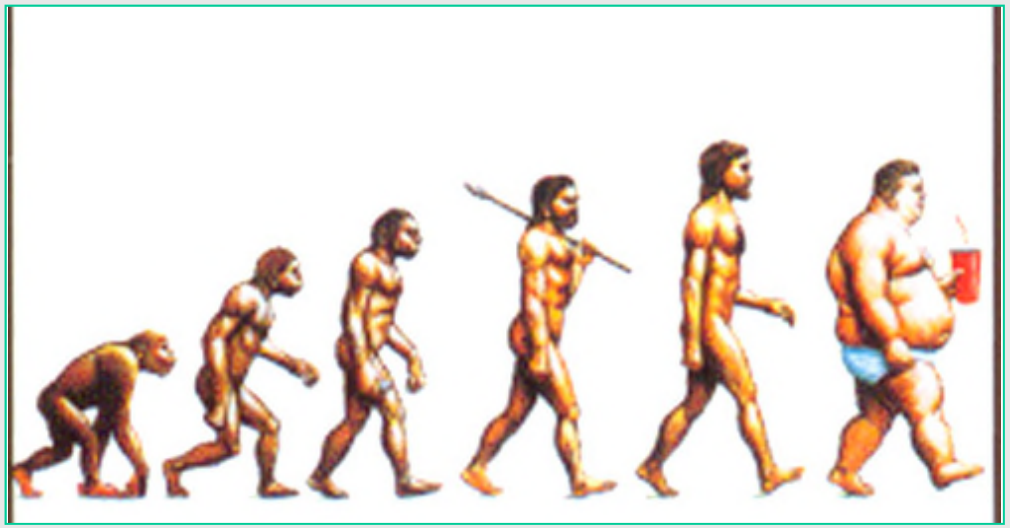
THE DILEMMAS OF AFFLUENCE

HAVE WE CREATED AN ADDICTIVE CULTURE?



Peter C. Whybrow
Semel Institute for Neuroscience and Human Behavior, UCLA
Guest Lecture: UBVO, Institute for Social and Cultural Anthropology
University of Oxford, May 26th, 2010.

GRAPHIC: THE ECONOMIST DECEMBER 13, 2003

THE DILEMMAS OF AFFLUENCE
LESSONS FROM THE GREAT AMERICAN EXPERIMENT

Premise

Living creatures and social systems create their own dynamic order

Material affluence (abundance) is novel in human (hominid) experience

Observation

Behavioral dynamics regulate open market systems

Recent cultural shifts have Influenced market homeostasis

These have impacted individual behavior, e.g. obesity, and public health

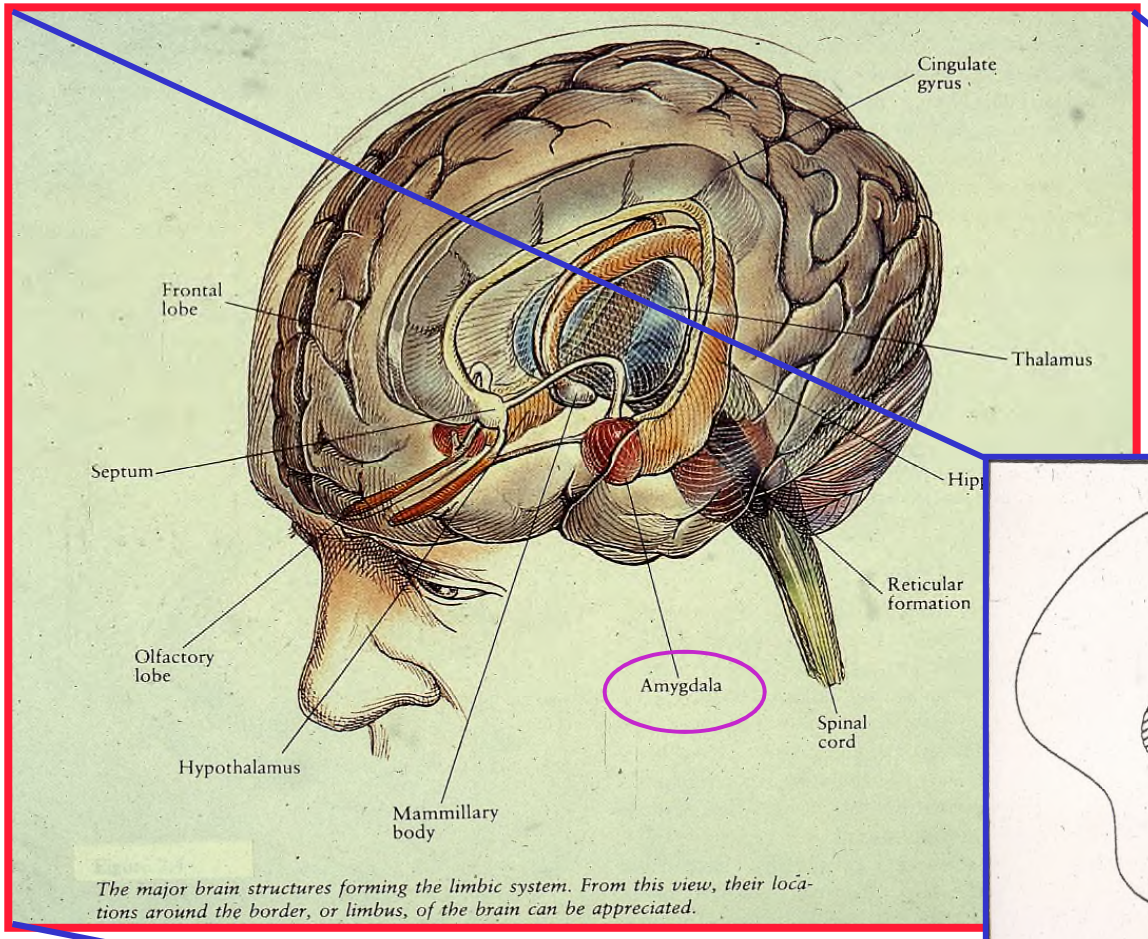
Challenge:

Affluence reconsidered: free choice, self regulation and the social order

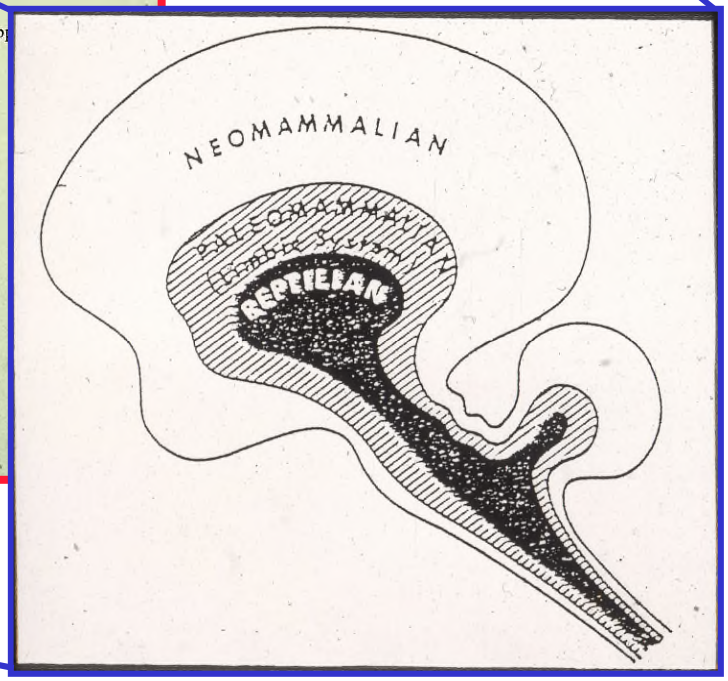
AFFLUENCE = THE RELENTLESS FLOW OF NOVEL AND CHEAPER OPPORTUNITY (Avner Offer, 2006)

BEHAVIOR IS BEST UNDERSTOOD THROUGH THE LENS OF EVOLUTION

HOMO SAPIENS EVOLVED AMIDST SCARCITY



The major brain structures forming the limbic system. From this view, their locations around the border, or limbus, of the brain can be appreciated.



