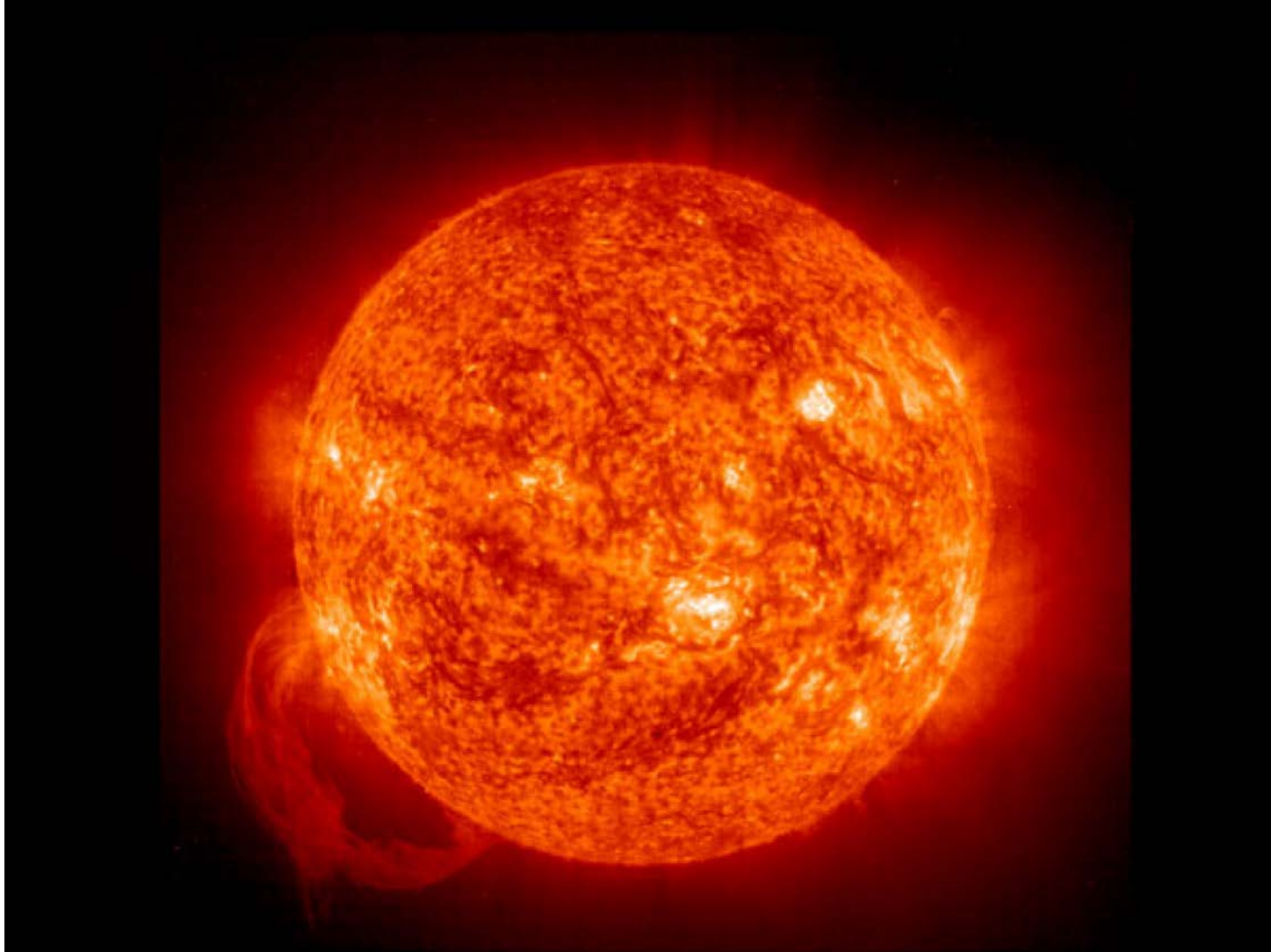


Here Comes the Sun!



The Sun (newspaper) works
out the most depressing day of
the year

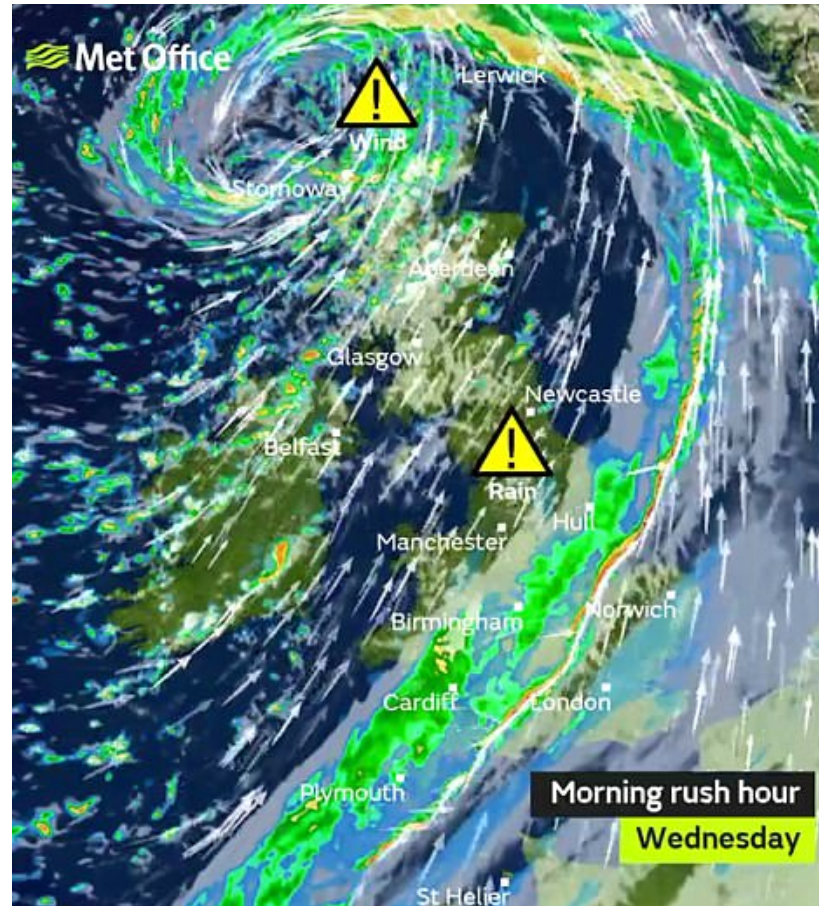
$$\frac{[W + (D-d)] \times T^Q}{M \times N_A}$$

W = weather d = debt T = time since Christmas
Q = time since failing our New Year's resolutions
M = low motivational levels N_A = low motivational levels

January 15th 2018

“Blue Monday”

Today's weather



Meanwhile in Sydney:

Get set for a scorcher! Australia to swelter in RECORD heatwave with temperatures soaring to 43C - so how hot is it going to be near you?

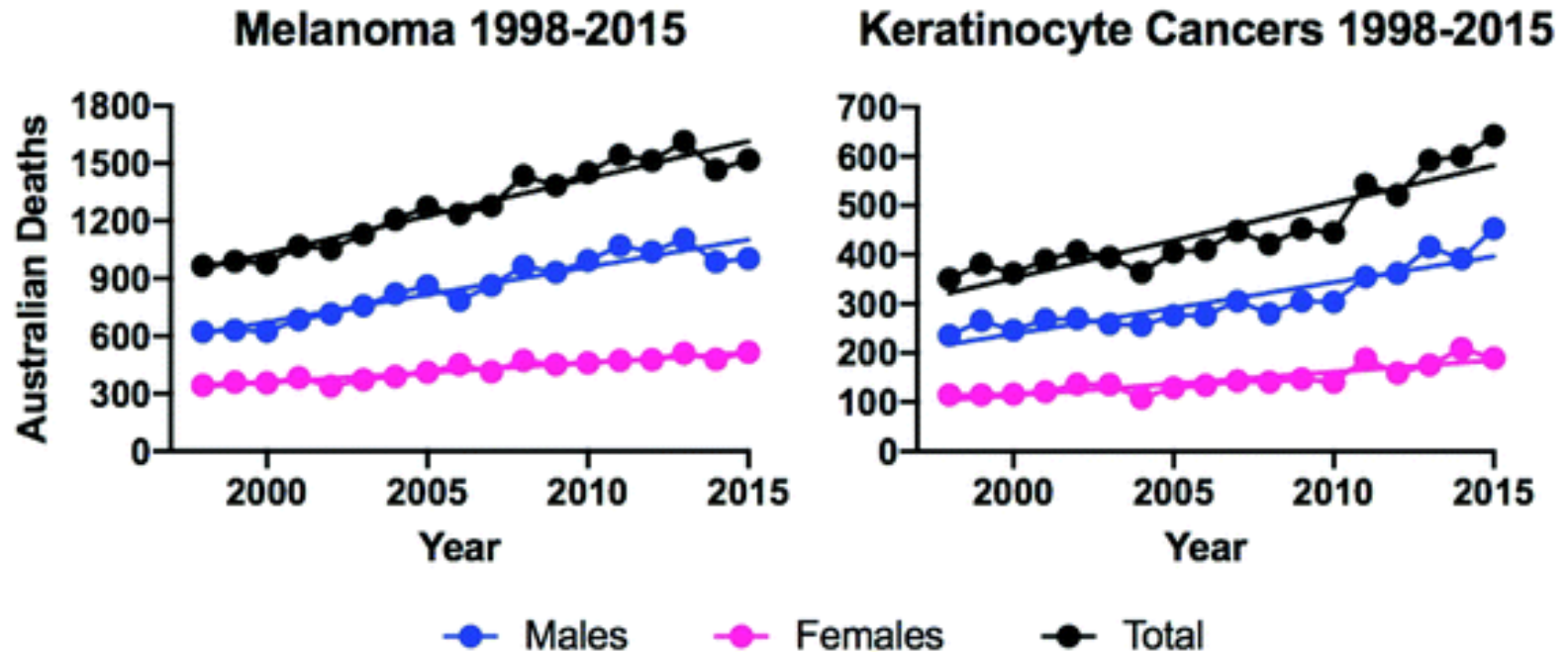
<http://www.dailymail.co.uk/news/article-5172857/Australia-set-swelter-record-breaking-heatwave.html#ixzz556irhbS6>



Advice from Sid the Seagull: Shirt, Sunscreen, Hat



Australia – skin cancer deaths still rising



What the experts say

[How the sun and UV cause cancer | Cancer Research UK](#)

[Ultraviolet \(UV\) Radiation - American Cancer Society](#)

Sun exposure and skin cancer

[Skin Cancer Facts & Statistics - SkinCancer.org](#)

Sunlight is dangerous!

Sunlight is dangerous!

But ...

What the experts should say

On balance it is really good for you!

(and Scotland tells the story)

The weather is raw and boisterous in winter, shifty and ungenial in summer, and a downright meteorological purgatory in the spring. ... Happy the passengers who shake off the dust of Edinburgh, and have heard for the last time the cry of the east wind among her chimney-tops!" (R L Stevenson on his native city).



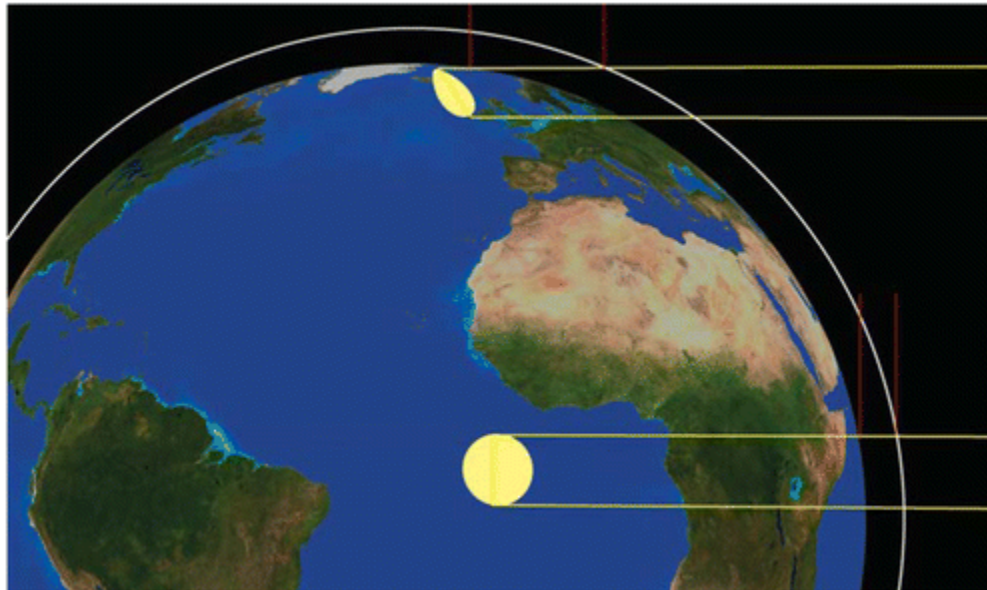
The haar



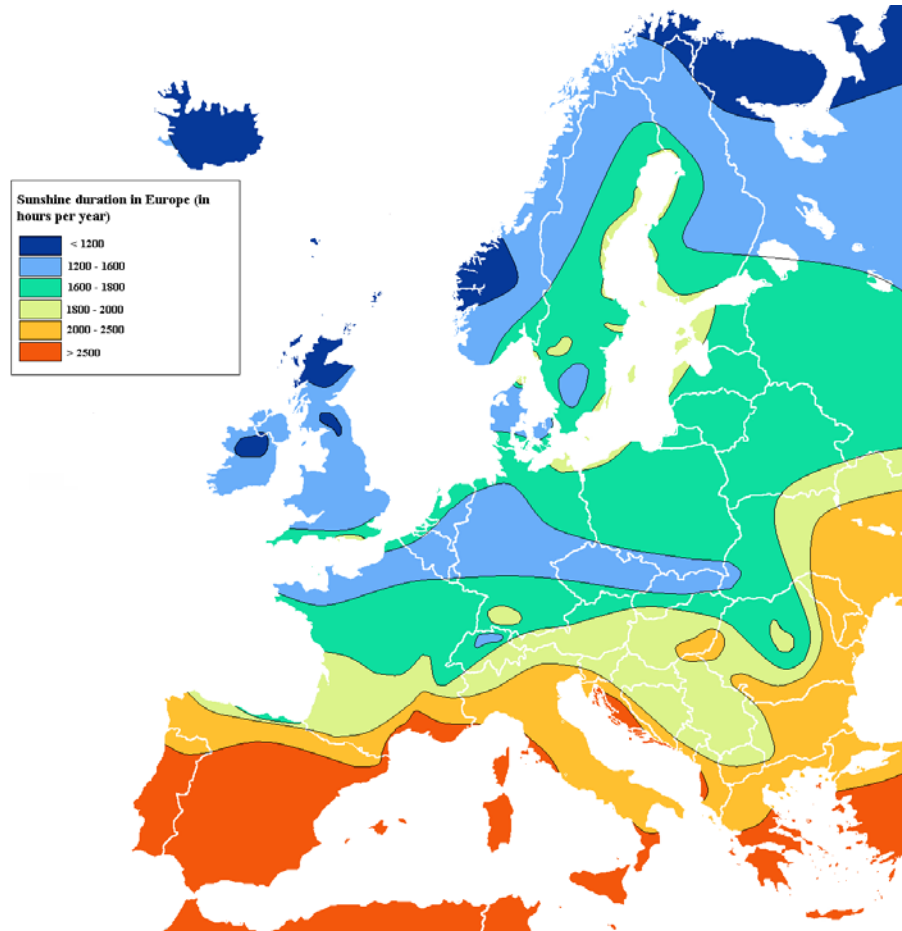
Places with more than 25000 people at the latitude of Scotland



