANYL ACETATE (0.4%), TERPINOLENE (0.4%), TRANS-ALPHA-BERGAMOTENE (0.3%), BETA CAROPHYLLENE (0.2%), ALPHA-TERPINEOL (0.2%), ALPHA-TERPINOL (0.2%), ALPHA-PHELLADRENE (0.1%), (E)-BETA OCIMENE (0.1%), NONANAL (0.1%), LINALOOL (0.1%), CITRONELLAL (0.1%).

AN ALL-NATURAL ROASTED COFFEE BEAN



INGREDIENTS: CAFFEINE, **CHLOROGENIC ACIDS** (5-CAFFELOYQUINIC ACID, 3,4-DICAFFELOYQUINIC ACID, 3-CAFFE-4-FERULOYQUINIC ACID, 5,7-COLMAROYL-QUINIC ACID, CAFFEOL, KAHWEOL, AMINO ACIDS **SOLUBLE DIETARY FIBRE** (GALACTOMANNANS AND TYPE II ARABINOGALACTANS), GALACTOSE, ARABINOSE, FURANS, PYRIDINES, PYRAZINES, PYRROLS, ALDEHYDES, MELANOIDS, **FATTY ACIDS** (LINOLEIC ACID, OLEIC ACID, LINOLENIC ACID, COFFEEACID, ARABICOL I), ASH, **STEROLS** (4-DESMETHYLSTEROLS, 4-METHYLSTEROLS, 4,4-DIMETHYL-STEROLS, ALPHA-, BETA- AND GAMMA-TOCOPHEROLS), **FLAVOURS** (2,3-BUTANE-DIONE, 2,3-PENTANEDIONE, 1-OCTEN-3-ONE, 2-HYDROXY-2-METHYL-2-CYCLOPENTEN-1-ONE, PROPANAL, 2-METHYL-PROPANAL, 3-METHYL-PROPANAL, 2-METHYLBUTANAL, 4-METHYLBUTANAL, HEXANAL, (E)-4-NONENAL, METHANOL, METHANETHIOL, 4-METHYL-2-BUTENO-1-THIOL, 2-METHYL-4-FURANTHIOL, 5-METHYL-TRISULFIDE, 2-FURFURYL-THIOL, 2-FURAN, METHANETHIOL, 2-METHYL-THIOL-PROPANAL, 2-METHYLTHIO-METHYLFURAN, 3,5-DI-HYDRO-4(2H)-THIOPHENONE, 2-ACETYL-3-TIAZOLINE, 4-METHYLBUTANOIC ACID, DAMASCENE, 4-HYDROXY-2,5-DIMETHYL-4(2H)-FURANONE (FURANOL), 2-ETHYL-FURANOL, 4-HYDROXY-4,5-DIMETHYL-2(5H)-FURANONE (ISOTOLON), 5-ETHYL-4-HYDROXY-4-METHYL-3(5H)-FURANONE (ABEXONAL, 2-ETHYL-4-HYDROXY-5-METHYL-4-(5H)-FURANONE, 2-METHOXY-PHENOL, 4-METHOXY-PHENOL, 4-ETHYL-2-METHOXY-PHENOL, 4-VINYL-2-METHOXY-PHENOL, 4-ETHENYL-2-METHOXY-PHENOL, 3-METHYLNOLLE, VANILIN, 2,5-DIMETHYL-PYRAZINE, 2,5-DIMETHYLPYRAZINE, 2-ETHYL-PYRAZINE, 2-ETHYL-4-METHYLPYRAZINE, 2,3-DIETHYL-4-METHYLPYRAZINE, 2-ETHYL-3,5-DIMETHYLPYRAZINE, 3-ETHYL-2,5-DIMETHYLPYRAZINE, 3-ISOPROPYL-2-METHOXY-PYRAZINE, 3-ISOBUTYL-2-METHOXY-PYRAZINE, 2-ETHENYL-3,5-DIMETHYL-PYRAZINE, 2-ETHENYL-3-ETHYL-3-METHYL-PYRAZINE, 6,7-DIHYDRO-3H-CYCLOPENTA-PYRAZINE, 6,7-DI-HYDRO-3-METHYL-3H-CYCLOPENTAPYRAZINE, 3-MERCAPTO-3-METHYLBUTYL FORMATE, 3-MERCAPTO-3-METHYLBUTANOL), **MINERALS** POTASSIUM, PHOSPHORUS, SODIUM, MAGNESIUM, CALCIUM, SULFUR, ZINC, STRONTIUM, SILICON, MANGANESE, IRON, COPPER, BARIUM, BORON, ALUMINIUM.