Paul MacClean: *The Triune Brain in Evolution,* Plenum Press, 1990

AFFLUENCE IS A RECENT EXPERIENCE…

…for members of the Hominid line

After Naish, Schaubelt and Kieser: Landesmuseum, Darmstadt, Germany. (2005)

THE WORLD AS A VILLAGE: WEALTH AND MATERIAL CHOICE

"If we could shrink the earth's population to a village of precisely 100 people, with all the existing human ratio's remaining the same, it would look something like the following…"

Phillip Harter, MD. Stanford University

6 individuals would own 59% of the wealth of the village, and those 6 would be Americans

50 would suffer from malnutrition
60 would never have made a telephone call
70 would be unable to read
80 would live in substandard housing

52% female
48% male

Villagers

57 Asian
21 European
14 American (N & S)
8 Africans

The richest 20
of the world's people consume
86% 0f all goods and services
84% of all paper products
58% of all energy used
45% of all meat and fish
And own
74% of all telephone lines
87% of all vehicles

SOURCE:
KOFI ANNAN'S ASTONISHING FACTS
BY BARBARA CROSETTE
New York Times, September 28, 1998

OPEN MARKETS

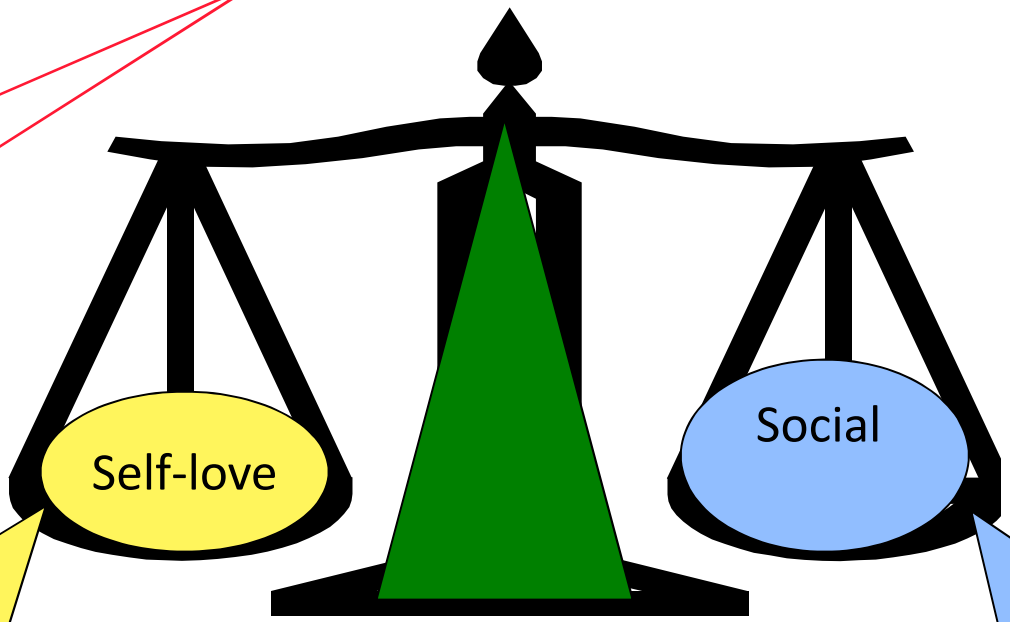
MARKETS ARE A NATURAL EVOLUTION OF HUMAN SOCIAL BEHAVIOR

"TO TRUCK, BARTER & EXCHANGE."

"*THE BEHAVIOR OF MULTITUDES IS THE SUM OF INDIVIDUAL DESIRES*." ADAM SMITH, 1776

ADAM SMITH'S ANALYSIS OF THE BEHAVIORS THAT BALANCE A SELF-REGULATING FREE MARKET ECONOMY

"INVISIBLE HAND"



INDIVIDUAL FREEDOM

Self-interest
"God's incomprehensible remedy"

Curiosity & love of novelty
"keeps in motion the industry of mankind"

Social ambition (competition)
"the distinction of ranks"

INSTINCTUAL, REWARD-DRIVEN BEHAVIORS

"IMPARTIAL SPECTATOR"

Sympathy & empathic concern

The need to be loved by others

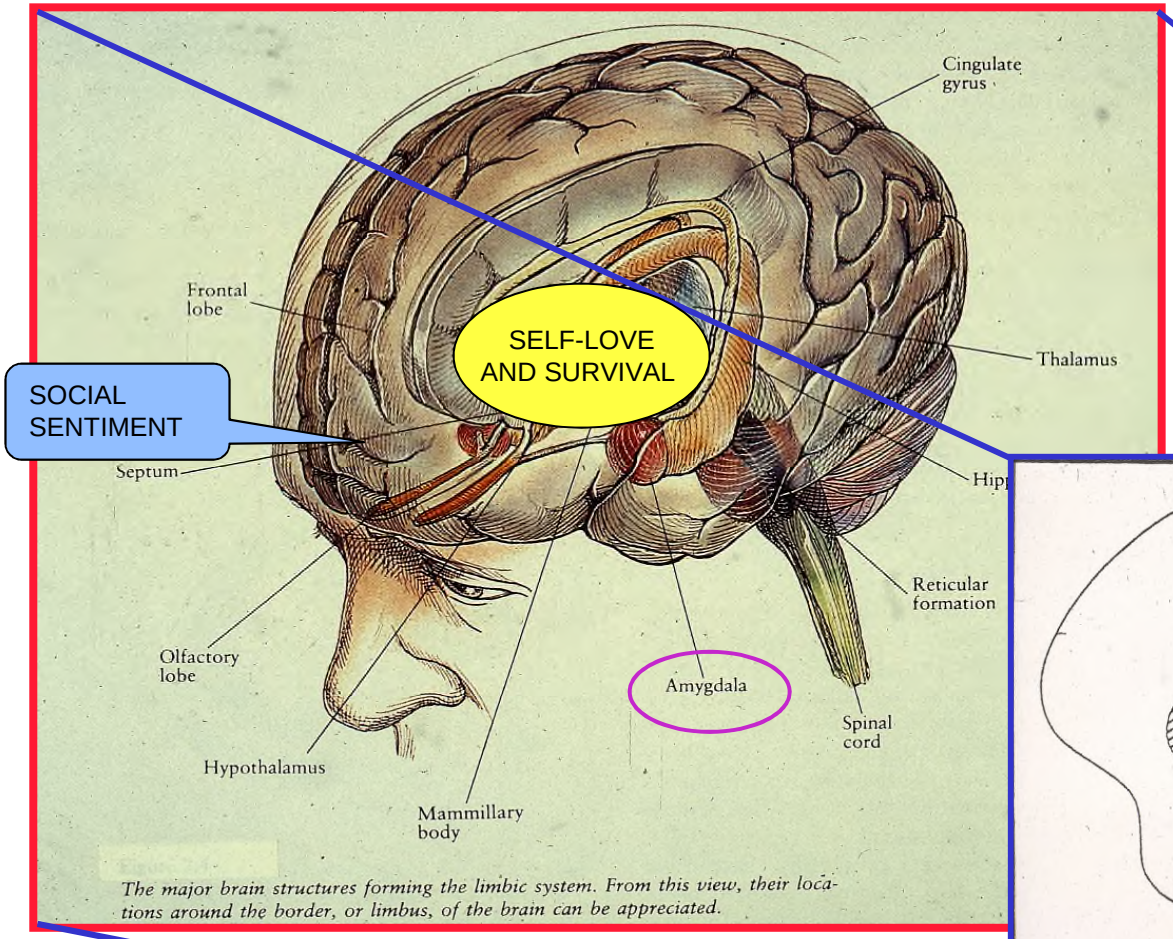
Peer recognition and social acceptance

"The man we naturally love the most
is he who joins..to his own..selfish feelings
the most exquisite sensibility of others"