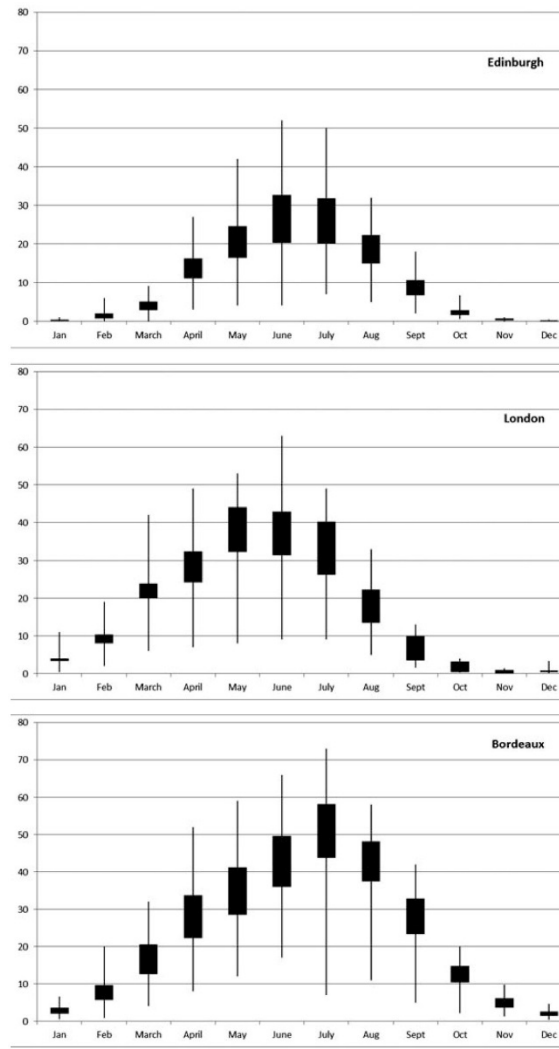
40% reduction of UV in Scotland
compared to tropics as sun's rays travel
further through the atmosphere



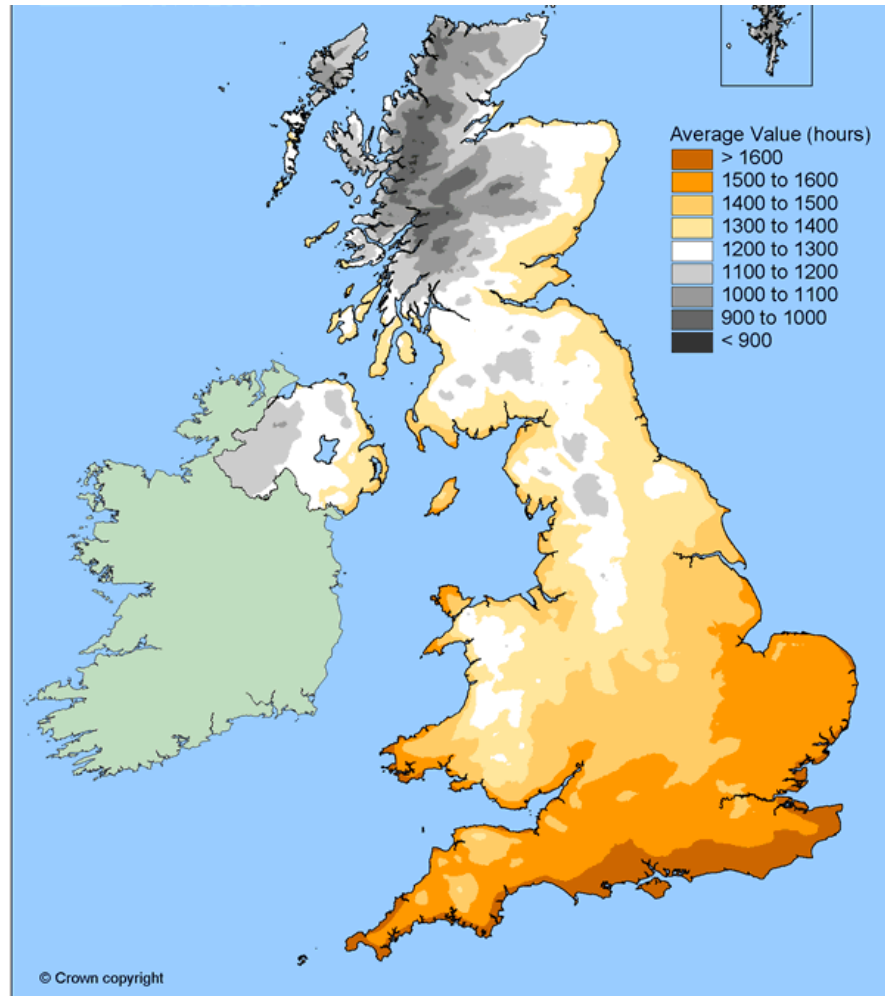
Sunshine hours Europe



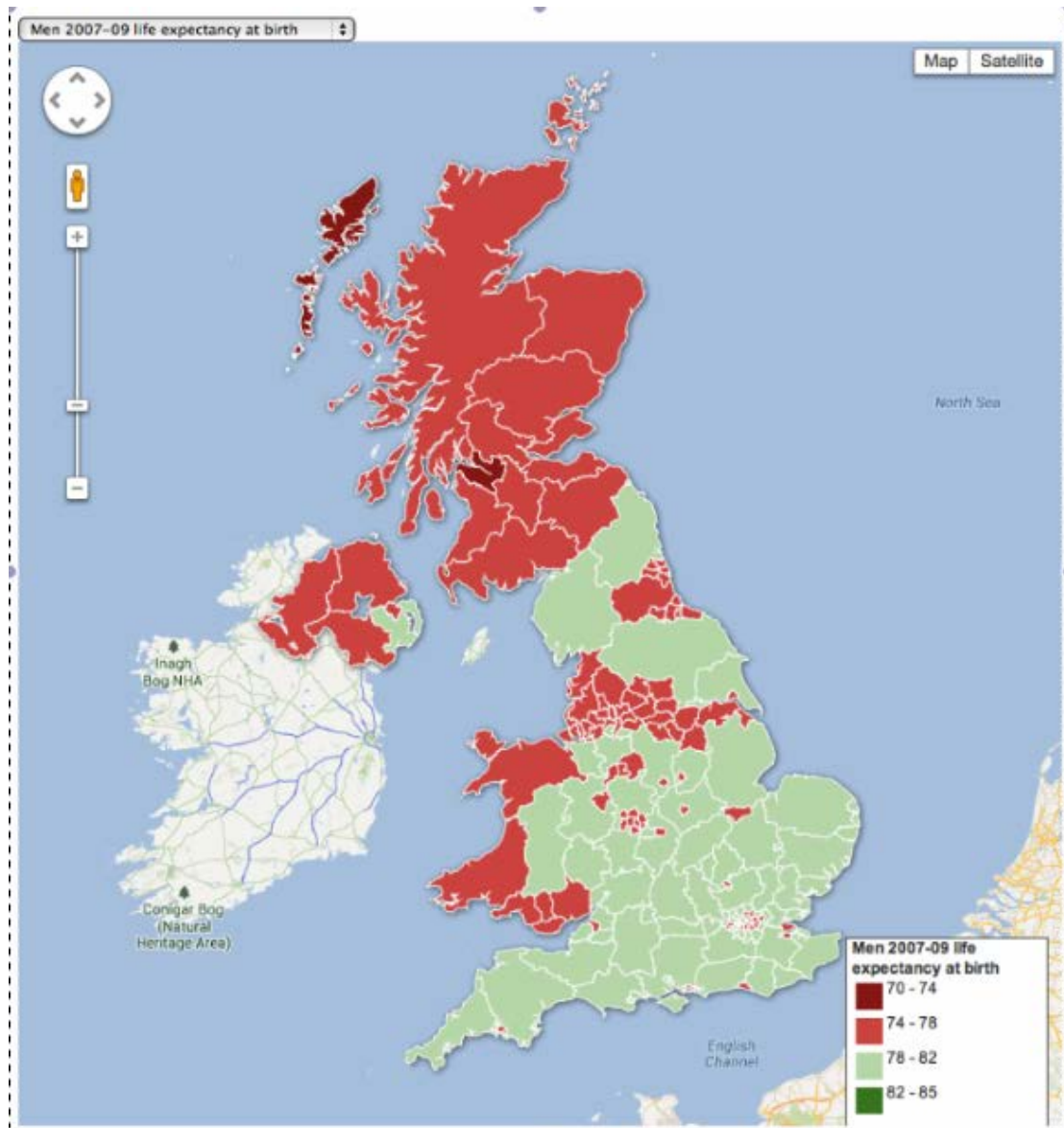
UV through the year, Edinburgh, London, Bordeaux



Hours of bright sunshine

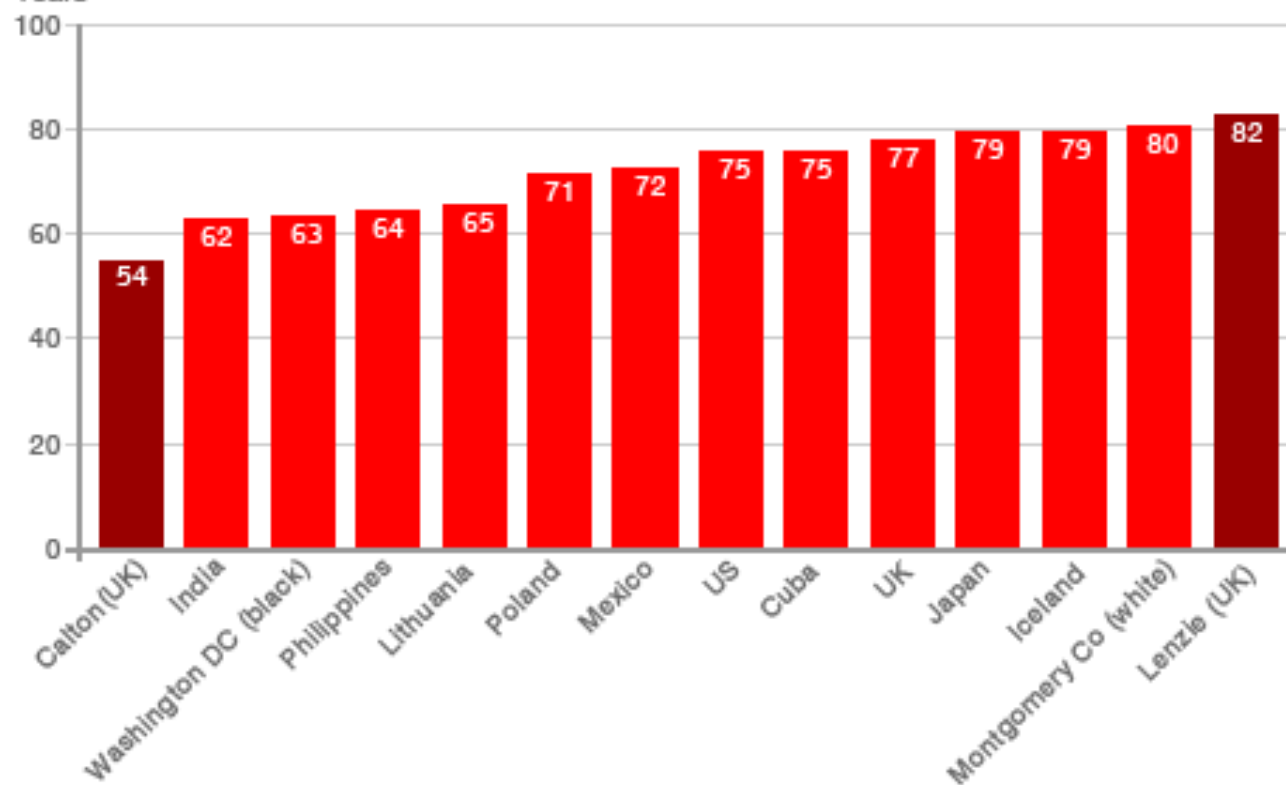


Male life expectancy at birth



MALE LIFE EXPECTANCY AT BIRTH

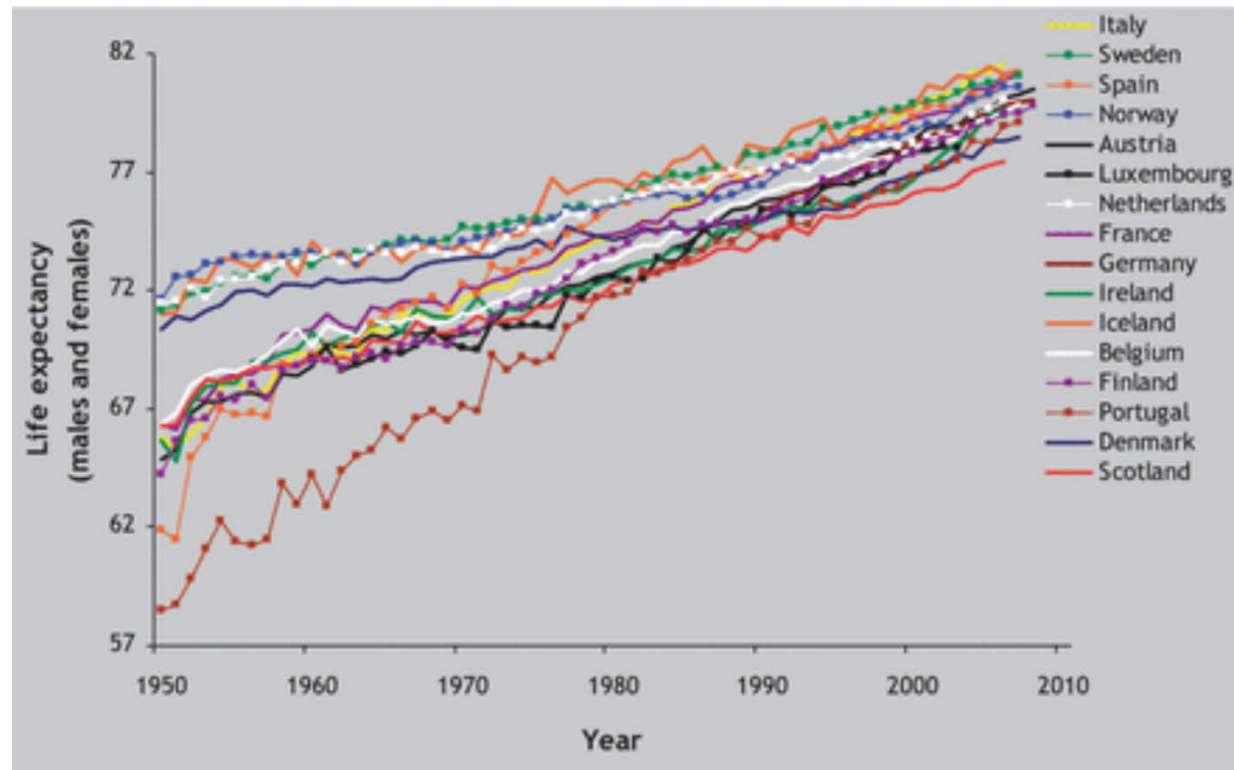
Years



Footnote: Calton, Lenzie both Glasgow (Scotland); Washington DC, Montgomery Co both US