ALL-NATURAL CHERRIES



INGREDIENTS: AQUA (82.2%), **SUGARS (12.8%)** (GLUCOSE (52%), FRUCTOSE (42%), GALACTOSE (5%), MALTOSE (<1%), SUCROSE (<1%), FIBRE E460 (2.1%), ASH, **FATTY ACIDS (1.6%)** (OCTADECANOIC ACID (24%), OMEGA-6 FATTY ACID: OCTADECADIENOIC ACID (24%), OMEGA-3 FATTY ACID: OCTADECATRIENOIC ACID (23%), HEXADECANOIC ACID (14%), OCTADECANOIC ACID (<1%), HEXADECANOIC ACID (<1%), TETRADECANOIC ACID (<1%)), **AMINO ACIDS (<1%)** (GLUTAMIC ACID (57%), GLUTAMIC ACID (9%), PROLINE (4%), SERENE (3%), LEUCINE (3%), ALANINE (3%), LYSINE (3%), PHENYLALANINE (2%), GLYCINE (2%), THREONINE (2%), VALINE (2%), ARGININE (2%), HISTIDINE (2%), ISOLEUCINE (2%), TYROSINE (1%), METHIONINE (1%), CYSTEINE (1%), TRYPTOPHAN (1%), **COLOURS** (E160a, E161b, E161c, E300, E307, CHOLINE, PHYTOSTEROLS, **FLAVOURS** ((Z)-3-HEXENAL, 2-HEPTANONE, CINNAMIC ALCOHOL, CINNAMIC ALDEHYDE, (E)-2,6-NONANEDIENAL, (E)-2-HEXENAL, HEXANAL, EUGENOL, LINALOOL, BENZALDEHYDE, PHENYLACETALDEHYDE).

AN ALL-NATURAL PEACH



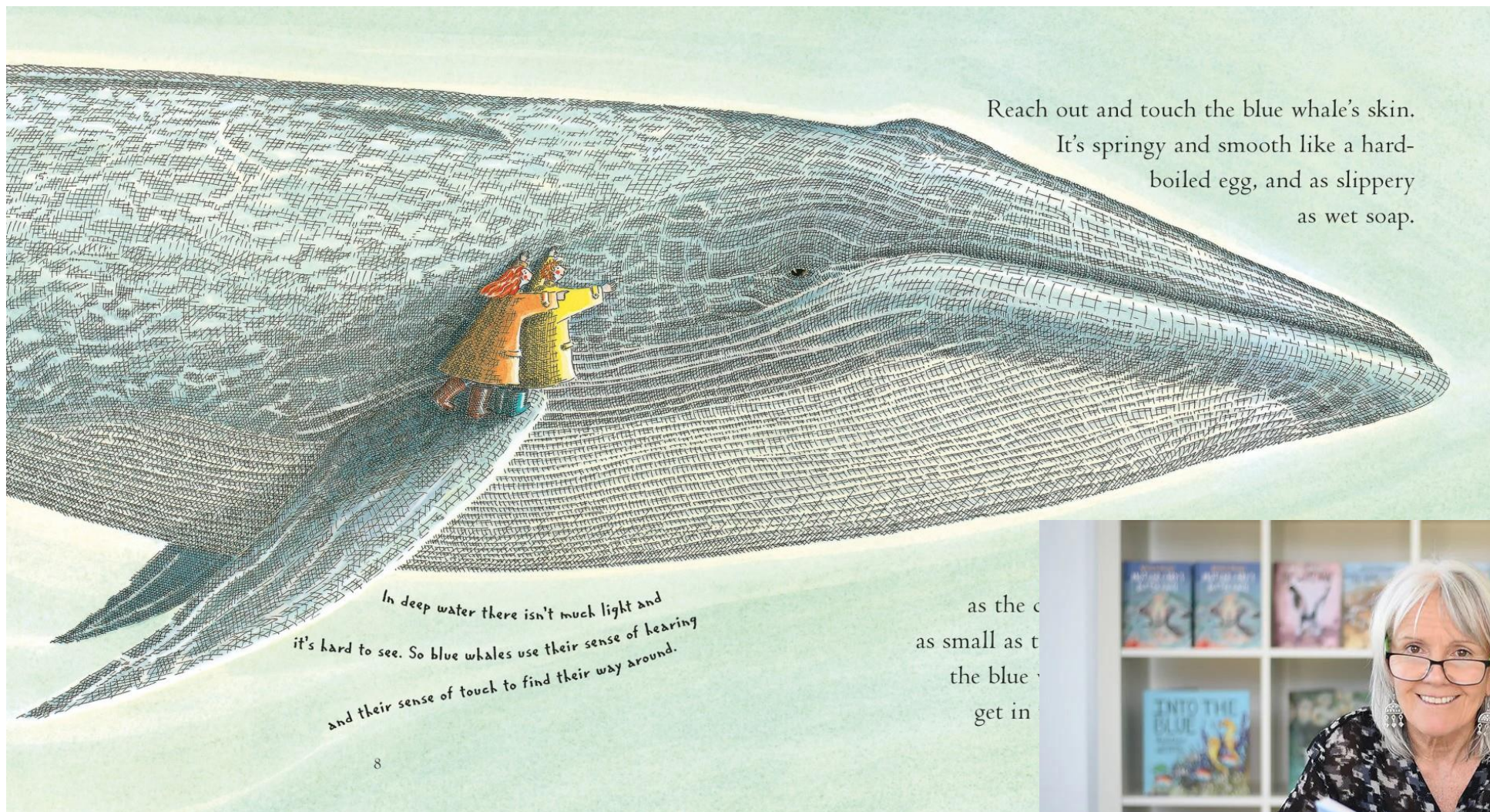
INGREDIENTS: AQUA (88.9%), **SUGARS (8.4%)** (SUCROSE (48%), GLUCOSE (20%), FRUCTOSE (15%), MALTOSE (<1%), GALACTOSE (<1%), FIBRE E460 (1.5%), **FATTY ACIDS (<1%)** (OMEGA-6 FATTY ACID: OCTADECADIENOIC ACID (28%), OCTADECENOIC ACID (22%), (HEXADECANOIC ACID (6%), OCTADECANOIC ACID (1%), HEXADECENOIC ACID (1%), OMEGA-3 FATTY ACID: OCTADECATRIENOIC ACID (<1%)), **AMINO ACIDS (<1%)** (ASPARTIC ACID (54%), GLUTAMIC ACID (7%), LYSINE (4%), SERINE (4%), ALANINE (4%), LEUCINE (3%), GLYCINE (3%), VALINE (3%), THREONINE (2%), ARGININE (2%), HISTIDINE (2%), PROLINE (2%), CYSTINE (2%), ISOLEUCINE (2%), TYROSINE (2%), PHENYLALANINE (2%), TRYPTOPHAN (2%), METHIONINE (2%)) **COLOURS** (E160a, E161b, E161c) E300, E307, **FLAVOURS** (BENZALDEHYDE, LINALOOL, GAMMA- AND DELTA-DEGALACTONE, DELTA- AND GAMMA-OCTALACTONE, 6-PENTYL-ALPHA-PYRONE, HEXADECANOIC ACID, (Z)-3-HEXEN-1-YL ACETATE, ETHYL BUTANOATE, (Z)-3-HEXANAL, HEXANAL, (E,E)-2,4-DECADIALENAL, BENZALDEHYDE, DELTA- AND GAMMA-DODECALACTONE, GAMMA-JASMOLACTONE, TERPINOLENE, 4-DECANOLIDE, BETA-DAMASCENONE, CARVOMENTHANAL, ALPHA-TERPINEOL, 1-3-METHYL-BUTYL ACETATE), CHOLINE, PANTOTHENIC ACID.