LEARNED CORTICAL BEHAVIORS, CULTURALLY DEPENDENT

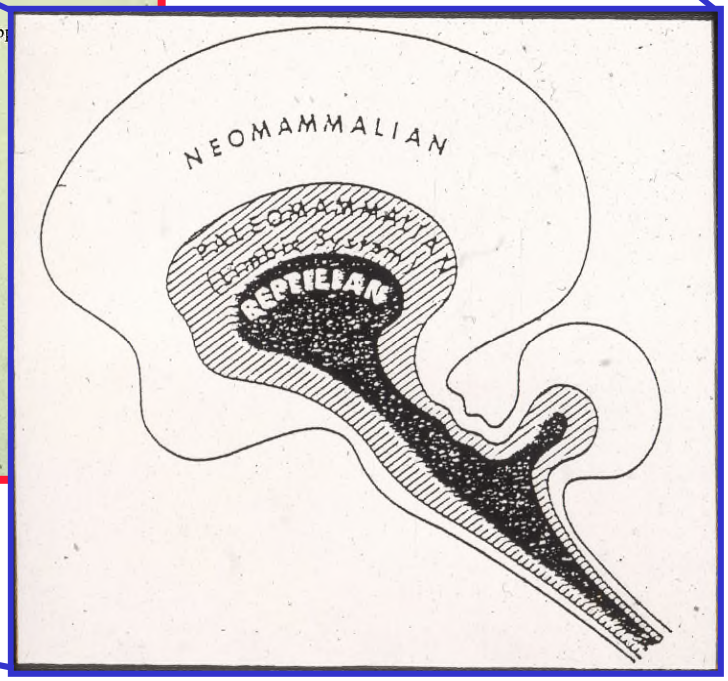
BEHAVIOR IS BEST UNDERSTOOD THROUGH THE LENS OF EVOLUTION

SMITH'S SELF-REGULATING ECONOMY



SELF-LOVE AND SURVIVAL

SOCIAL SENTIMENT



IN A FREE-MARKET SOCIETY REWARD-DRIVEN INSTINCTUAL BEHAVIOR IS BALANCED BY REASON AND SOCIAL CONSTRAINT

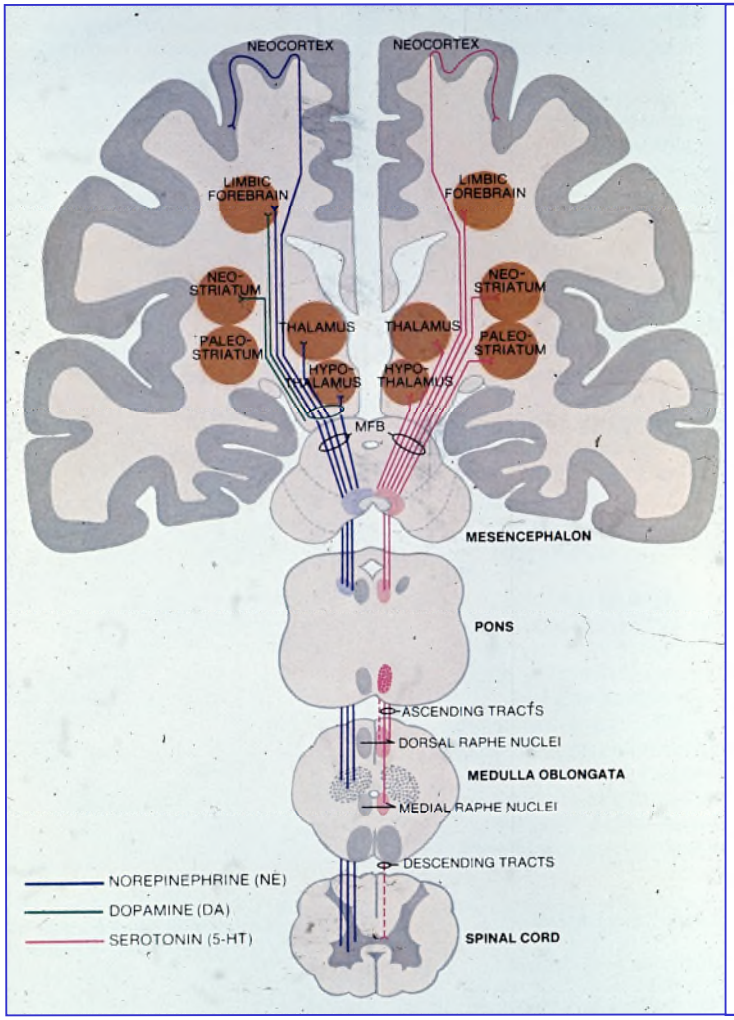
THE INSTINCTUAL SIDE OF SMITH'S BALANCE IS LARGELY DOPAMINE DRIVEN

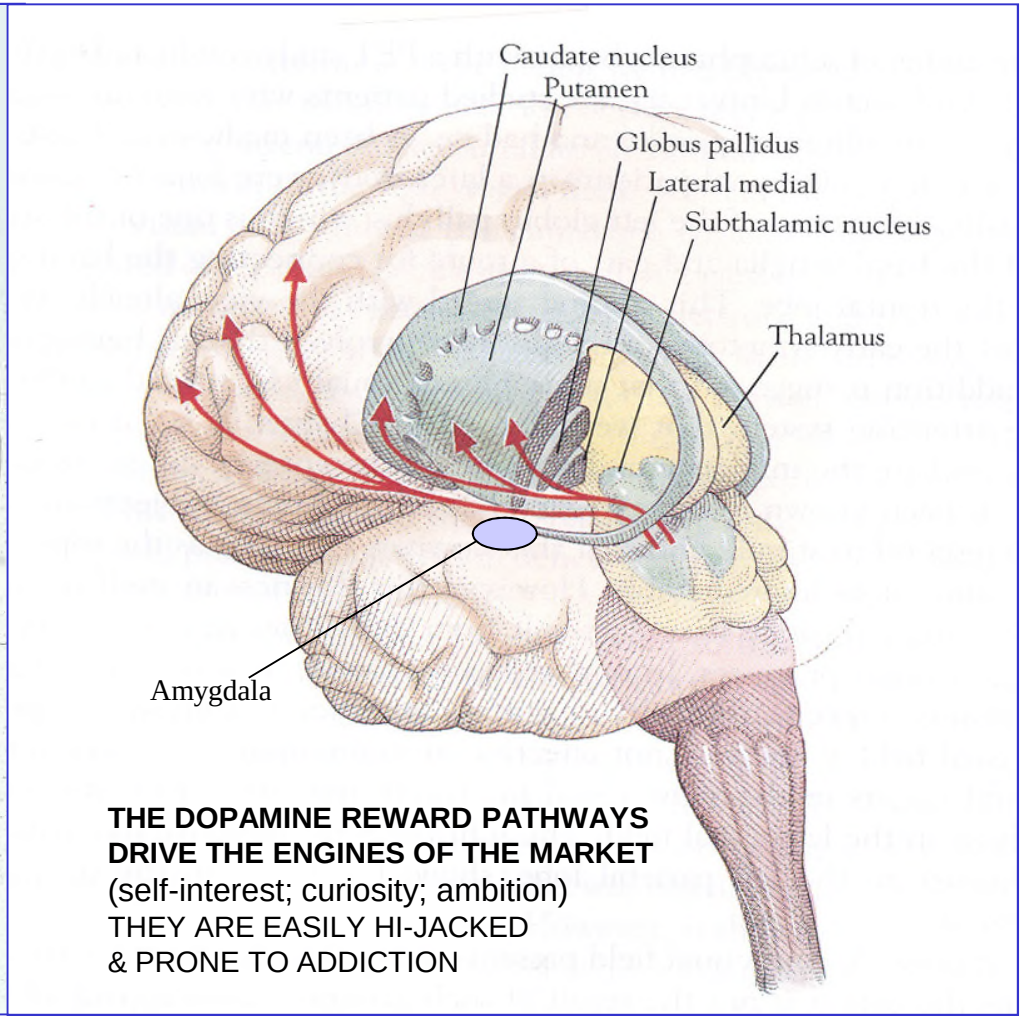
1. **The survival instinct drives self-interest. Exploration and risk are essential for self-gain.**

2. **We are curious and instinctually compete for resources by whatever metric (e.g. sexual partners, money) our current environment dictates.**

3. **Social ambition is a product of this competition.**

INSTINCTUAL BEHAVIOR IS COORDINATED BY NEURONAL SUPERHIGHWAYS



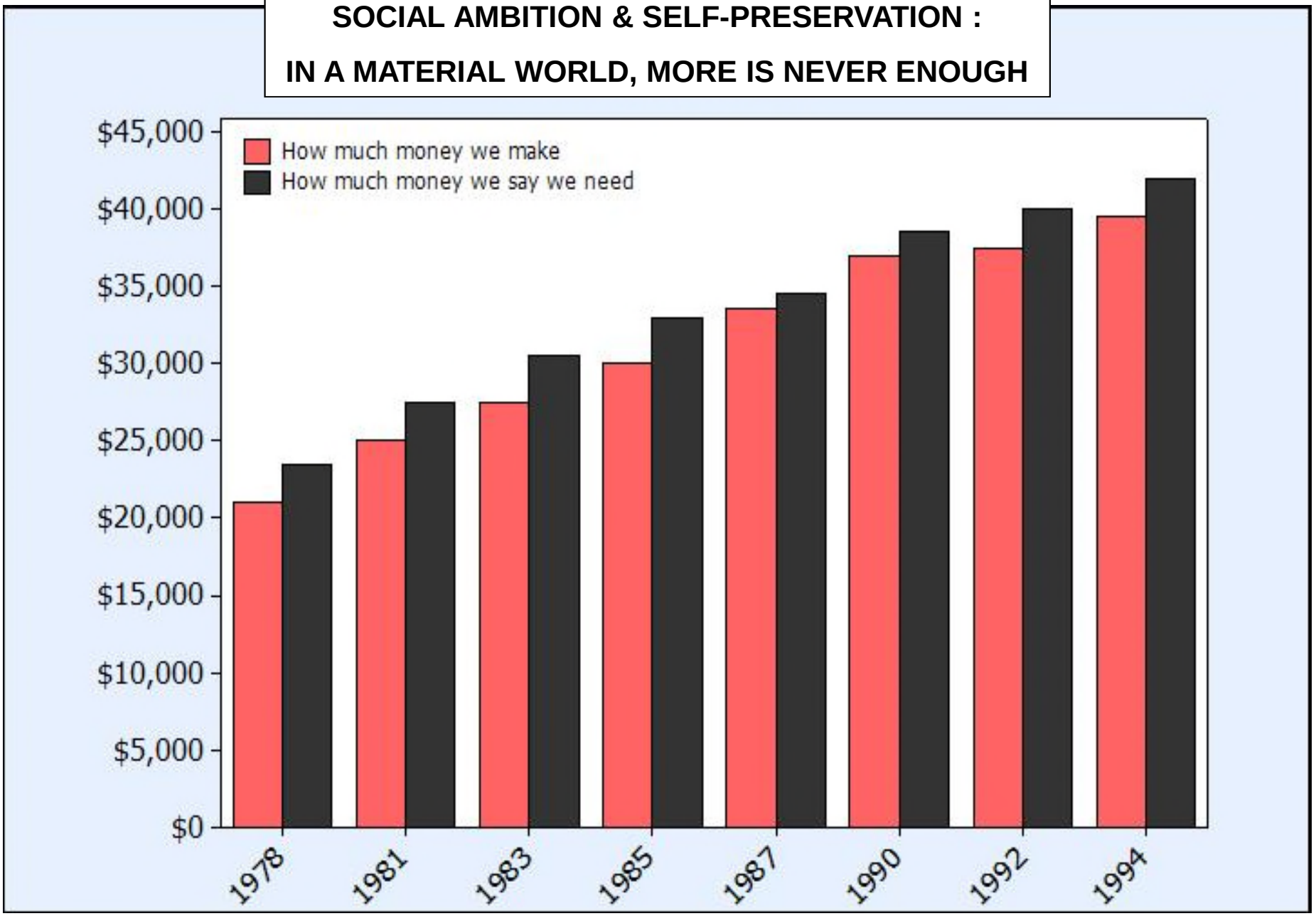


THE DOPAMINE REWARD PATHWAYS DRIVE THE ENGINES OF THE MARKET
(self-interest; curiosity; ambition)
THEY ARE EASILY HI-JACKED
& PRONE TO ADDICTION