SOURCE: WHO 2008

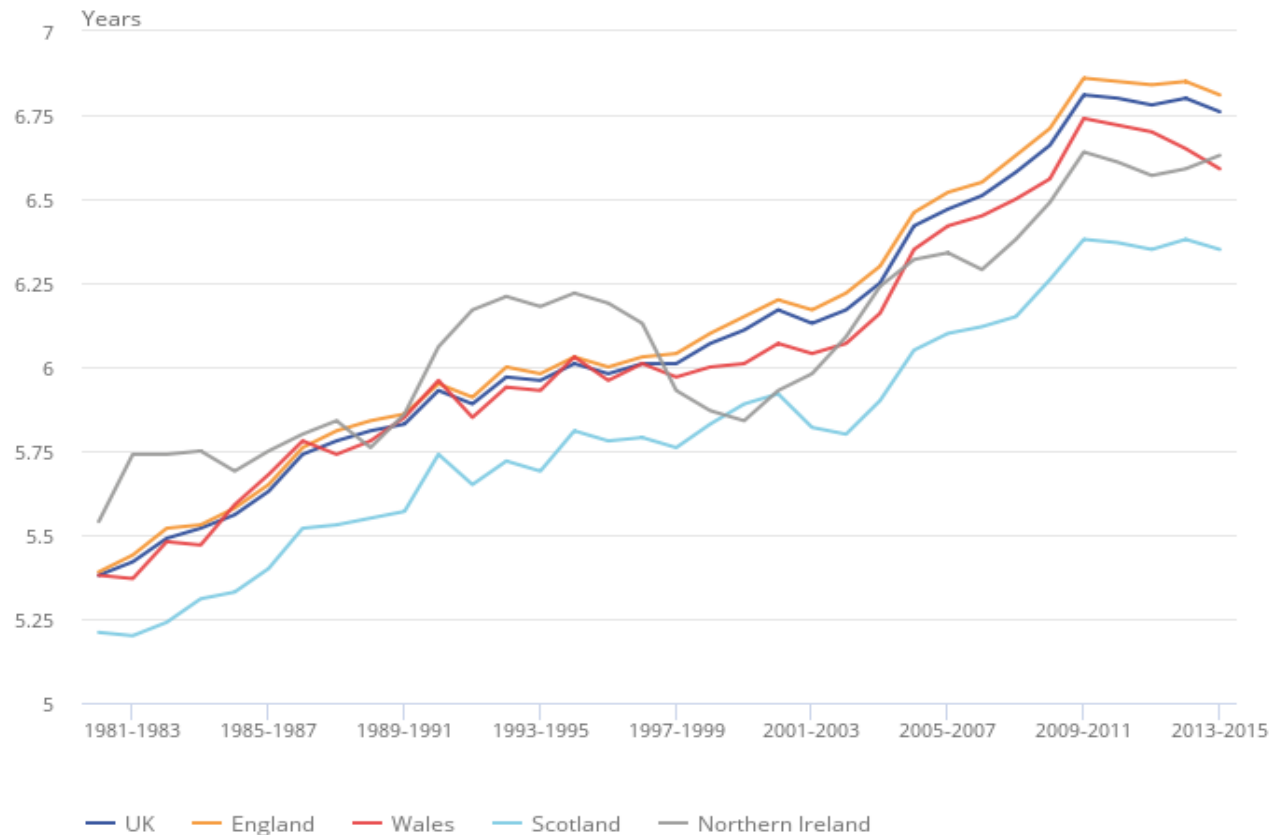
“The sick man of Europe” [Scotland in red]



... and for the old in Scotland (blue) the gap is getting bigger

Figure 2b: Life expectancy at age 85, UK and constituent countries, 1980-1982 to 2013-2015

Females



Source: Office for National Statistics

Scotland worse for ...

Multiple Sclerosis

Cancer

Heart Disease

Rickets

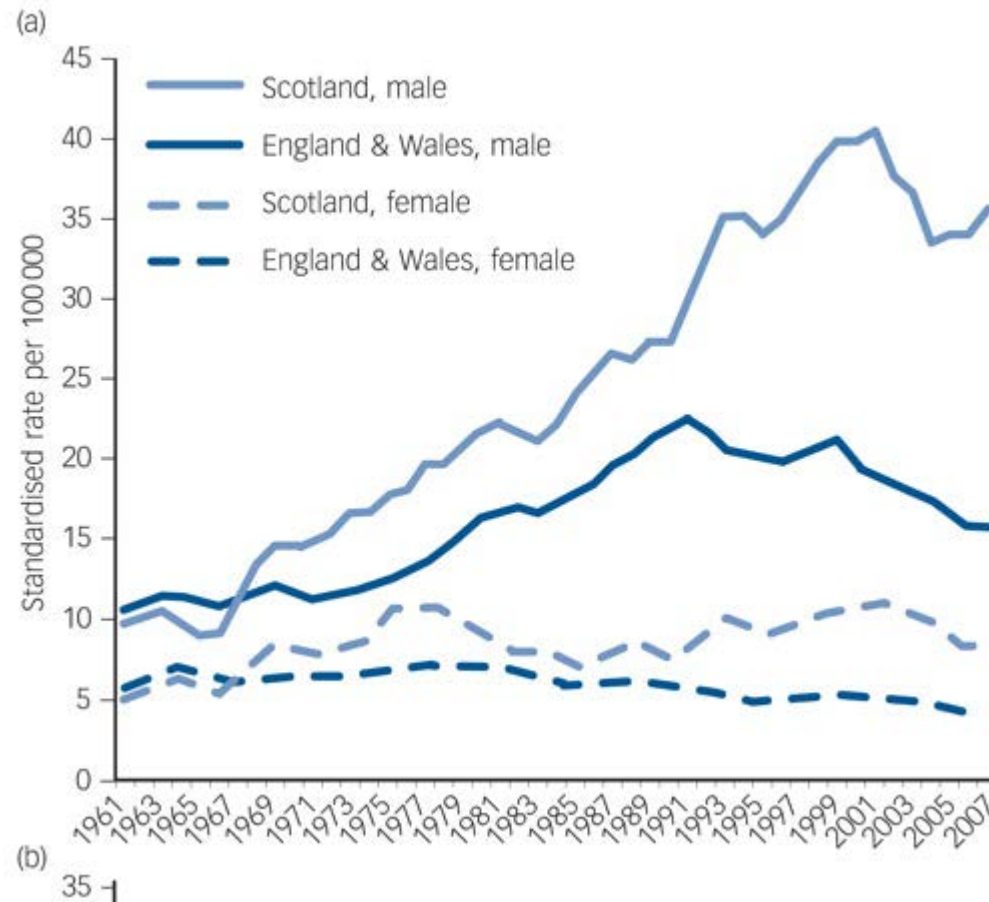
Infectious Disease

Birth Defects

Depression

Suicide

Suicide rates 15-44 years old; Scotland and England



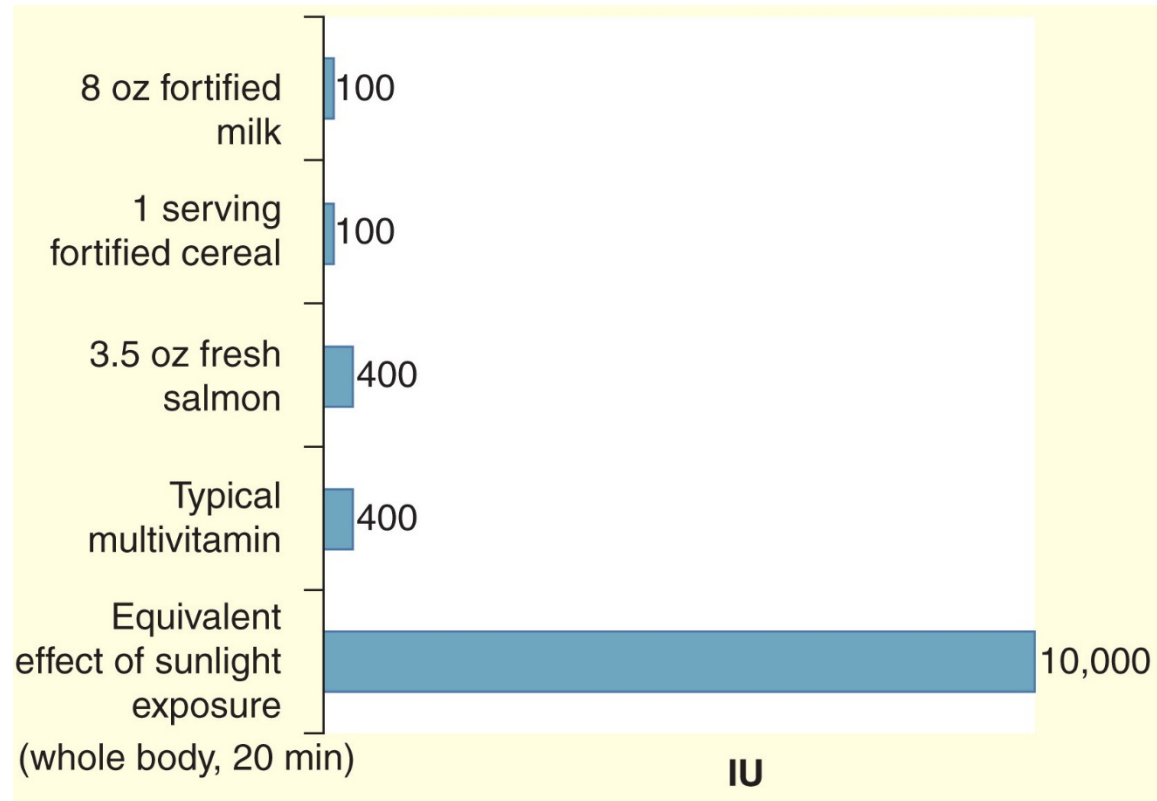
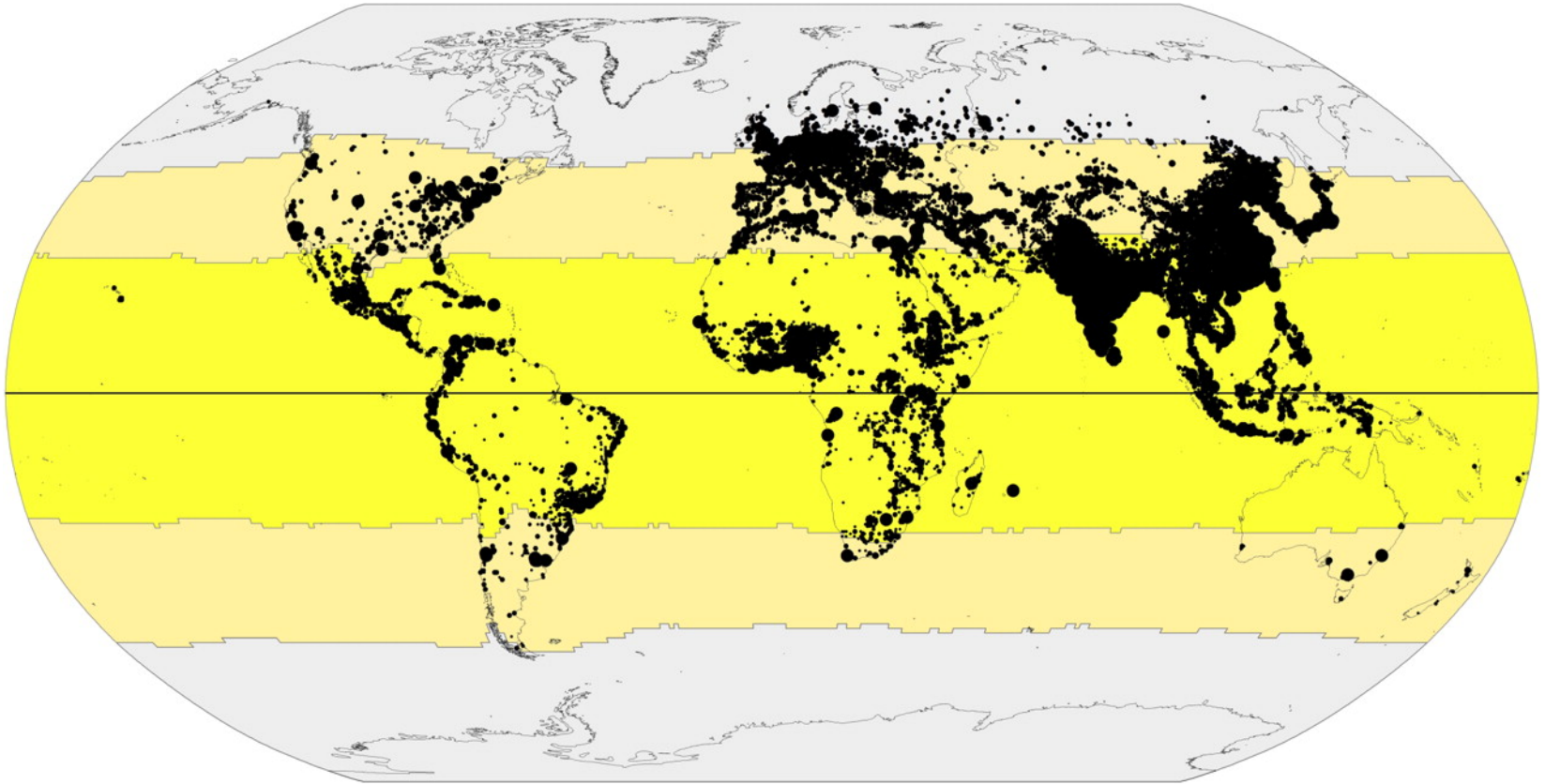