ALL-NATURAL DURIAN



INGREDIENTS: AQUA (65%), **FATTY ACIDS (13%)** (PALMITIC ACID (C16:0), PALMITOLEIC ACID (C16:1), STEARIC ACID (C18:0), OLEIC ACID (C18:1), LINOLEIC ACID (C18:2), LINOLENIC ACID (C18:2), **SUGARS (9%)** (GLUCOSE (48%), FRUCTOSE (40%), SUCROSE (2%)), FIBRE E460 (3.8%), **AMINO ACIDS (0.6%)** (LEUCINE (3%), LYSINE (7%), ASPARTIC ACID (6%), GLYCINE (6%), ALANINE (5%), GLUTAMIC ACID (6%), VALINE (5%), PROLINE (4%), SERINE (4%), THREONINE (4%), ISOLEUCINE (3%), PHENYLALANINE (3%), OTHER (11%)), E300, **COLOURS** (E140), **FLAVOURS** (ETHYL (2S)-2-METHYLBUTANOATE (FRUITY), ETHYL CINNAMATE (HONEY), 1-(ETHYL-SULFANYL)-ETHANETHIOL (ROASTED ONION), 1-ETHYL-DISULFANYL-1-ETHYLSULFANYL-ETHANE (ONION), 2(S)-ETHYL-4-HYDROXY-2(2-METHYLFURAN-2(5H)-ONE (CARAMEL), 3-HYDROXY-4,5-DIMETHYLFURAN-2(5H)-ONE ('SOUP SEASONING'), ETHYL 2-METHYLPROPANOATE (FRUITY), ETHYL BUTANOATE (FRUITY), 3-METHYLBUT-2-ENE-1-THIOL (SKUNKY), ETHANE-1,1-DITHIOL (DURIAN), 1-(METHYLSULFANYL)-ETHANETHIOL (ROASTED ONION), 1-ETHYLSULFANYL-PROPANE-1-THIOL (ROASTED ONION), 4-HYDROXY-2,5-DIMETHYLFURAN-3(2H)-ONE (CARAMEL), HYDROGEN SULFIDE (ROTTEN EGG), ACETALDEHYDE (FRESH, FRUITY), METHANETHIOL (ROTTEN CABBAGE), ETHANETHIOL (ROTTEN ONION), PROPANE-1-THIOL (ROTTEN DURIAN), AND **NATURAL DEODORANT:** 5-HYDROXY-METHYL-FURFURAL.