THE NOREPINEPHRINE SUPERHIGHWAY MAINTAINS THE ALERT STATE
THE DOPAMINE (REWARD) PATHWAY MONITORS NOVEL STIMULI
THE SEROTONIN SYSTEM IS THE MODERATOR

SOCIAL AMBITION & SELF-PRESERVATION :

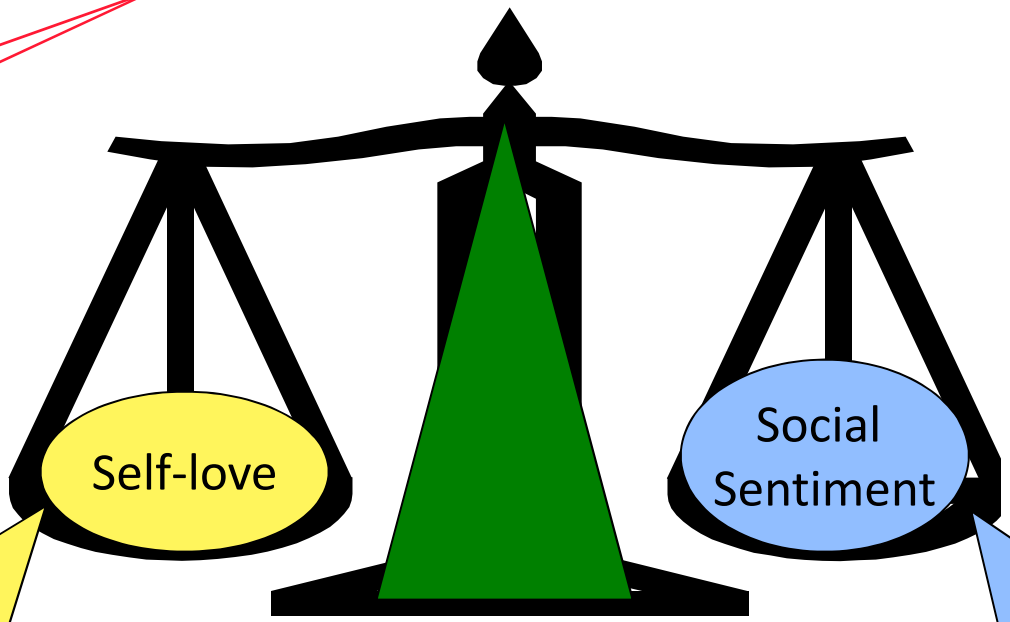
IN A MATERIAL WORLD, MORE IS NEVER ENOUGH



Source: Juliet Schor, *The Overspent American:* Basic Books, 1998

ADAM SMITH'S ANALYSIS OF THE BEHAVIORS THAT BALANCE A SELF-REGULATING FREE MARKET ECONOMY

"INVISIBLE HAND"



INDIVIDUAL FREEDOM

Self-interest
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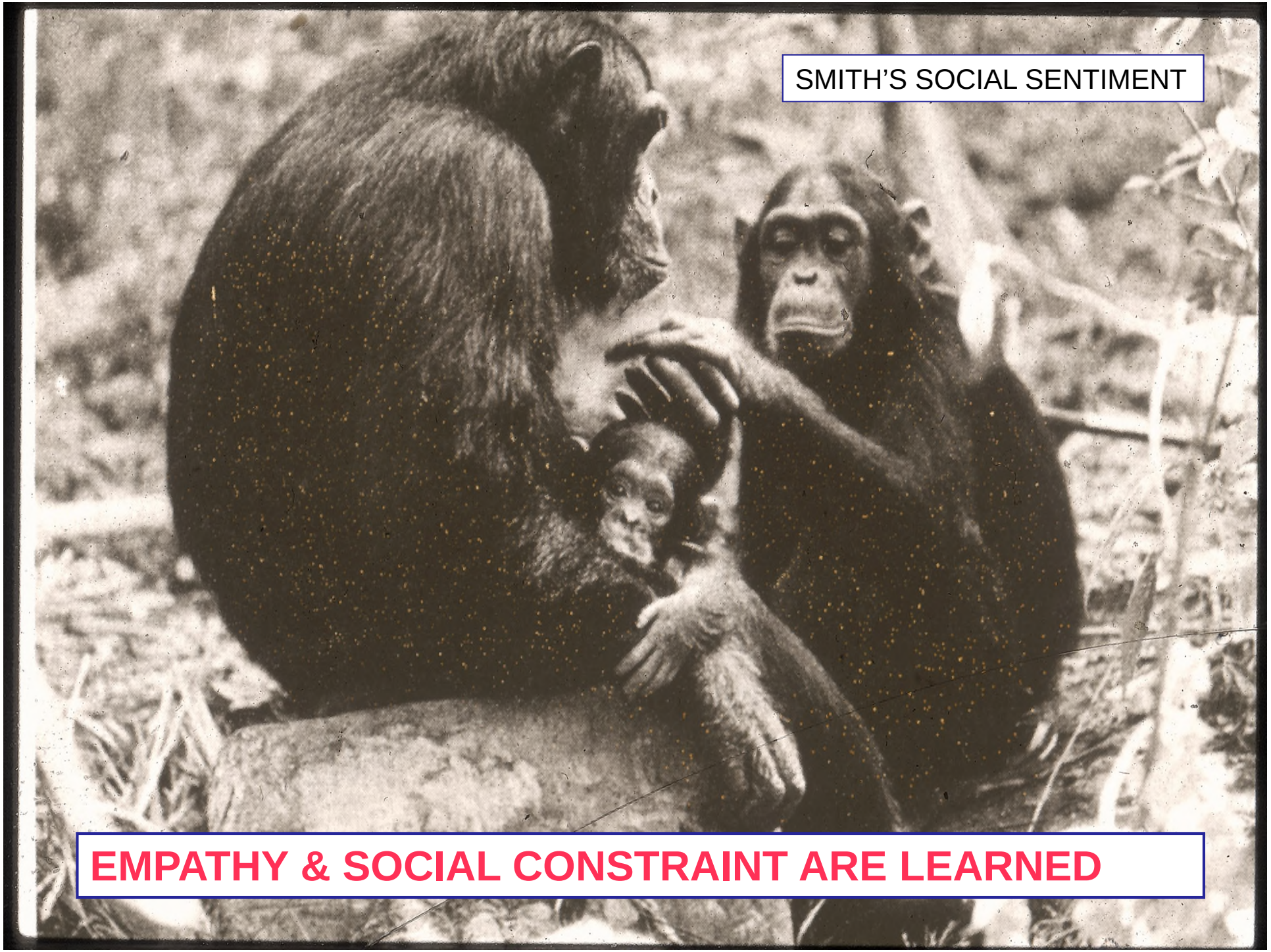
Peer recognition and social acceptance

"The man we naturally love the most is he who joins..to his own..selfish feelings the most exquisite sensibility of others"

LEARNED CORTICAL BEHAVIORS, CULTURALLY DEPENDENT

WE ARE INTENSELY SOCIAL ANIMALS…..


SMITH'S SOCIAL SENTIMENT
EMPATHY & SOCIAL CONSTRAINT ARE LEARNED

AMERICAN MANIA:
When More is Not Enough

Chapter Eight

The Roots of Happiness:
Of Compassion and Community

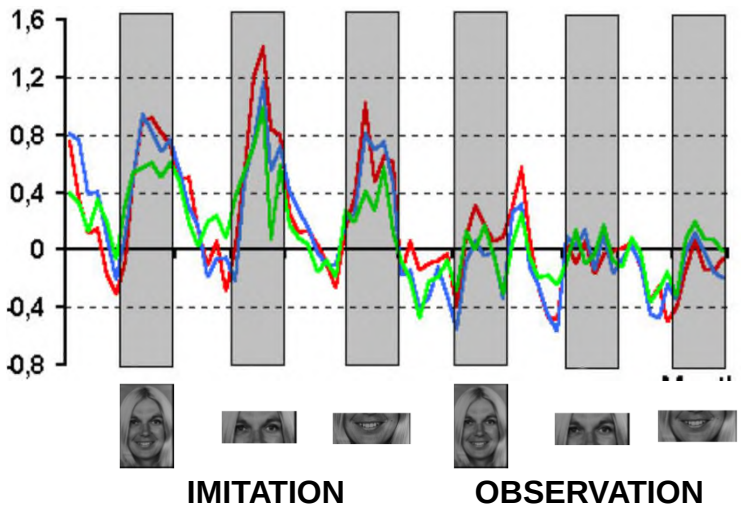
The conditions of happiness…are to receive from birth the best cultivation of our natural powers —physical, mental, moral, and practical— and to know how to give this training to others.