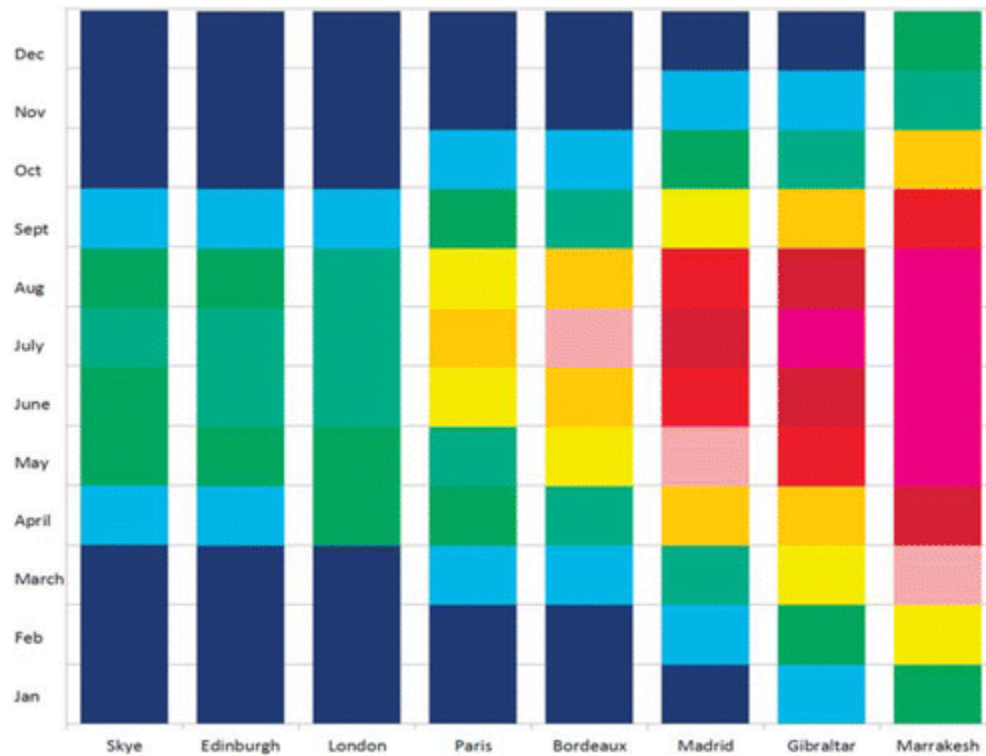
Figure 4. **Sources of vitamin D.**

Ability of whites to synthesise enough Vitamin D through sunlight exposure alone. Yellow - Can synthesise all year round. Pale yellow zone – at least one month a year when cannot synthesise enough. Grey zone – can never synthesise enough from sunlight alone (black, population density).

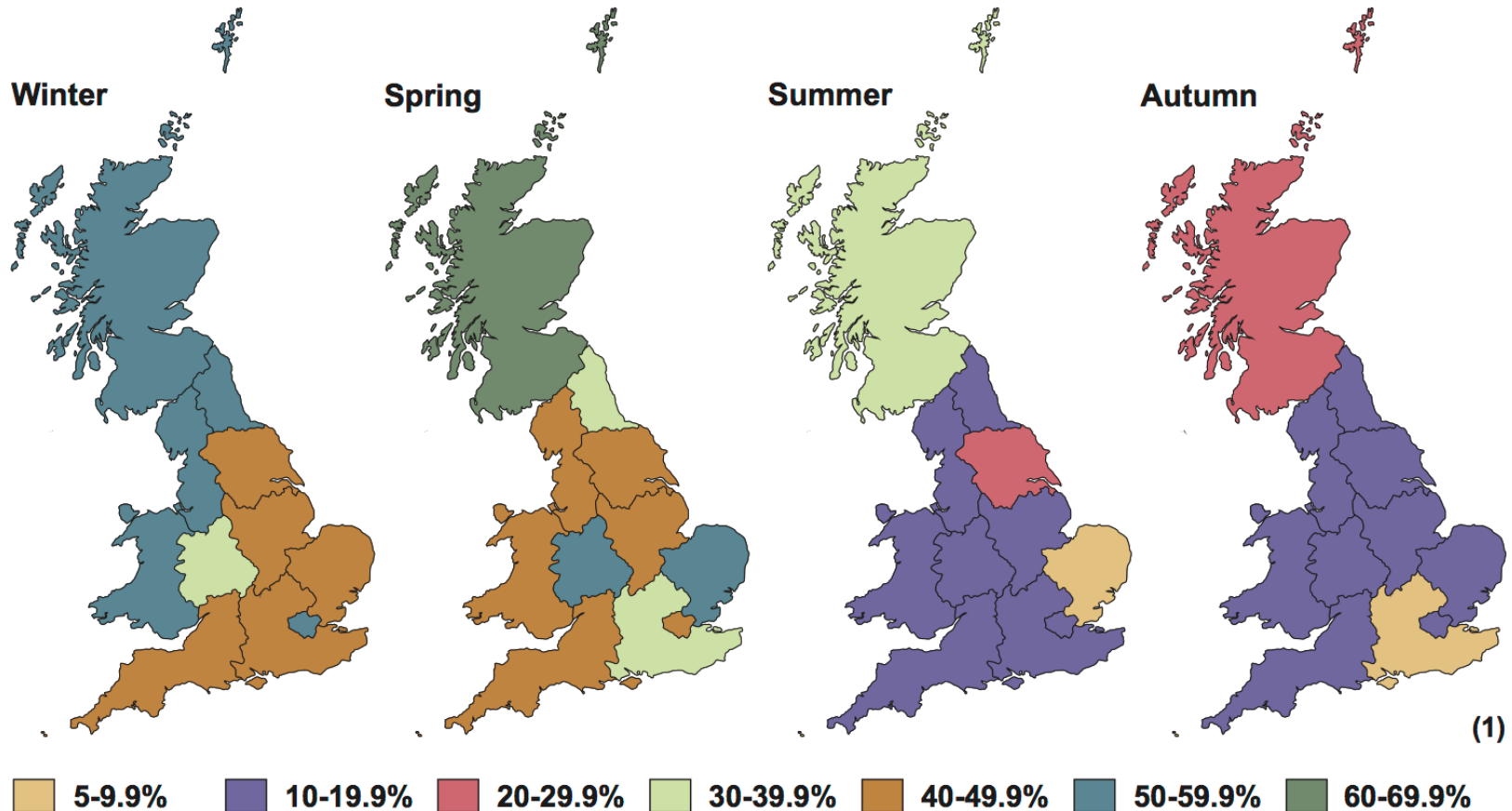


**Nina G. Jablonski, and George Chaplin Phil. Trans. R. Soc.
B 2012;367:785-792**

Skye to Marrakesh; dark or light blue – too little UV to make vitamin D



Up to 50% of the adult population in the UK will be vitamin D insufficient during winter and spring with 16% having severe deficiency. In summer and autumn, 28% of adult population in Scotland will be vitamin D insufficient, with 8% having severe deficiency⁽²⁾



References

- (1) <http://www.ncbi.nlm.nih.gov/pubmed/17344510> - accessed September 2013
- (2) Clinical review, BMJ, Diagnosis and Management of Vitamin D deficiency. Pearce et al 2010

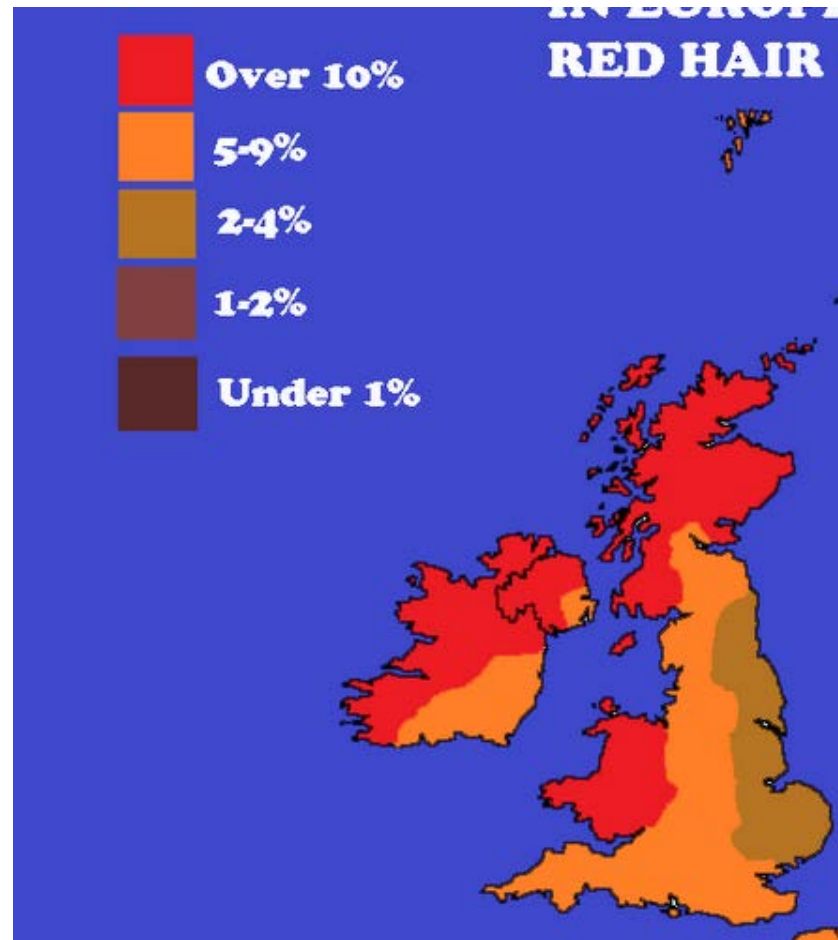
Rapid rise in frequency of light skin allele at 3 loci in Ukraine from 5000 year old fossil DNA compared to modern samples

Gene	Polymorphism	Europe	Africa	Modern Ukraine sample	Ancient sample
<i>HERC2</i>	A > G	0.710	0.000	0.651	0.160
<i>SLC45A2</i> (<i>MATP</i>)	C > G	0.970	0.000	0.927	0.432
<i>TYR</i>	C > A	0.368	0.000	0.367	0.043

The palest people



Red Hair Map:

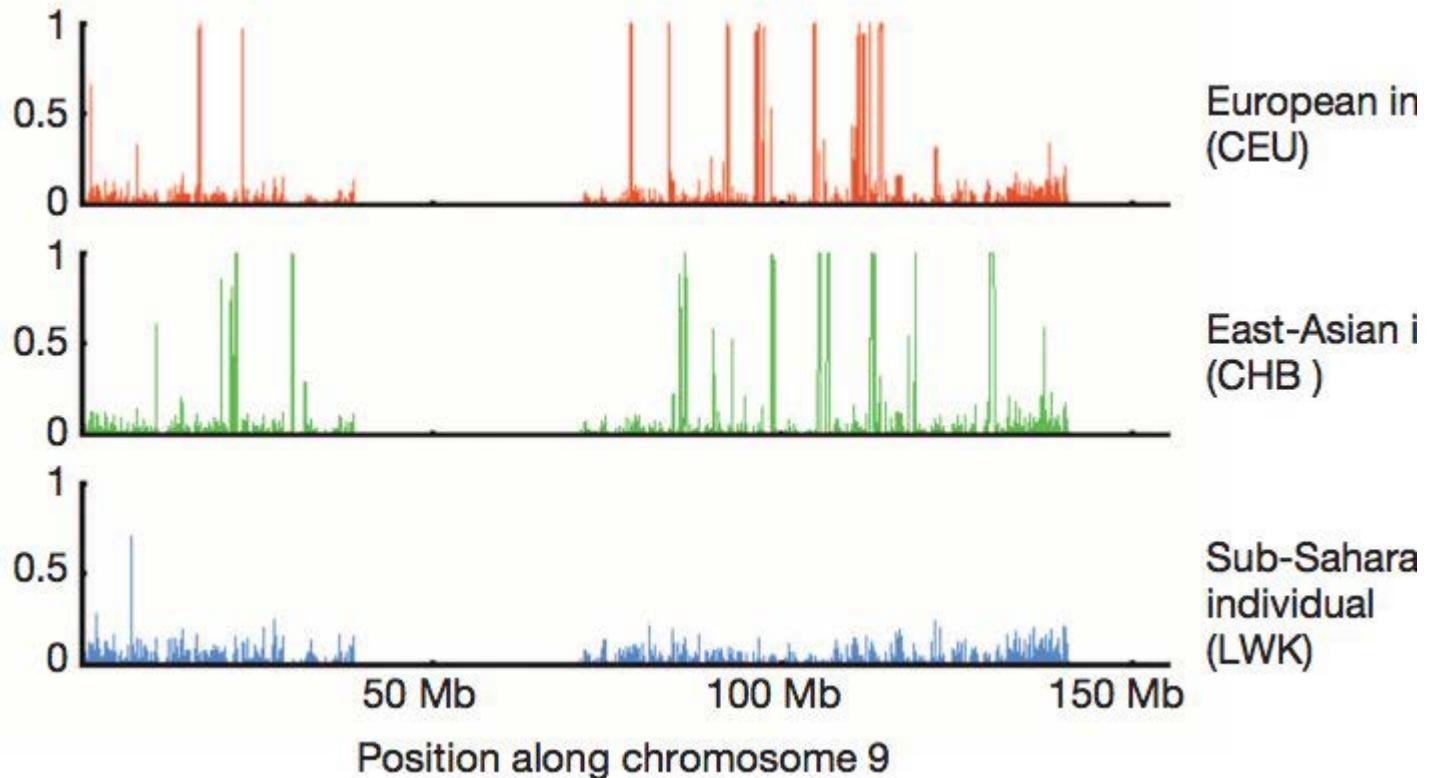


Neanderthal distribution (Europe much colder then)



Short stretches of Neanderthal haplotypes in Europeans and Asians but not Africans

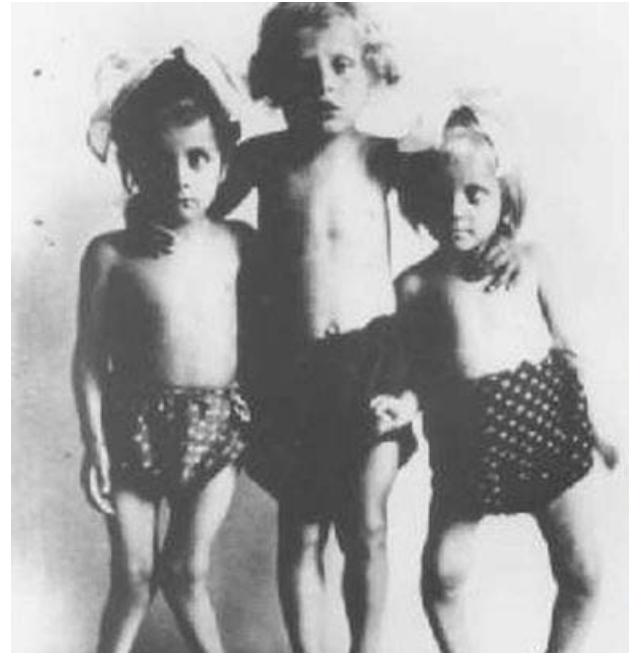
Probability of Neanderthal ancestry



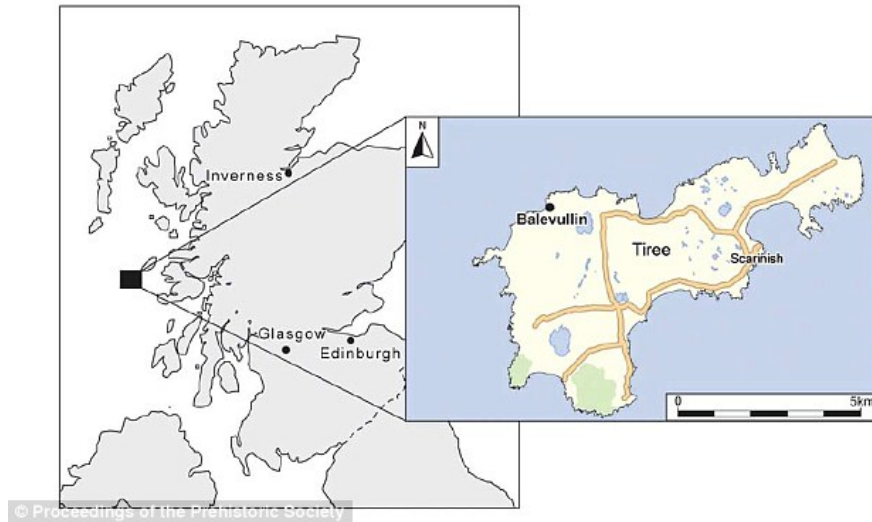
Ginger, the Neanderthal



Rickets: bones become “flexible like wax that is rather liquid, so that the flabby and toneless legs scarcely sustain the weight of the superimposed body ... the back, through the bending of the spine, projects hump fashion in the lumbar region”.