Some quick examples....



Reach out and touch the blue whale's skin.
It's springy and smooth like a hard-boiled egg, and as slippery
as wet soap.

In deep water there isn't much light and
it's hard to see. So blue whales use their sense of hearing
and their sense of touch to find their way around.

8

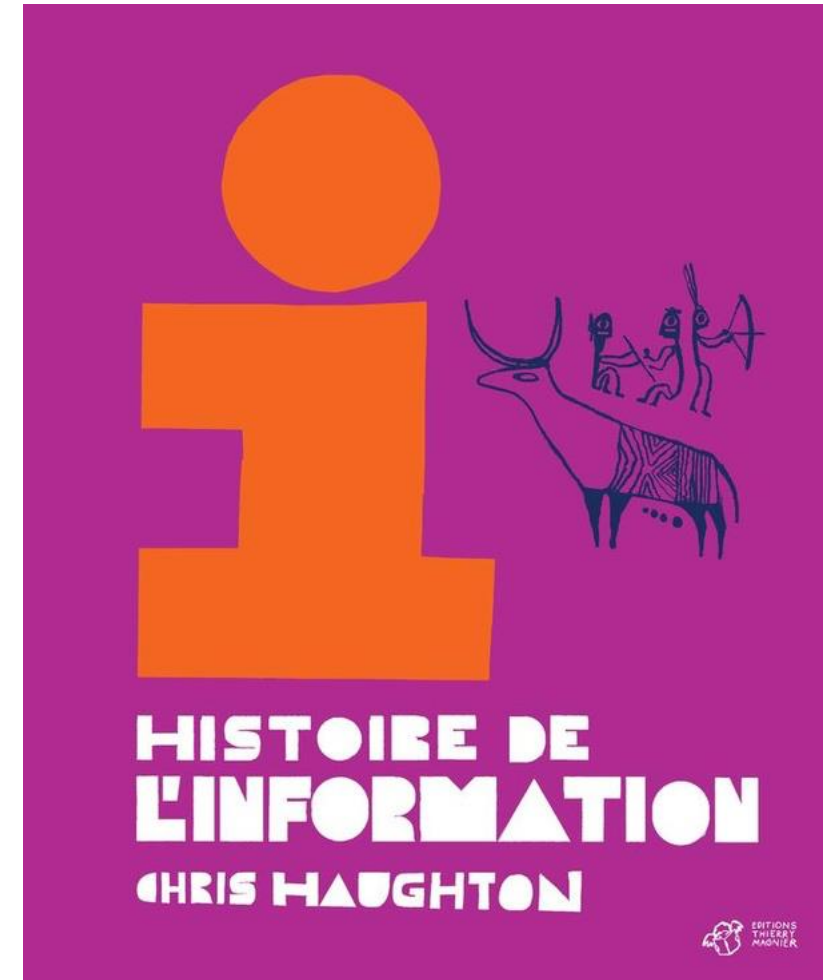
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as small as t
the blue
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Nicola Davies – Picture Book Author