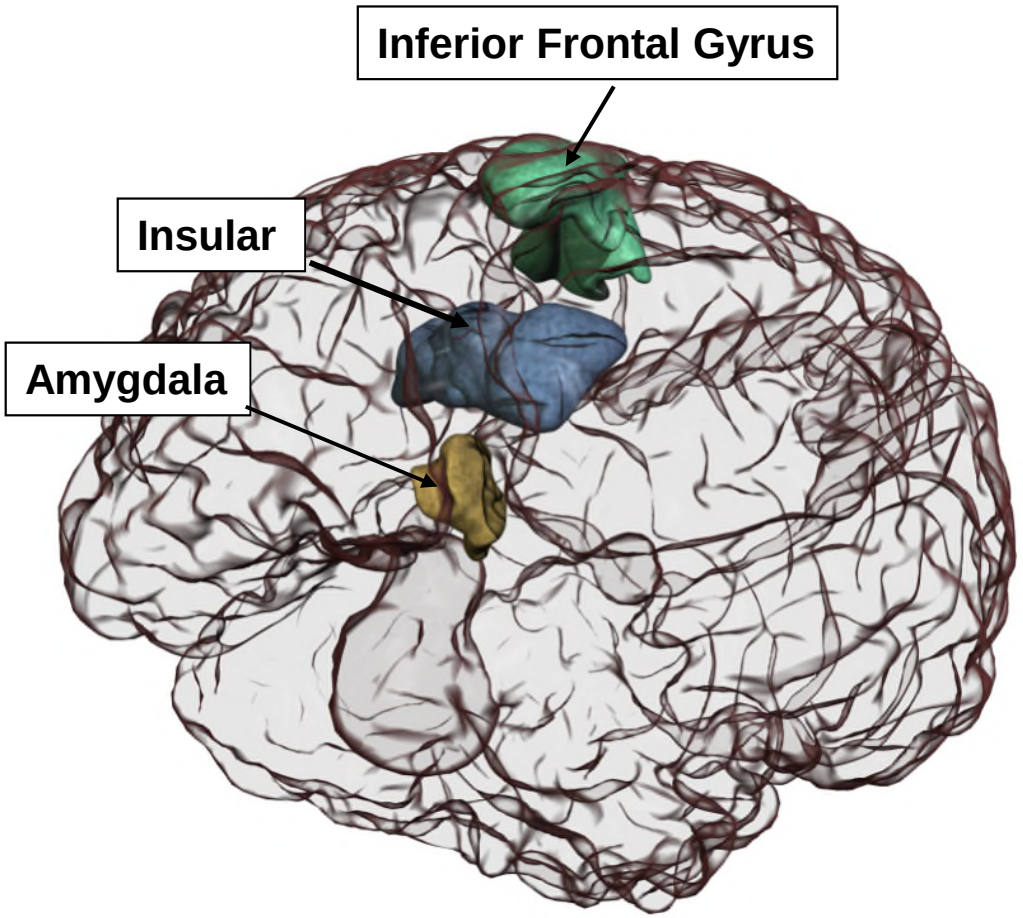
Robert Owen:
(1771-1858)

FOR HUMAN BEINGS, LIVING IN small groups is the natural order of things. As social animals it is our preferred way of being, and something with which we have had long experience—approximately six million years of experience, in fact. Our hominid ancestors lived in small communities composed of close relatives, much as the chimpanzee does today. And, as is the case in such primate kinships, they depended on each other for protection, hunted and foraged together, shared food resources, and fought with their neighbors. The optimum clustering for efficiency was somewhere between eight and twenty individuals, not greatly different in number from a soccer team or a platoon of soldiers. Size was key. To be effective the group needed to be large enough for its members to have adopted a stable hierarchy, but small enough so that all idiosyncrasies of communication, together with the…

MIRROR NEURONS, INSULAR AND THE SHAPING OF EMPATHIC CONCERN

Reference; Carr et al, PNAS 2003





INFERIOR SURFACE OF THE BRAIN, LOOKING UP

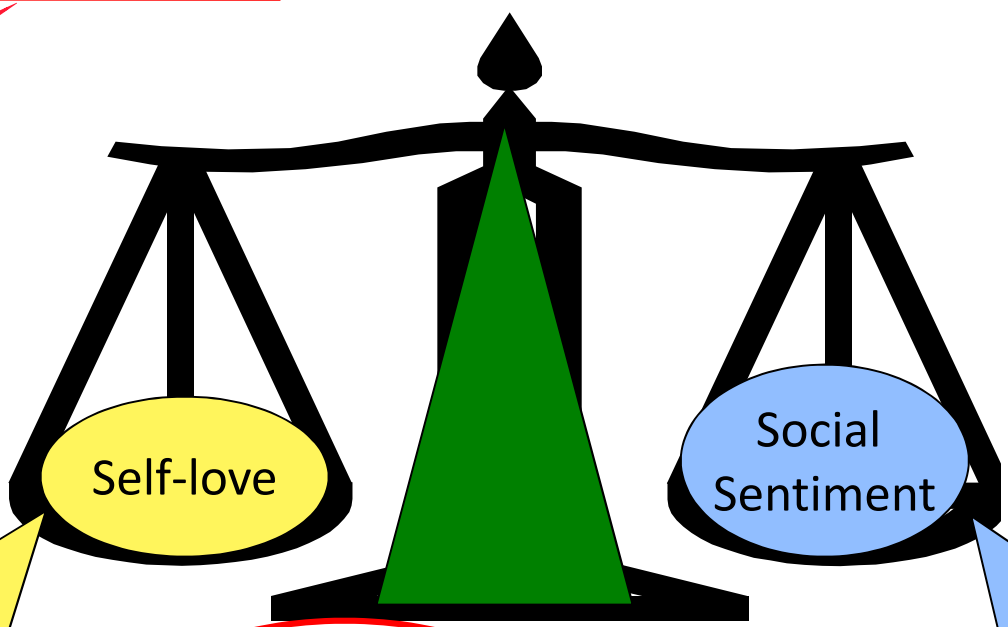
= insula

Right inferior frontal cortex

Left inferior frontal cortex

FOR A FREE MARKET ECONOMY TO SELF-REGULATE
A BALANCE MUST BE PRESENT BETWEEN SELF-INTEREST AND SOCIAL CONSTRAINT

SMITH'S "INVISIBLE HAND"



ENGINE
INDIVIDUAL FREEDOM

BRAKES
"IMPARTIAL SPECTATOR"