5000 year old Scot with rickets on Isle of Tiree



Your Britain: fight for it now (1942)



Censored by Churchill: the Finsbury Health Centre, “a disgraceful libel on the conditions prevailing in Great Britain before the war”.



Finsbury Health Centre: Interior – fresh air and sun room



MÖLLER'S COD-LIVER OIL

Gained the ONLY FIRST PRIZES at the Great Exhibitions of LONDON, PARIS, Etc.



IT IS NOT SUFFICIENTLY CONSIDERED that the quality of Cod-Liver Oil depends upon the condition of the Fish. The Lofoten Waters in Norway are the only known district where the Cod migrates for spawning, and in excellent condition. Hence the well-known superiority of Lofoten Oil; many reject the light brown on account of its unpleasant taste, arising from its being prepared from putrid livers. PETER MÖLLER, therefore, by a Special Process, prepares at Lofoten, a Pale Oil, distinctly different to the PALE NEW-FOUNDLAND, retaining all the curative virtues with a remarkably pure smell and taste.

THE LATE PHYSICIAN to the North London Consumptive Hospital, Abbotts Smith, M.D., M.R.C.P., affirms that Möller's Oil is more readily retained by delicate persons, and more efficacious.

THE MEDICAL SOCIETY OF NORWAY has, through its leading members, testified that Möller's Oil is preferred for its beneficial properties. THE MEDICAL SOCIETY OF NORTHUMBERLAND AND DURHAM pronounced Möller's Oil the best.

PHYSICIANS to LONDON HOSPITALS and other eminent men in the Profession, have certified to its superiority.

Dr. L. A. SAYRE, Professor of Orthopedic Surgery in Bellevue Hospital Medical College, New York, says: "Of late years it has become almost impossible to get any Cod-Liver Oil that patients can digest, owing to the objectionable mode of procuring and preparing the liver." * * Möller, of Christiania, Norway, prepares an oil which is perfectly pure, and, in every respect, all that can be wished. —Dr. L. A. Sayre before Academy of Medicine. See MEDICAL RECORD, Dec., 1869, p. 447.

Dr. J. MARION SIMS says: "For some years I had given up the use of Cod-Liver Oil altogether; but since my attention was called to Dr. Sayre's Möller's Oil, I have prescribed it almost daily, and have every reason to be perfectly satisfied with it."

SOLD BY DRUGGISTS.

W. H. Schieffelin & Co., 170 & 172 William Street, New York,

SOLE AGENTS FOR THE UNITED STATES AND CANADAS



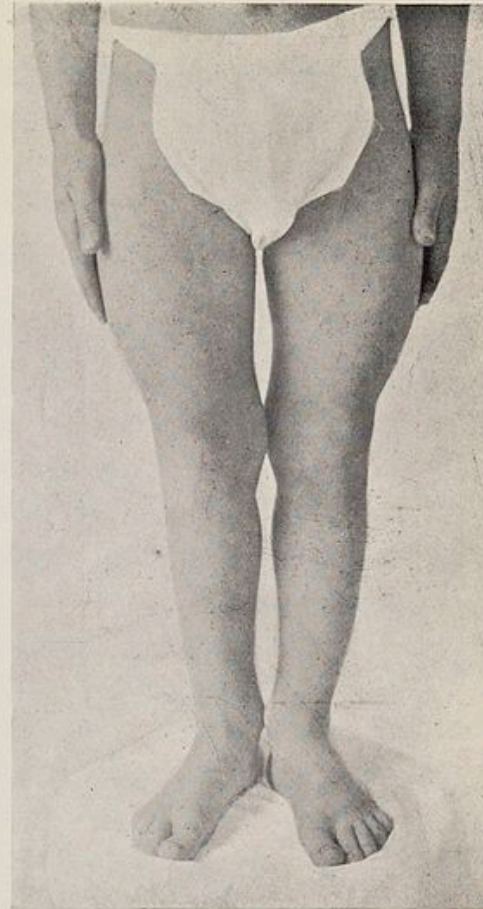
Malcolm Green BMJ 2011;343:bmj.d7505



Rickets before and after UV treatment



CASE OF RICKETS BEFORE TREATMENT
BY HELIOTHERAPY.



SAME CASE AFTER TWO YEARS'
TREATMENT.

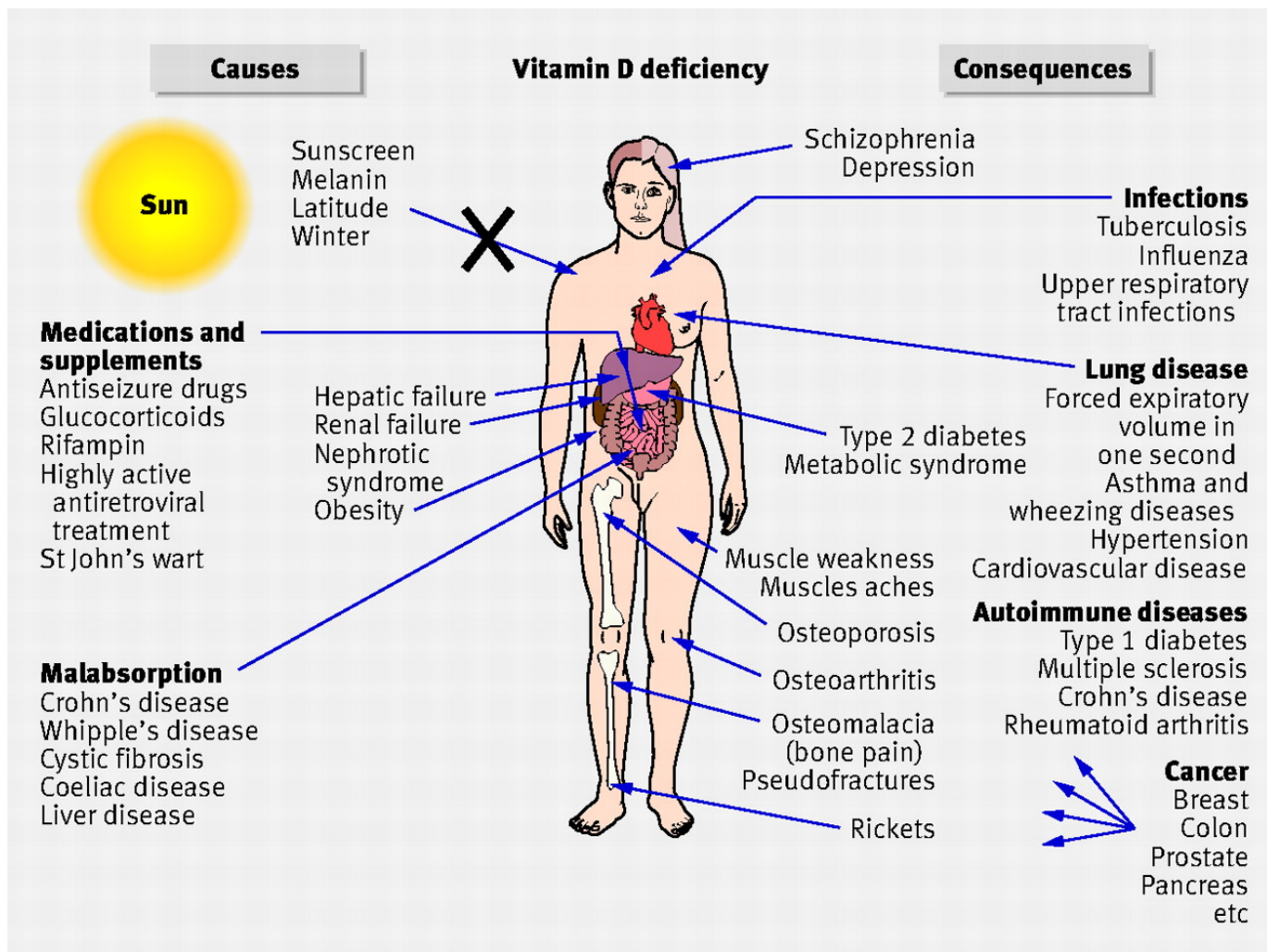


MILK

THE BACKBONE OF YOUNG BRITAIN

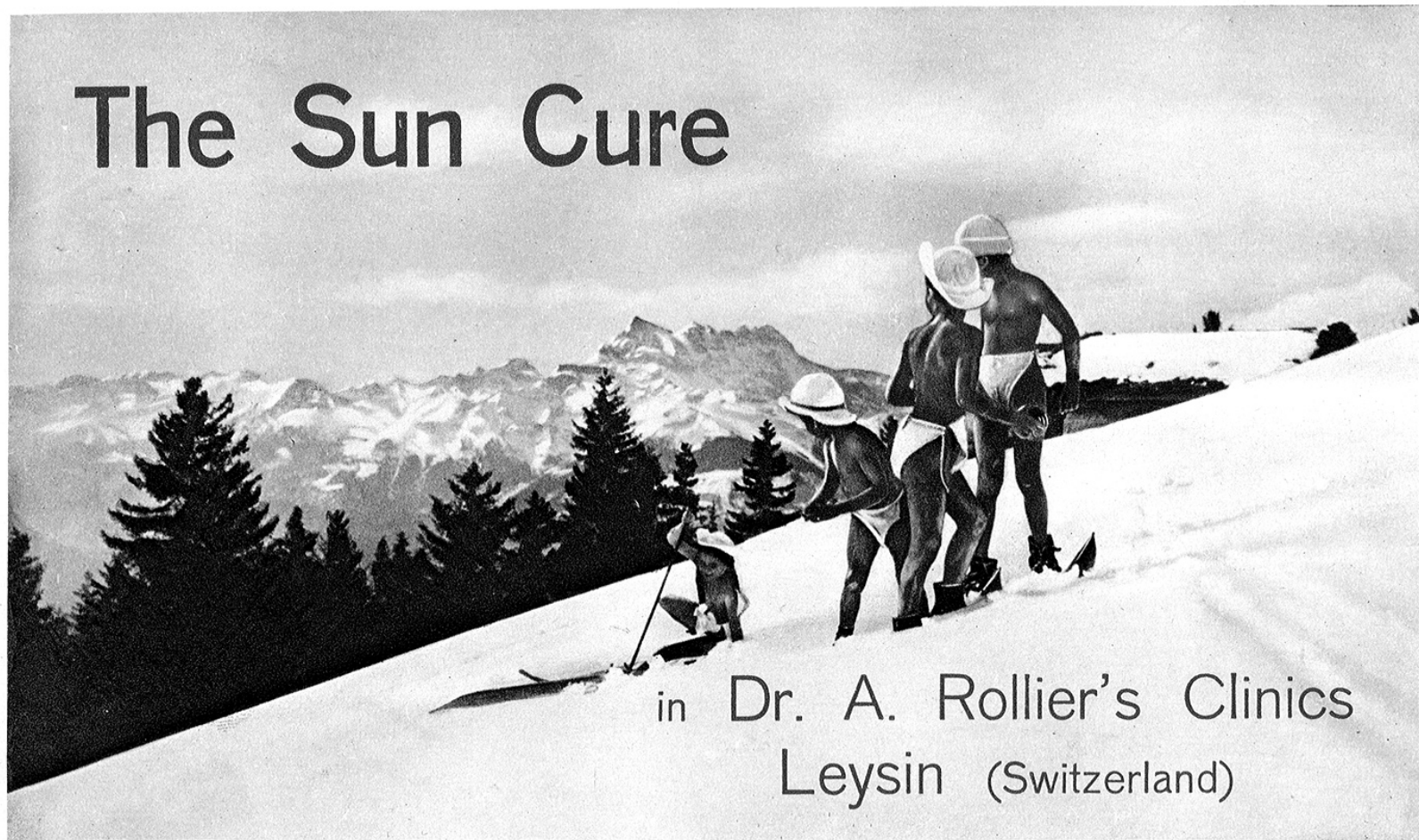
It does lots of other things too

A summary of causes and consequences of vitamin D deficiency



Holick, M. F BMJ 2008;336:1318-1319

The Sun Cure



in Dr. A. Rollier's Clinics
Leysin (Switzerland)