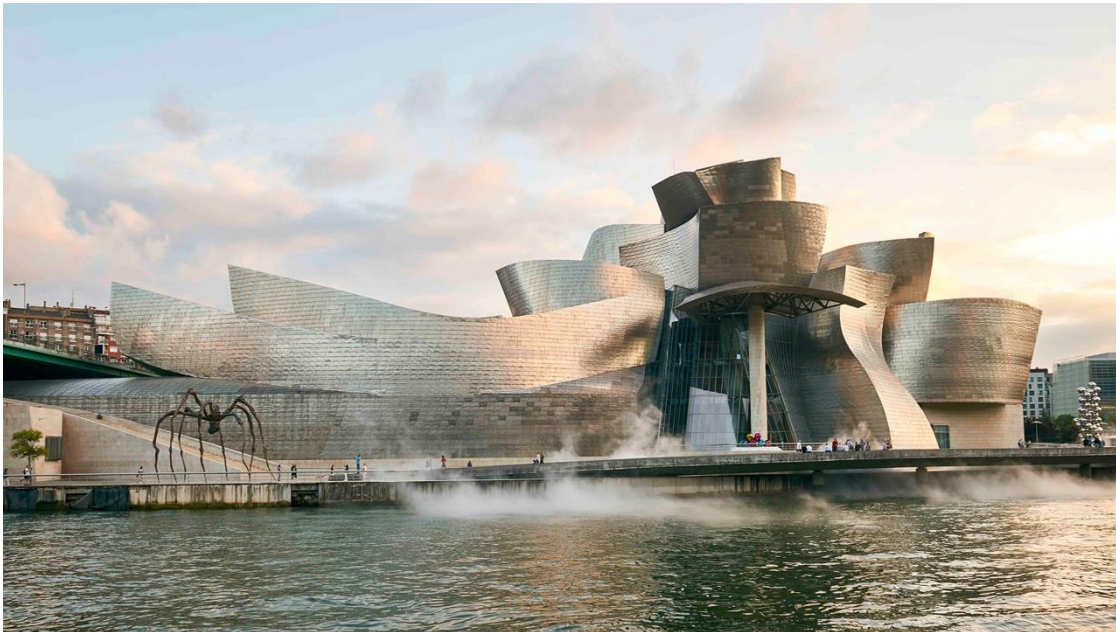




Chirs Haughton— Picture Book Author



Architecture

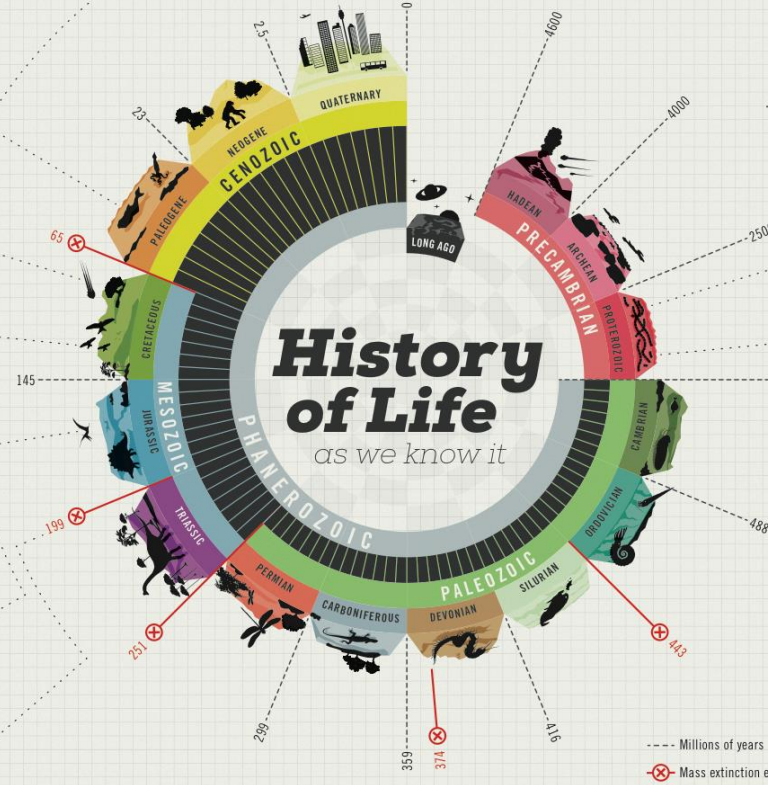


Continental Drift Events



Data From: Reader, John. (1986). *The Rise of Life*. London: Routledge Prehistory Press. - Lulagins, Frederick K. (2006). *Essentials of geology*. Pearson Education, Inc.
©Pacific Rubiales Energy Corp. Colombia, 2013. Vicepresident of Exploration, Design Group: W. León, J.D. Martínez, C. Ramos, Z. Saab.