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LEARNED CORTICAL BEHAVIORS, CULTURALLY DEPENDENT

ADAM SMITH'S AMERICAN DREAM

IN 1776 CLOSELY KNIT SOCIAL COMMUNITIES WERE THE NORM, AND LIFE WAS FURTHER CONSTRAINED BY CLIMATE, GEOGRAPHY & DISTANCE

BUT…

HOMO SAPIENS

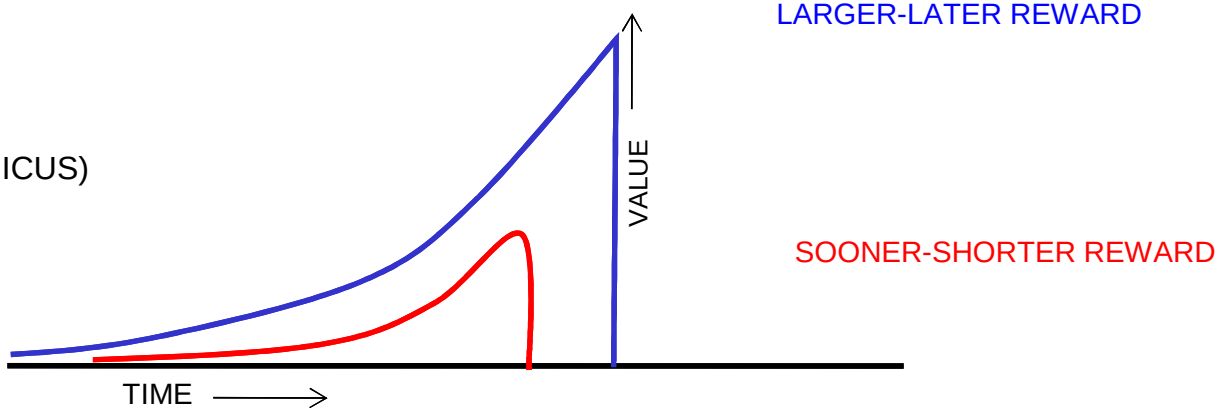
IS NOT

HOMO ECONOMICUS

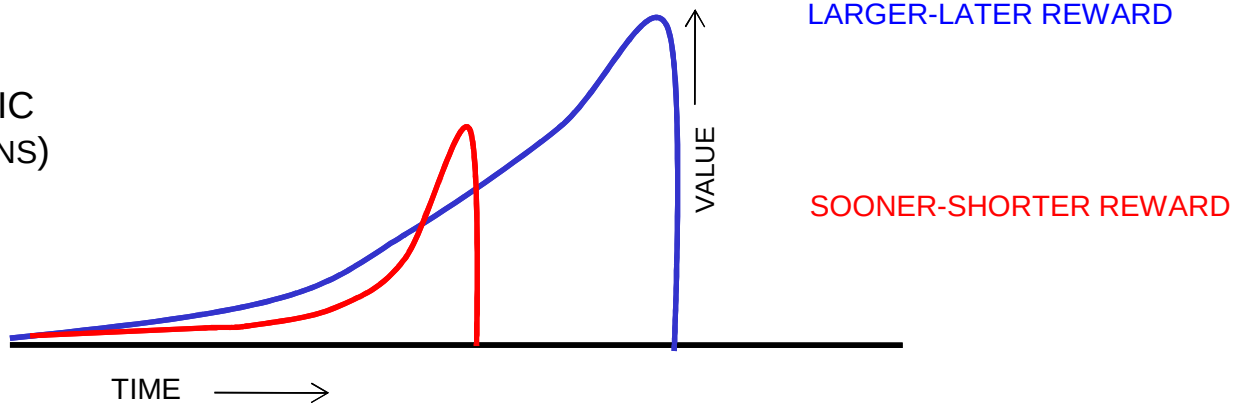
WE ARE EVOLVED CREATURES OF THE NATURAL WORLD…

DISCOUNT CURVES

EXPONENTIAL
(HOMO ECONOMICUS)



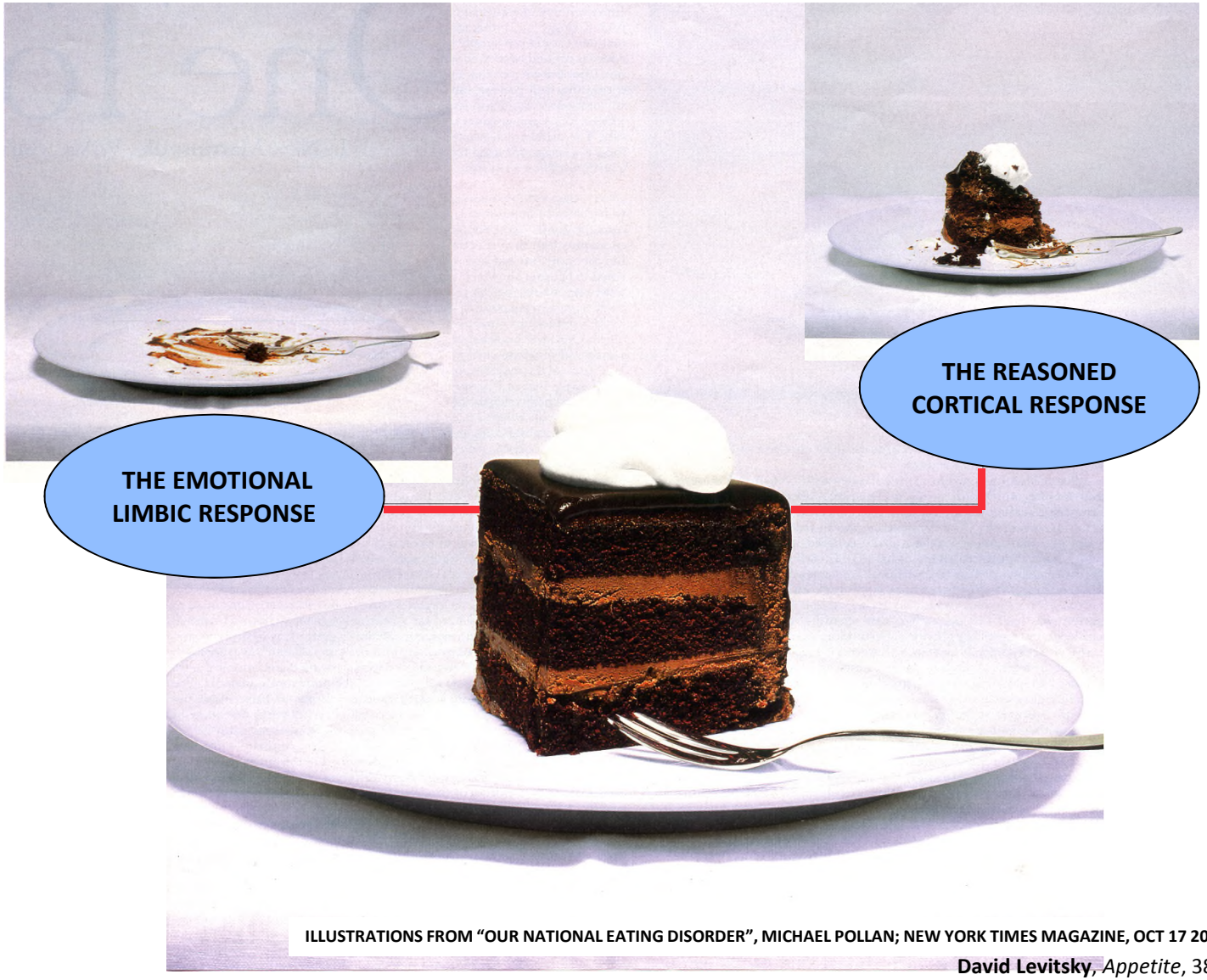
HYPERBOLIC
(HOMO SAPIENS)