SWISS ALPINE HELIOTHERAPIC RESORT • ALT.: 4500 FT

Lupus vulgaris; caused by TB bacillus, cured by sunshine



And viral infections too – darker bars, less vit D, get more infections

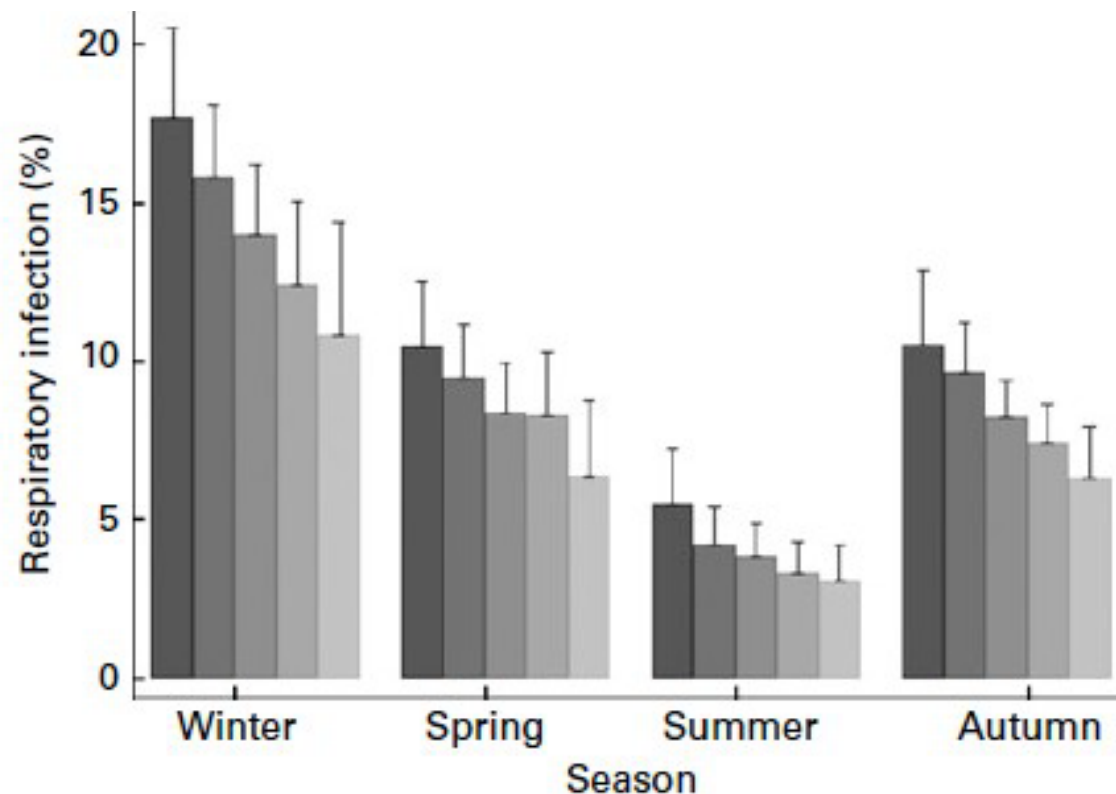
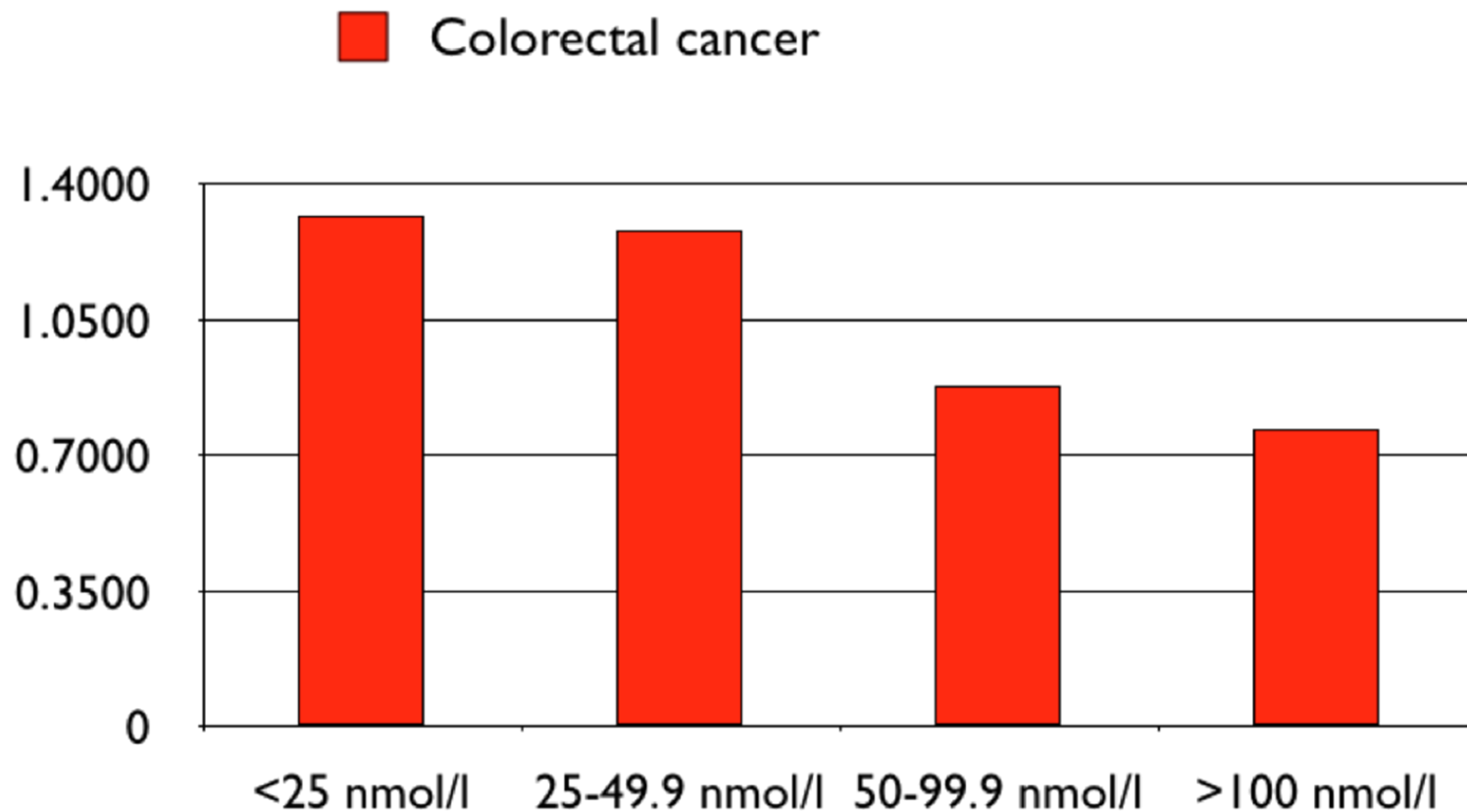
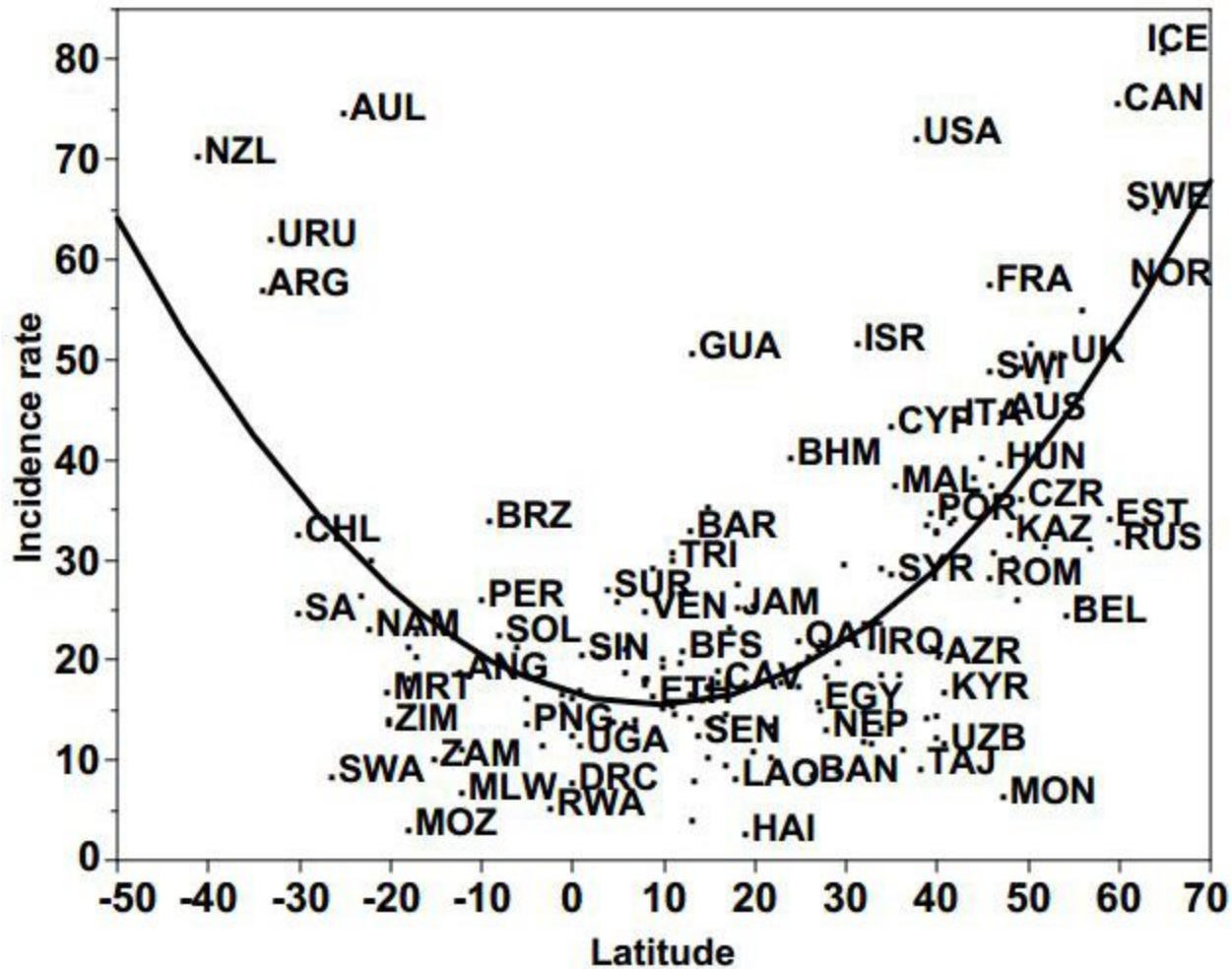


Fig. 2. Prevalence of respiratory infections with 95 % prediction intervals in the 25-hydroxyvitamin D categories of <25 nmol/l (■), 25–49.9 nmol/l (■), 50–74.9 nmol/l (■), 75–99.9 nmol/l (■) and >100 nmol/l (■) as predicted from a logistic regression model adjusted for factors of lifestyle, socio-economic position and adiposity, and season in the 1958 British birth cohort.

And even cancer ...

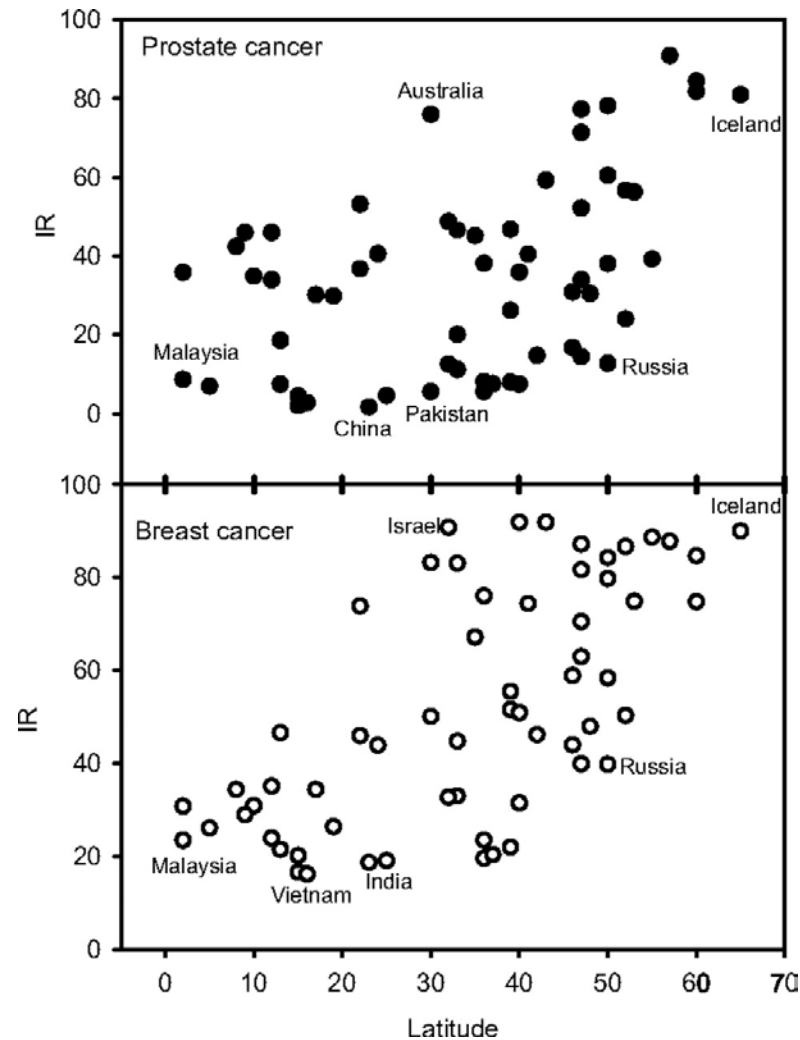


Breast Cancer versus Latitude



From Mohr, *et al.* (2005). "Mapping vitamin D deficiency, breast cancer, and colorectal cancer," *Proceedings of the ESRI International User Conference*, Redlands (CA): ESRI (Vol. 1468).

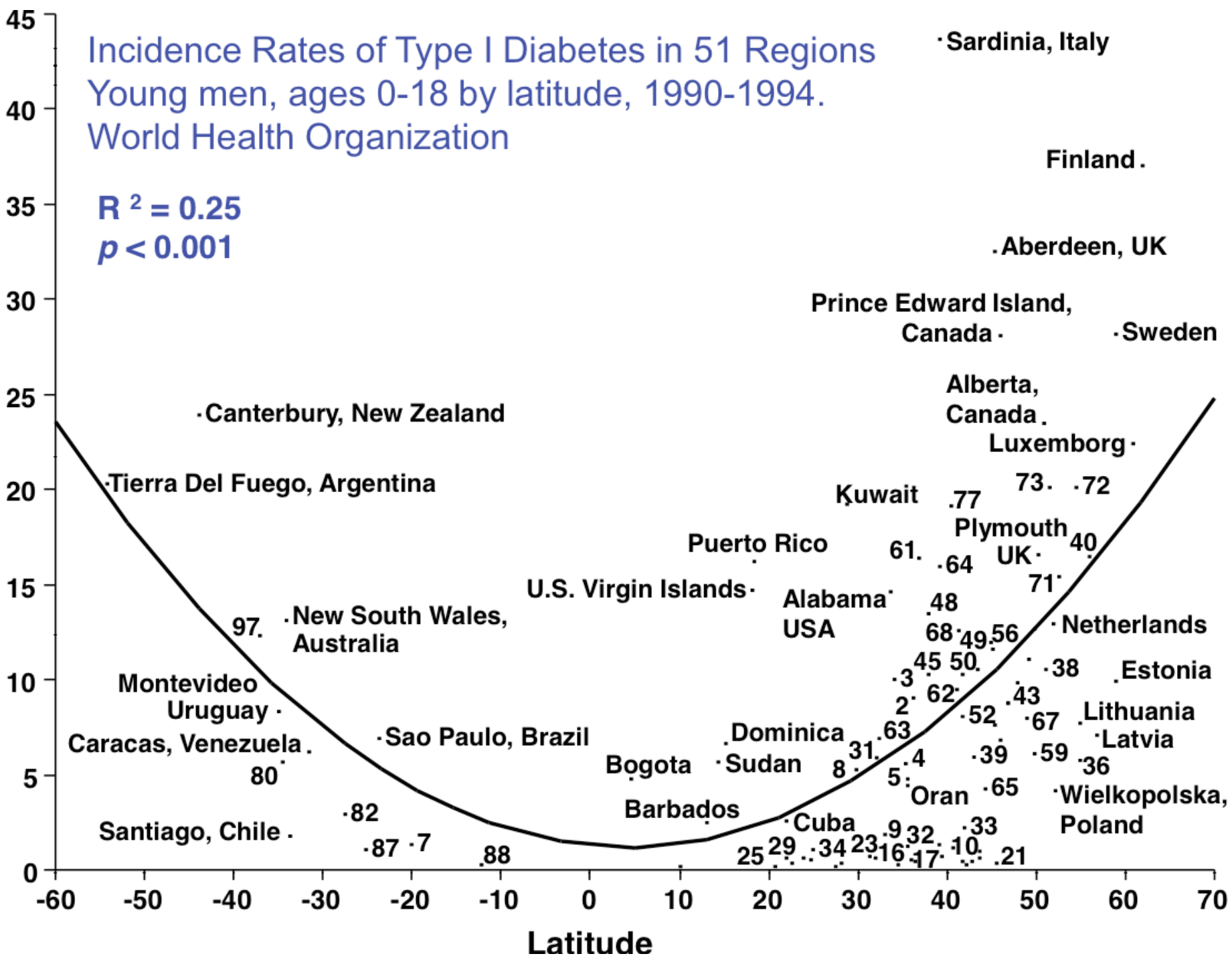
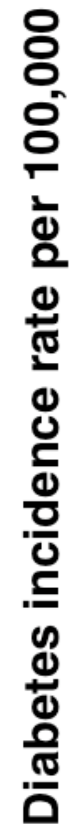
Incidence rates of prostate and breast cancers in different countries as functions of the mean latitude of the country.