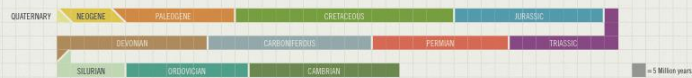
History of Life as we know it



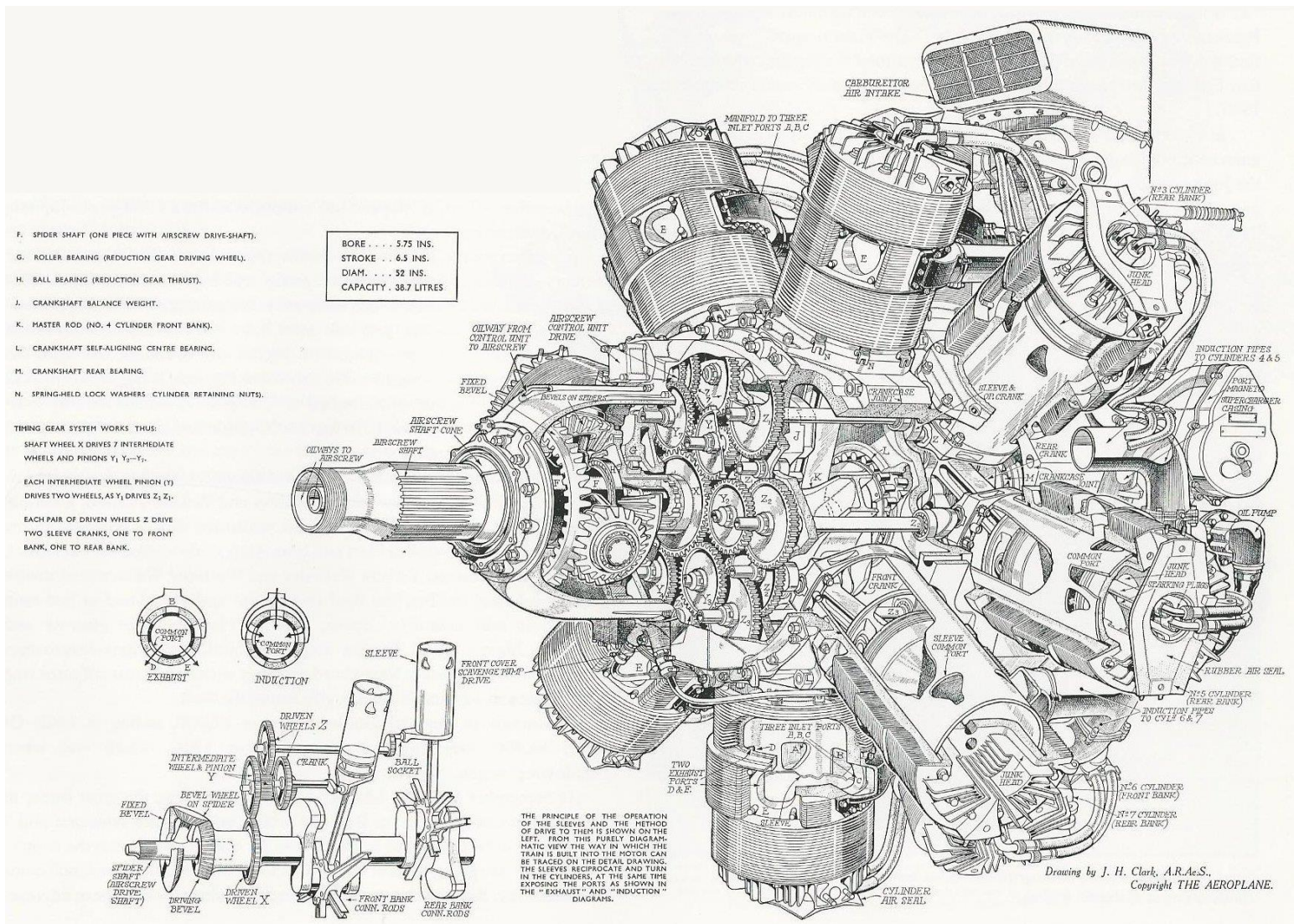
Milestones



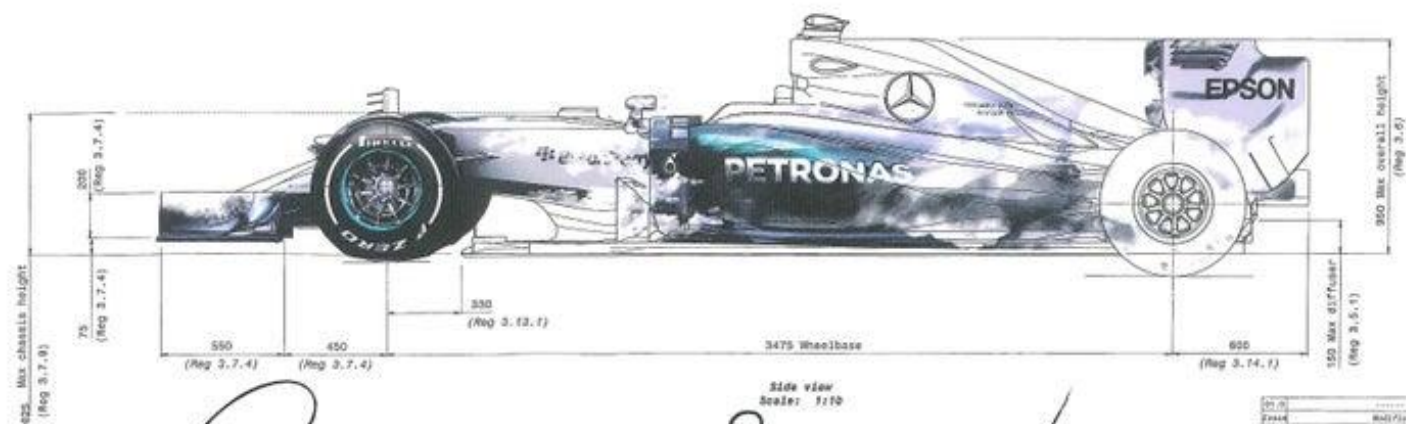
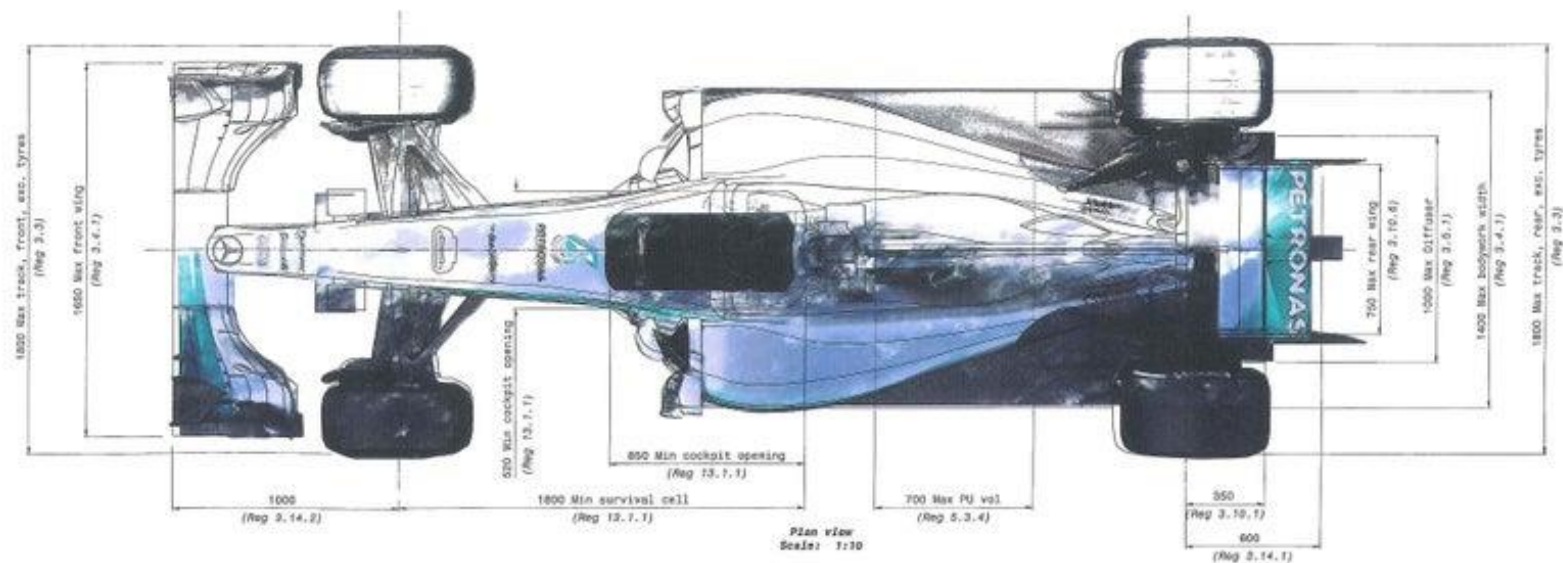
Phanerozoic Timeline



Infographics



Technical drawing



LEWIS HAMILTON

NICO ROSBERG

PADDY LOWE

TOTO WOLFF

No.	Description	Rev
01	Released	
02	Multi-Function Description	
03	05 0505	
04	Mercedes-Benz	
05	Grand Prix Limited	
06	Mercedes F1000 Hybrid	
07	Mercedes F1000 Hybrid	
08	Mercedes F1000 Hybrid	
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Editorial

THE MEANING OF LIFE From genetic code to language

NewScientist

WEEKLY August 21 - 27, 2020 4

The ultimate quantum paradox

Our best theory of nature has no roots in reality



FLUSH WITH ENERGY

STONE AGE SOUNDS
Caves that sing and mounds that hum

ORDER NO. 77238



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COVER STORY

Mon **My**
esprit **two**
partagé **minds**

Speaking a second language can change everything, from problem-solving skills to personality. It is almost as if you are two people, says Catherine de Lange.

[illegible]

longer-term, more complex, and more difficult to design, study, and measure than a single, simple, short-term study. It is likely that the most important findings from studies on the health effects of chemicals will come from such longer-term studies. However, the results from such studies will not be available for many years, and the results from shorter-term studies will be needed to guide the design and interpretation of longer-term studies. Thus, the results from shorter-term studies will be needed to guide the design and interpretation of longer-term studies.