From AINSLIE: BREAKDOWN OF WILL, Behavioral and Brain Sciences 28, 635-673, 2005

THE ADULT “MARSHMALLOW TEST”: EASILY CONDUCTED AT ANY LOCAL RESTURANT

WHEN FACED WITH AN IMMEDIATE OPPORTUNITY
THE BRAIN’S ANCIENT REWARD PATHWAYS SIGNIFICANTLY INFLUENCE CHOICE

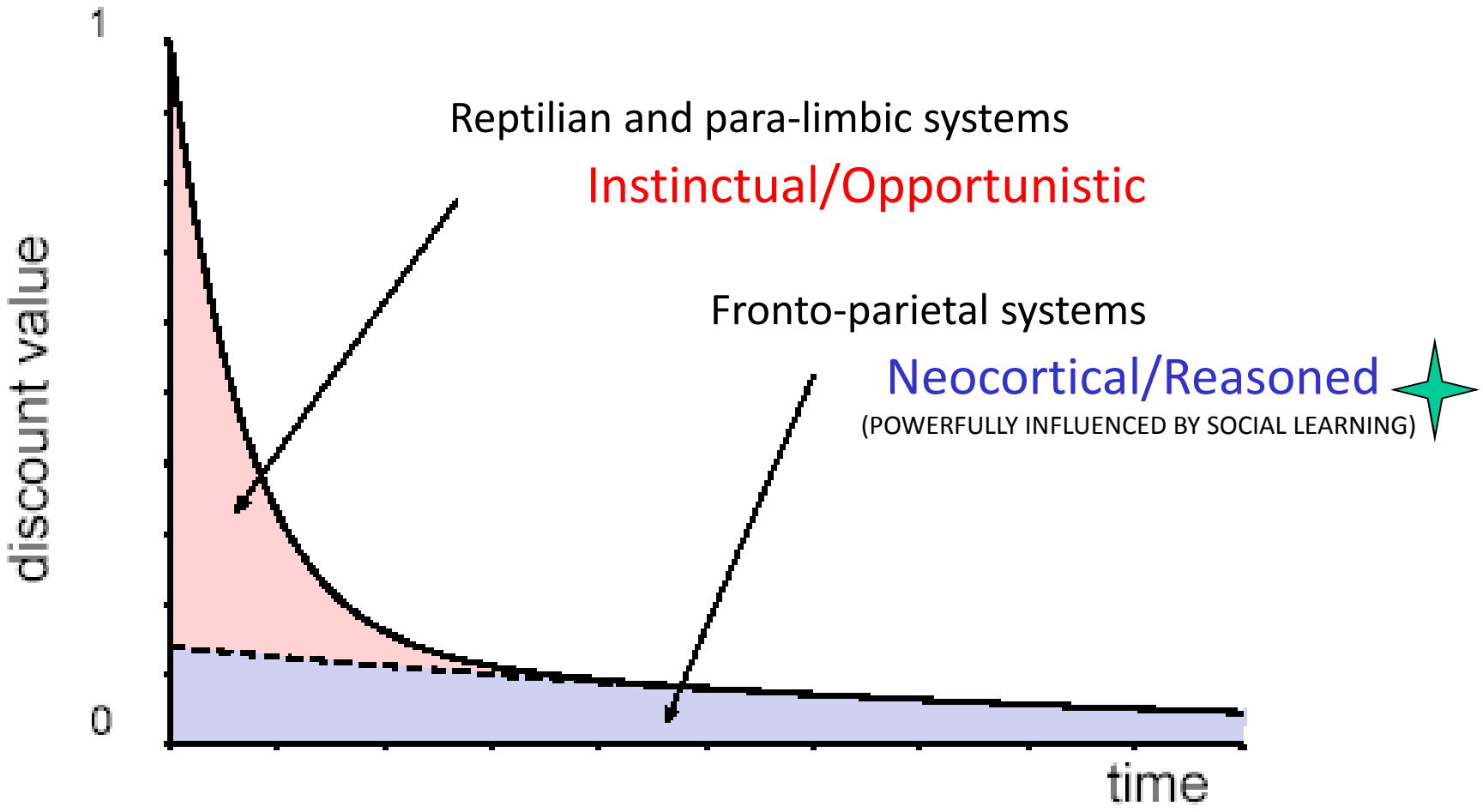


ILLUSTRATIONS FROM “OUR NATIONAL EATING DISORDER”, MICHAEL POLLAN; NEW YORK TIMES MAGAZINE, OCT 17 2004

David Levitsky, *Appetite*, 38: 143-148, 2002

THE MORE IMMEDIATE THE REWARD THE LESS RATIONAL THE DECISION

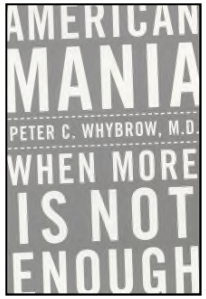
THE REPTILIAN-LIMBIC BRAIN VALUES THE PRESENT & STEEPLY DISCOUNTS THE FUTURE



The Para-limbic (emotional) system is myopic – it cannot see the future clearly.
The Fronto-parietal (reasoning/executive) system judges risk against future reward.

(From Laibson, 2005)

CULTURAL SHIFTS



AMERICAN MANIA:
When More is Not Enough

HOMO ECONOMICUS:
•* * * *
RATIONAL CHOICE & THE MARKET LIBERAL CONSUMER SOCIETY

Thatcher

THE ~~AMERICAN~~ BUSINESS MODEL (ABM):

SELF-INTEREST IS THE ENGINE: Material reward (profit) is the dominant motivation in economic life.

MARKET FUNDAMENTALISM: Markets must operate freely; attempts at regulation are undesirable because markets are self regulating (Adam Smith's Invisible Hand).

MINIMAL GOVERNMENT OVERSIGHT: the economic role of government is primarily to enforce contracts and private property rights.

LOW TAXATION: Taxes should be as low as possible and the tax system should not seek to redistribute income.

A “FAST NEW WORLD”:

Beginning in the 1990s the globalization of trade and the Internet initiated a “Fast New World” that never sleeps, one where the natural constraints of geography and distance are dissolved.

IN THE US FREEDOM IS EQUATED WITH AN ABUNDANCE OF CHOICE:

APPROXIMATELY 1 MILLION ITEMS ARE AVAILABLE ON THE AMERICAN MARKET-including

1260 varieties of shampoo

2000 skin care products

175 varieties of exercise shoes

IN 2002 the floor-plan for an average American house was 2,300 sq ft. This is a 55% increase over a comparable house built in the 1970s.

The kitchen is now 200 sq ft, compared to 120.

The refrigerator is 27” deep, instead of 22”

The preferred TV has a 64 inch screen

The demand for self -storage units has tripled

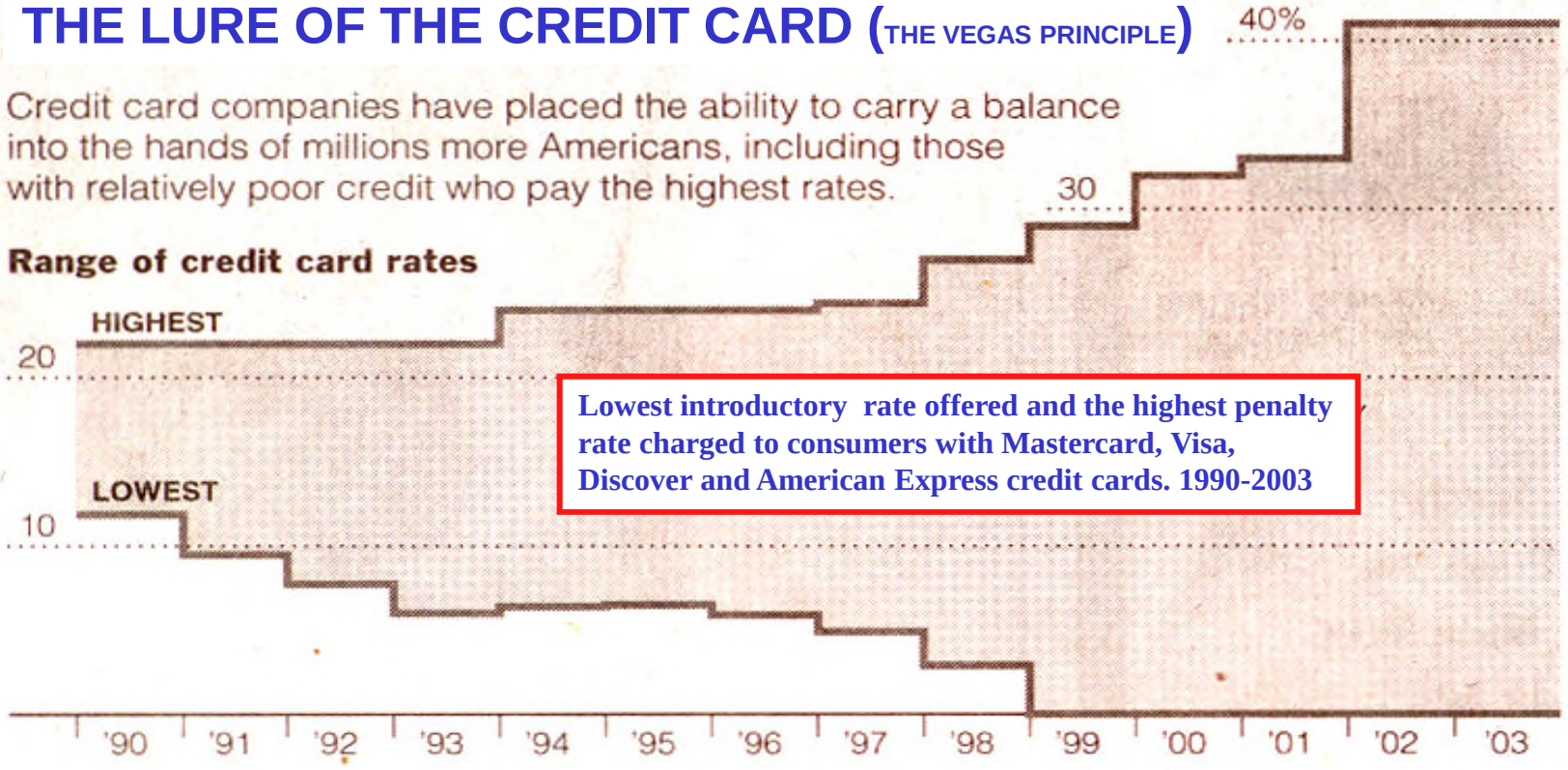
AND YET THE SIZE OF THE AVERAGE AMERICAN FAMILY IS NOW 20% SMALLER THAN IN THE 1970s

SOURCE: PAUL KIGER, LOS ANGELS TIMES, JUNE 9, 2002

THE PARAPHERNALIA OF AN ADDICTIVE CULTURE

THE LURE OF THE CREDIT CARD (THE VEGAS PRINCIPLE)

Credit card companies have placed the ability to carry a balance into the hands of millions more Americans, including those with relatively poor credit who pay the highest rates.



Debts & Profits

	In consumers' wallets . . .			. . . and on company balance sheets	
	CARDHOLDERS In millions	CHARGE VOLUME In billions	AVG. REVOLVING BALANCE Of households that carry a balance	FEE REVENUE In billions	PRETAX PROFIT In billions
1990	82	$ 338.4	$2,549	$ 6.2	$ 6.4
2003	144	1,524.6	7,519	21.5	29.8

Source: CardWeb.com

New York Times November 21, 2004

Throw in the life styles of the rich and famous to add a little social competition …

Lauren Long, *Finger Lakes Times*

IT BEGINS TO LOOK LIKE AN ADDICTION

The American consumer now buys things they don't want, at prices they can't afford, to impress people they don't know because of advertising they don't believe….