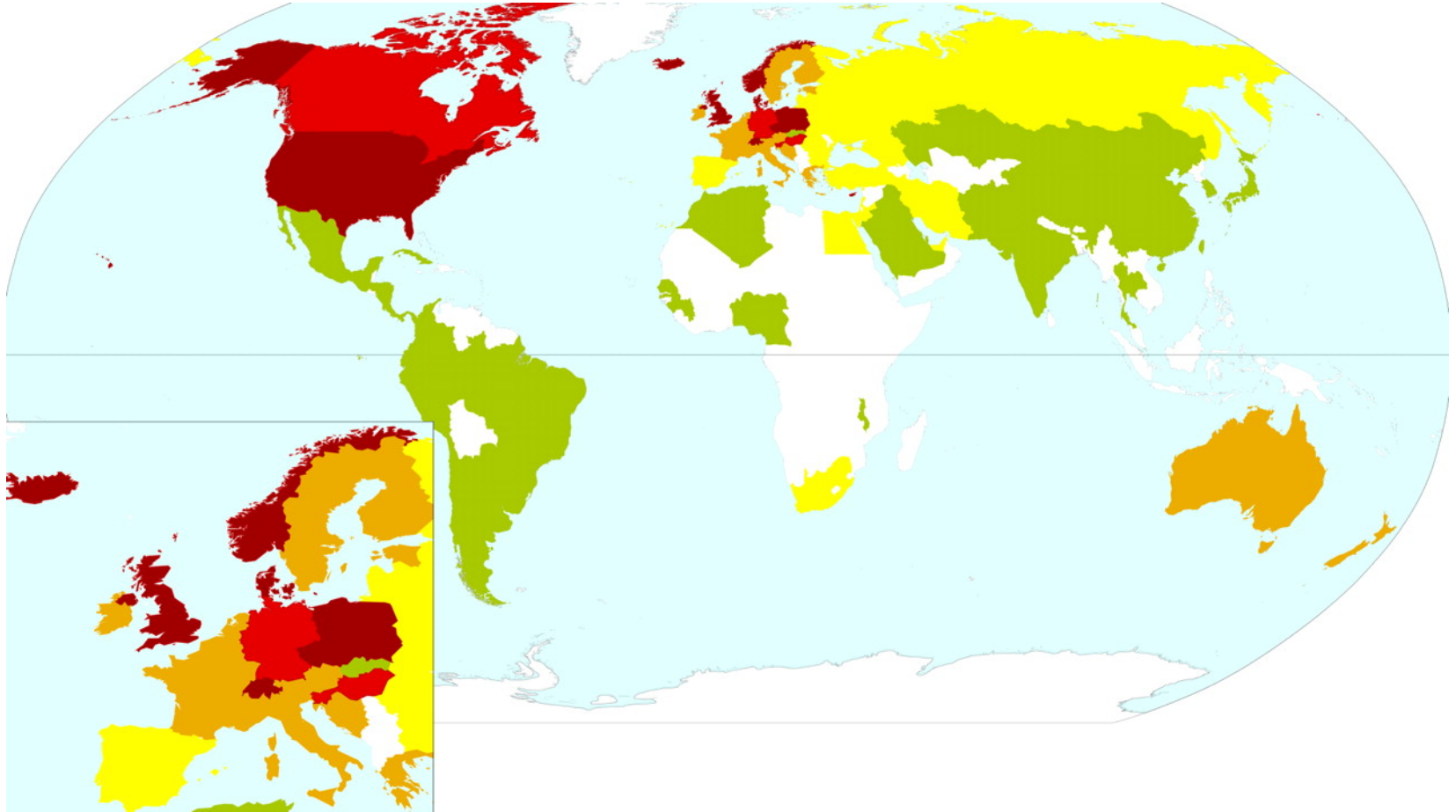
Johan Moan et al. PNAS 2008;105:668-673

Incidence Rates of Type I Diabetes in 51 Regions
Young men, ages 0-18 by latitude, 1990-1994.
World Health Organization

$R^2 = 0.25$
 $p < 0.001$

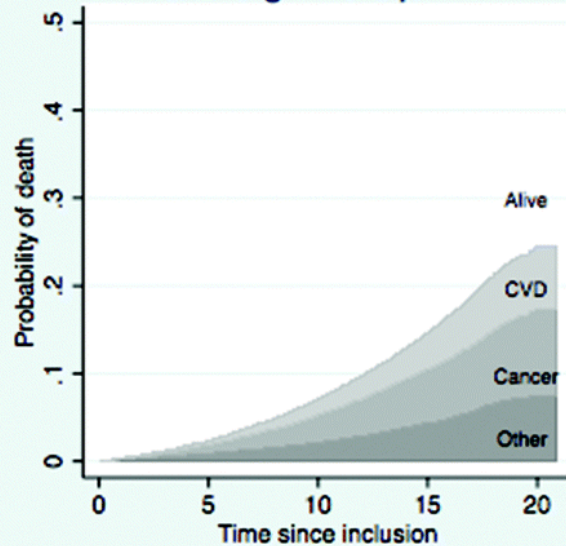


Prevalence of Multiple Sclerosis per 100 000 population. Strong fit with sunlight (and hence with Vitamin D) even in Europe alone; a five-fold difference in rate from place to place

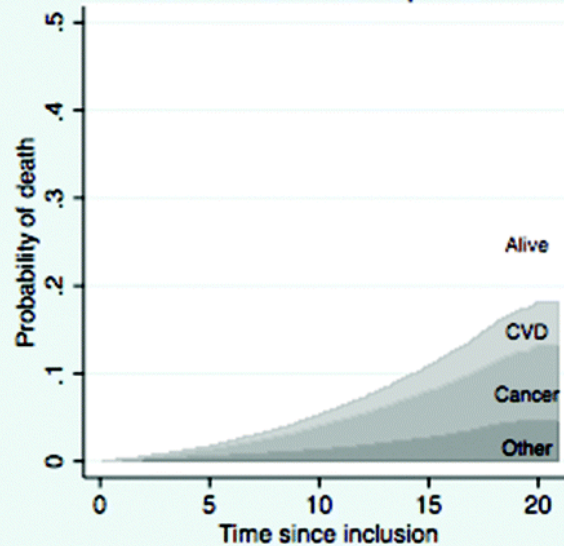


Deaths from cardiovascular disease, cancer and other causes in 55-64 yo Swedish women in relation to sun exposure

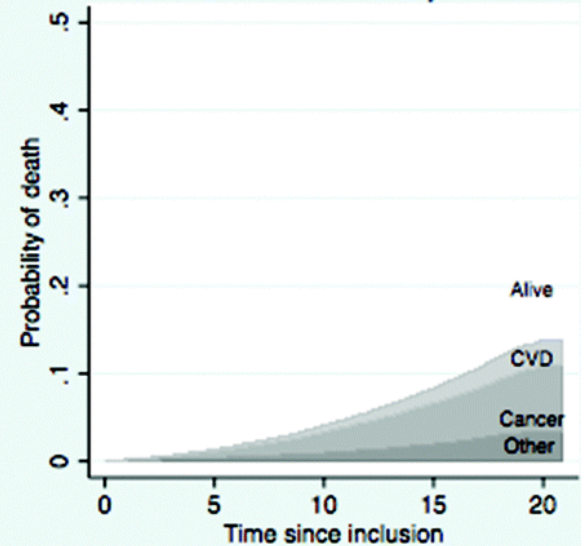
Avoiding sun exposure



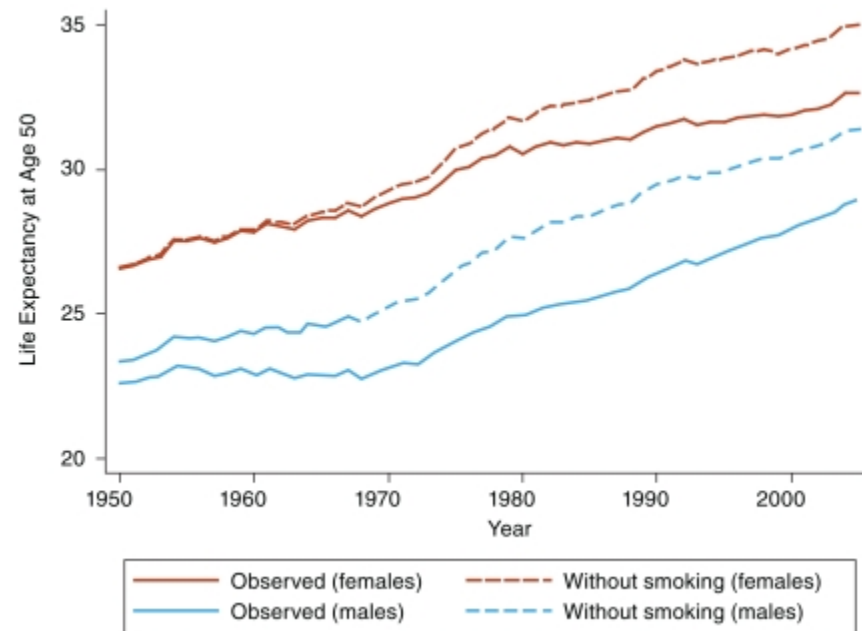
Moderate sun exposure



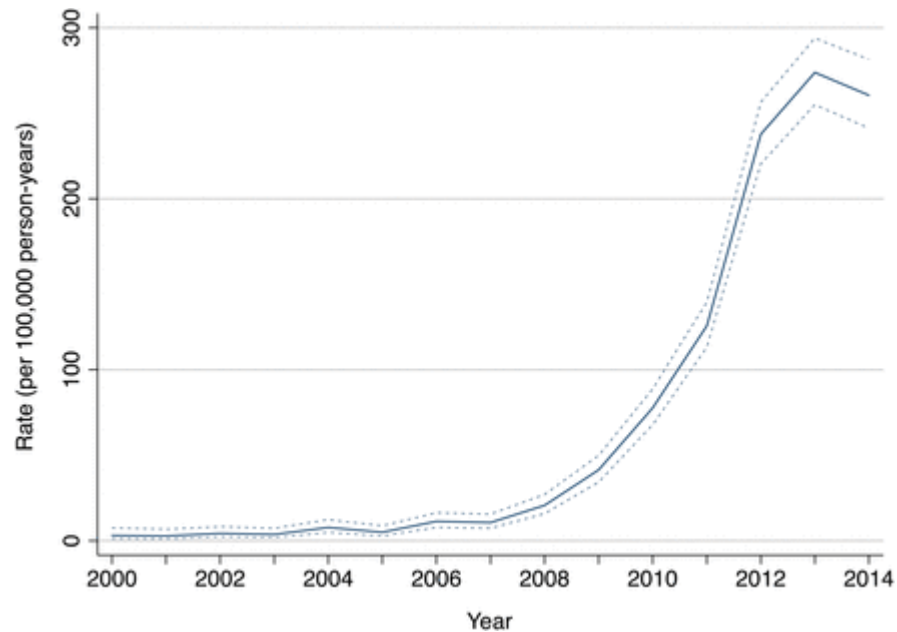
Most active sun exposure



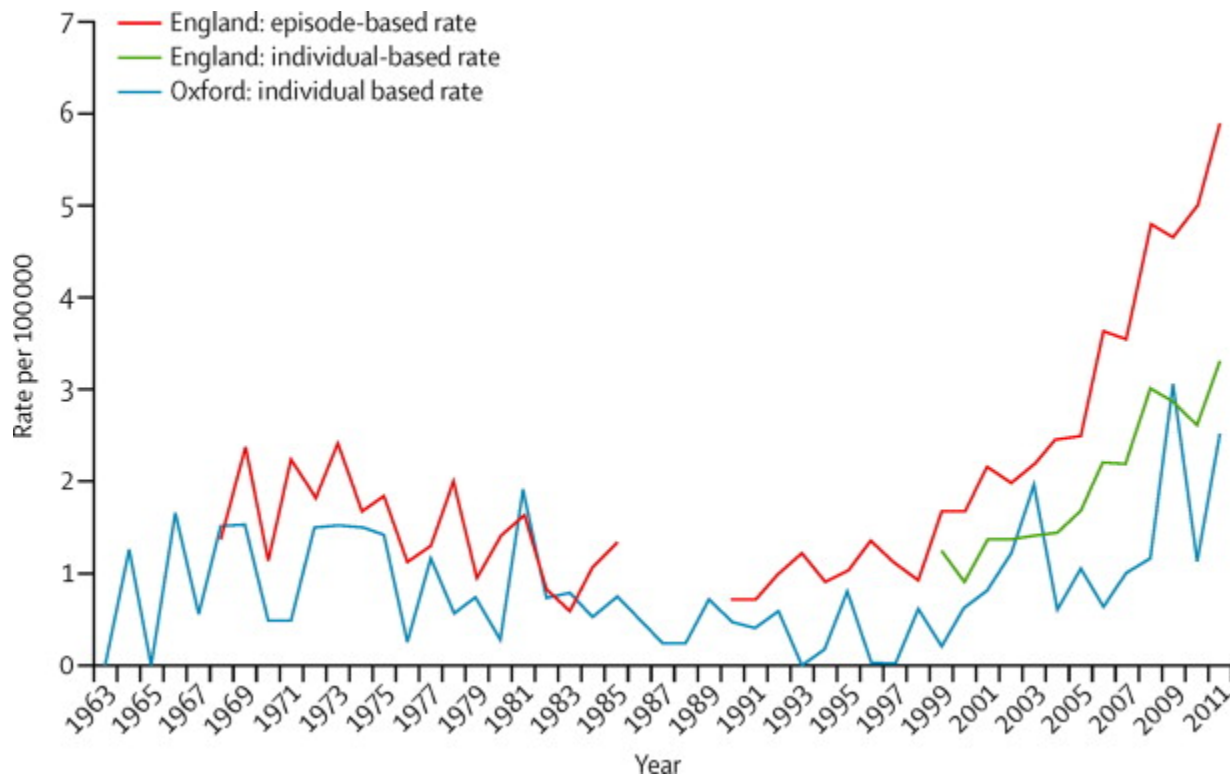
Effect on 50yo life expectancy if smoking eliminated