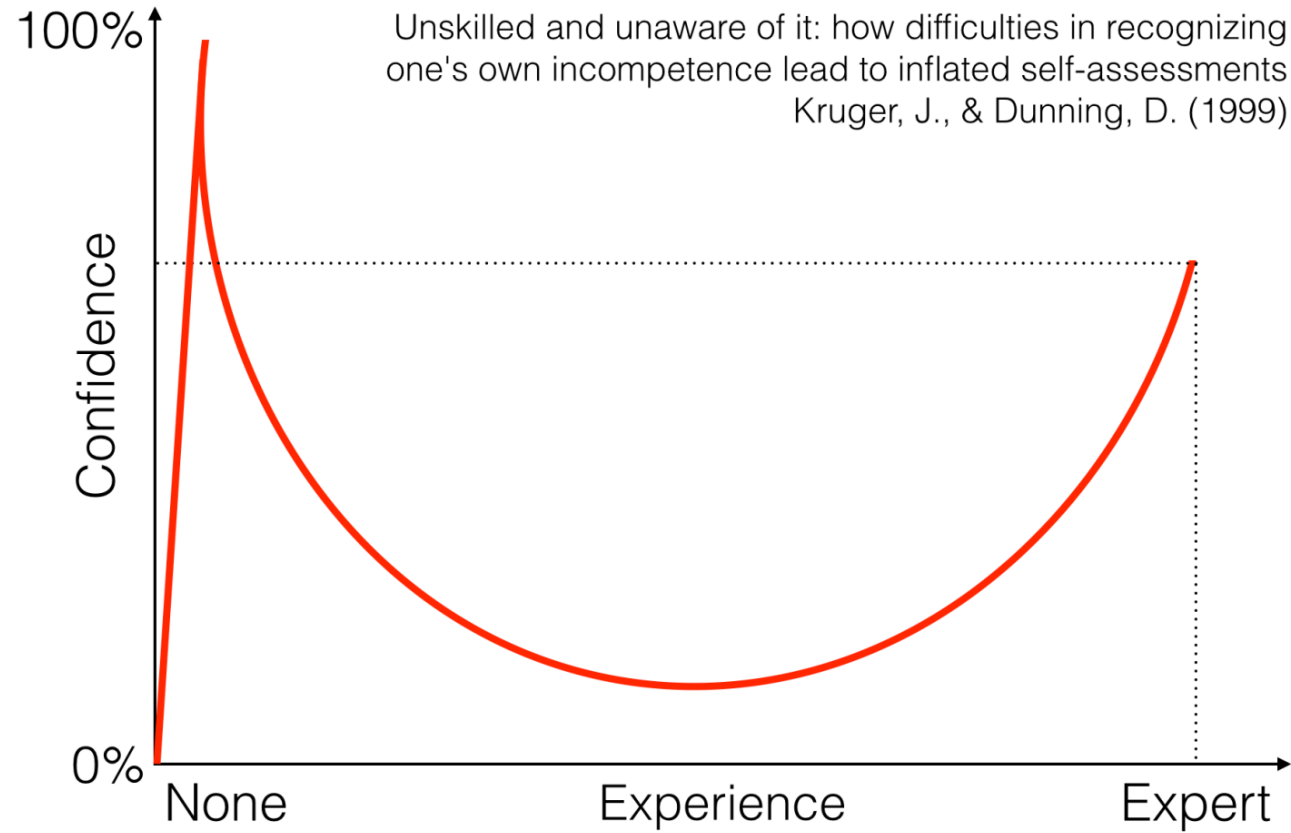
2000s or 2010s, all developing countries
 have strong legal and regulatory systems
 that guide us to the economic development,
 now the *Worldwide Governance Indicators*
 (WGI) are available. *Worldwide Governance
 Indicators* (WGI) are a set of three indicators
 that measure the quality of government
 institutions in 190 countries and territories
 across the world. The indicators are based on
 data from a variety of sources, including
 surveys, expert assessments, and other
 data. The indicators are used to assess the
 quality of government institutions and to
 identify areas for improvement. The
 indicators are also used to track progress
 in improving the quality of government
 institutions over time. The indicators are
 available in a variety of formats, including
 a website, a data portal, and a mobile
 application. The indicators are also used
 to inform policy decisions and to guide
 development efforts. The indicators are
 a valuable tool for assessing the quality of
 government institutions and for identifying
 areas for improvement.

Why is it so hard?





Dunning-Kruger Effect



Does eating soy increase breast cancer risk? Study casts doubt on link

Soy tied to longer life after breast cancer

New Study Reveals Benefits Of Soy For Breast Cancer Survivors

Soy Doesn't Worsen Breast Cancer and May Prevent It, Study Finds



Conclusion