Vitamin D deficiency in UK children 2000-2015: 15x increase



England: Increase in rickets over 50 years



STEVE JONES

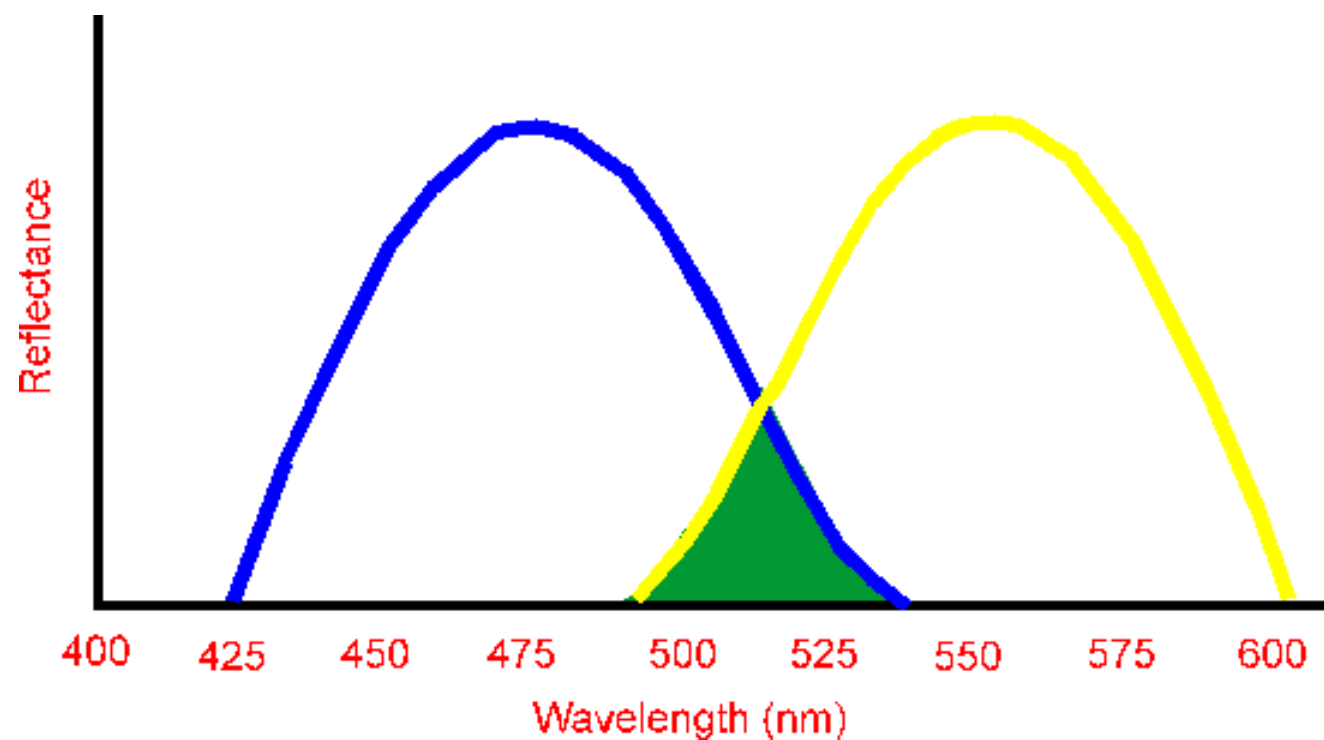
Author of the award winning *ALMOST LIKE A WHALE*



THE SINGLE HELIX

A TURN AROUND THE WORLD OF SCIENCE



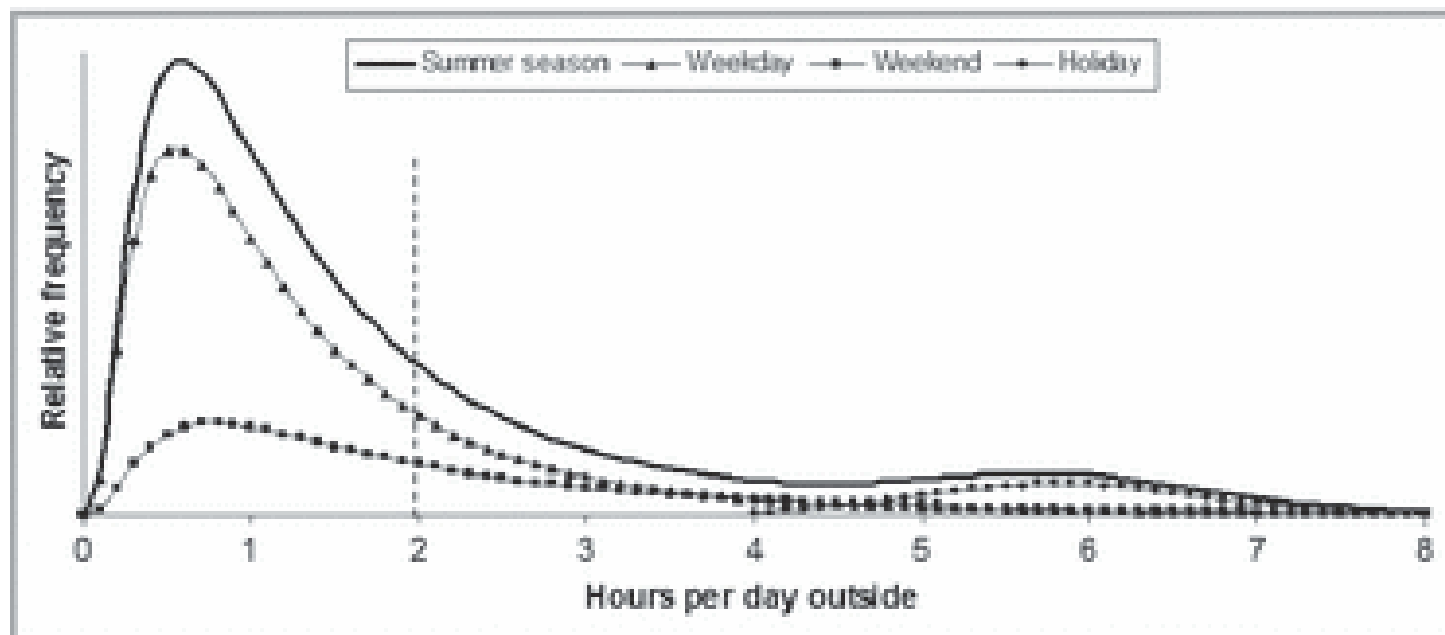




African albino



An overview analysis of the time people spend outdoors



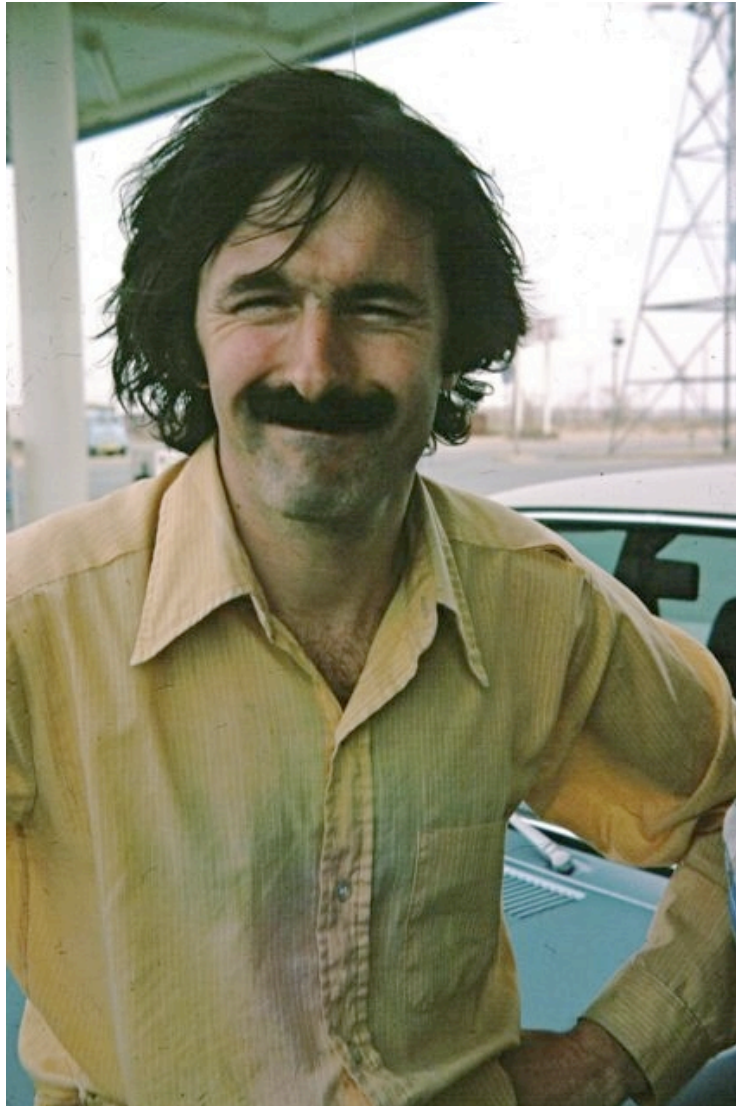
Then and now: the New Club, Princes Street, 1963



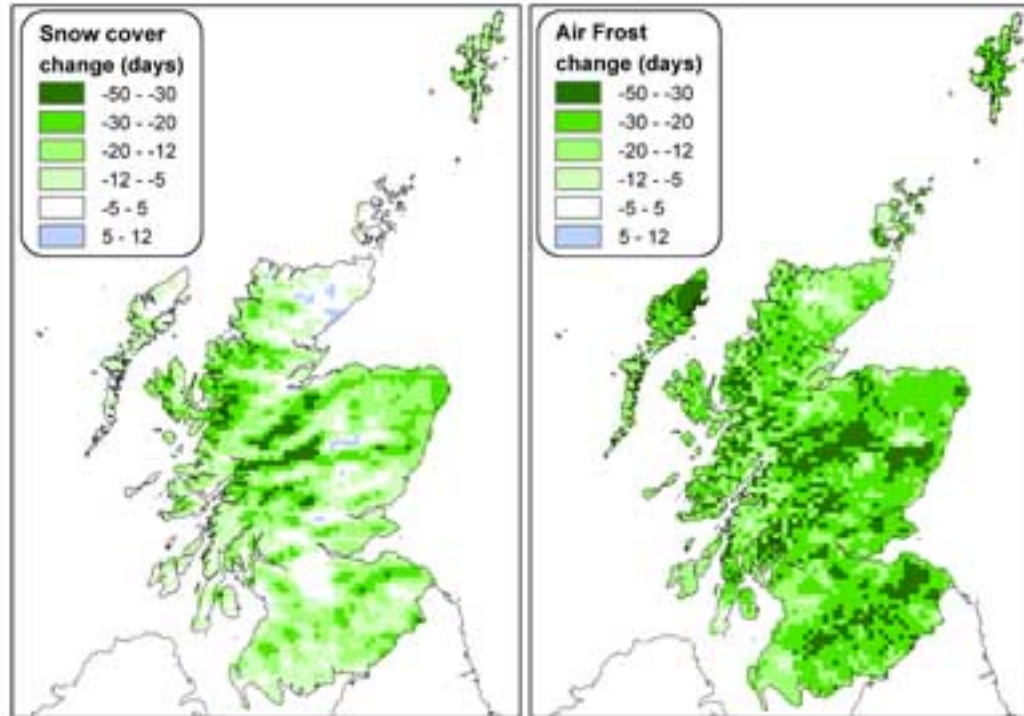
The New Club, 2017



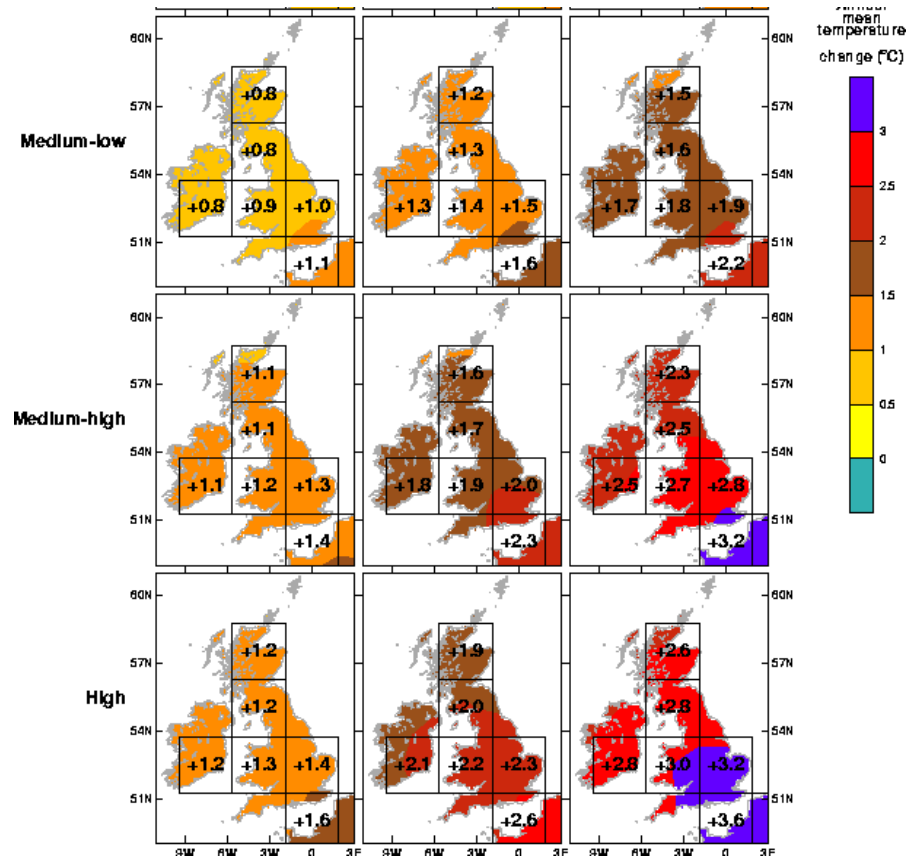
The PhD student 1969



Reduction in Scottish snow and frost 1970-2010



Temperature increase forecast to 2080 under three scenarios



A sunny day in 1930s Edinburgh



Joseph Goebbels 1938: “Edinburgh will make a delightful summer capital when we invade Britain”.