John Kenneth Galbraith

LIVING STANDARDS & PRODUCTIVITY, 2001

(in US dollars)

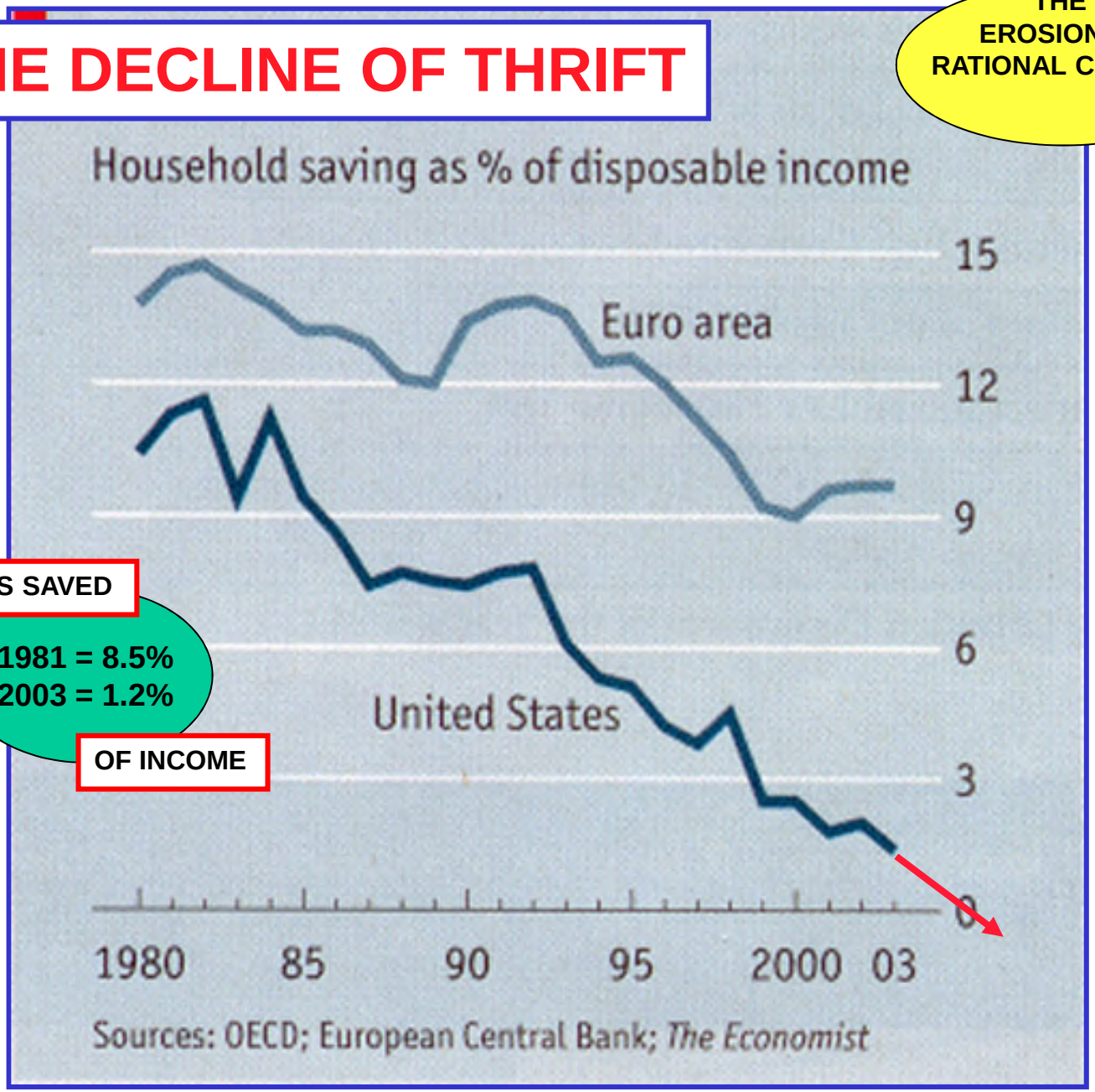
	Consumption per head, PPP exchange rates	Output per hour, PPP exchange rates	Output per hour, market exchange rates
Australia	**16,300**	**32.3**	**22.6**
Canada	**16,000**	**33.6**	**25.9**
Denmark	**13,500**	**39.0**	**39.8**
France	**14,300**	**45.2**	**37.1**
Germany	**15,000**	**40.1**	**34.5**
Norway	**15,200**	**54.0**	**55.1**
UK	**16,900**	**34.2**	**31.5**
USA	**24,500**	**39.5**	**39.5**

PPP= purchasing power parity

Data from JOHN KAY, CULTURE & PROSPERITY, 2004

THE DECLINE OF THRIFT

THE EROSION OF RATIONAL CHOICE?



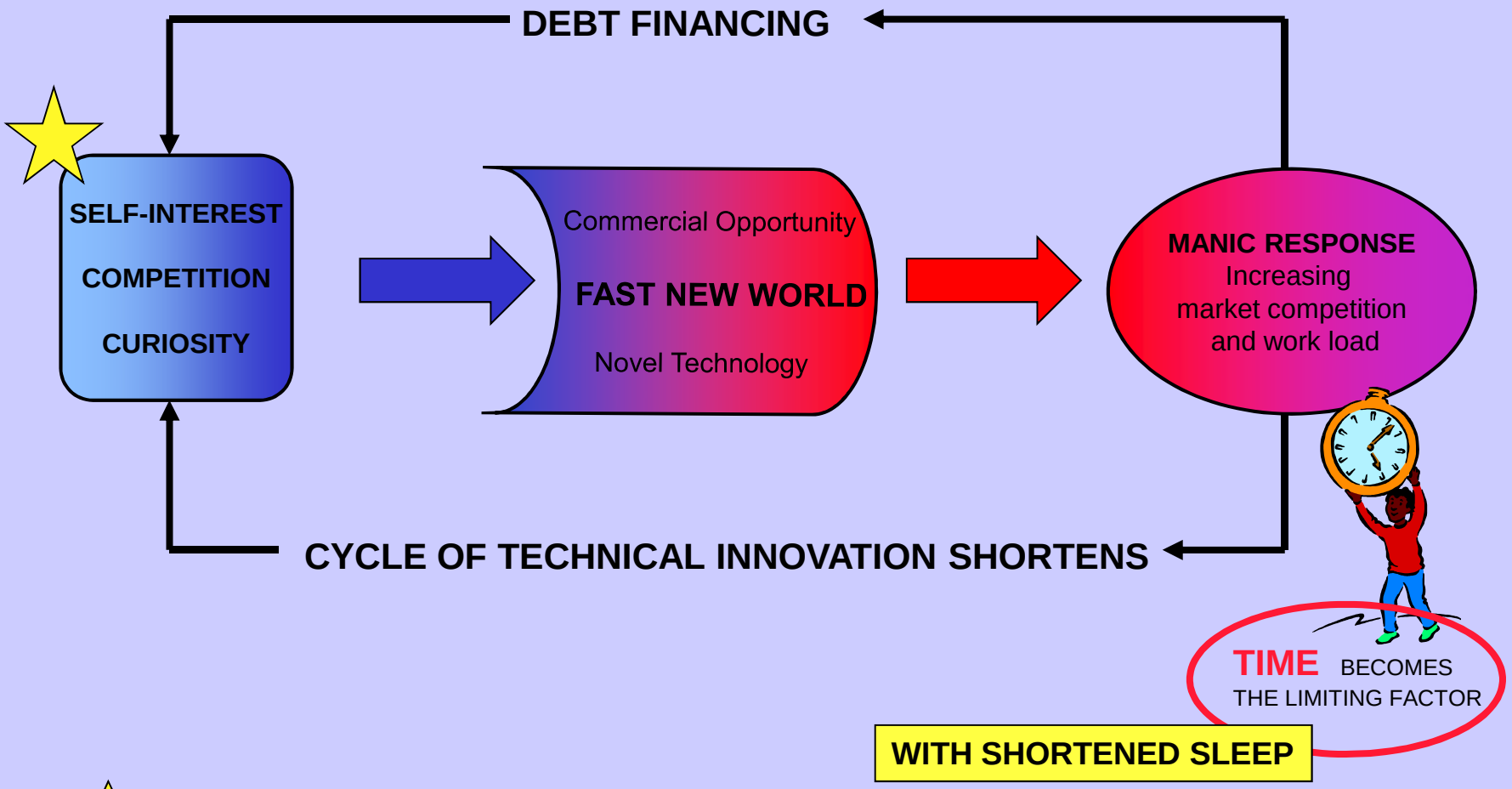
AMERICANS SAVED

1981 = 8.5%
2003 = 1.2%

OF INCOME

THE FAST NEW WORLD & MARKET MANIA

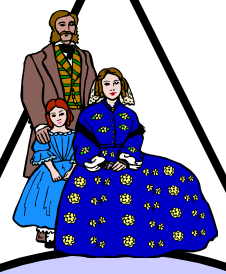
A POSITIVE (ADDICTIVE) FEEDBACK LOOP



SURVIVAL BEHAVIORS ASSOCIATED WITH ACTIVATION OF THE DOPAMINE REWARD PATHWAYS

AFFLUENCE FOSTERS ADDICTIVE BEHAVIOR: AN EXCESSIVELY REWARD DRIVEN CONSUMER CULTURE SHIFTS ADAM SMITH'S ECONOMIC PARADIGM

TOWARD BLIND INDIVIDUALISM



Social Sentiment

Self-love

AND THE SOCIAL BALANCE SHIFTS WITH IT

***THE THEORY OF MORAL SENTIMENTS*, first published in 1759**
***AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS*, first published in 1776**

UNINTENDED (but predictable) CONSEQUENCES

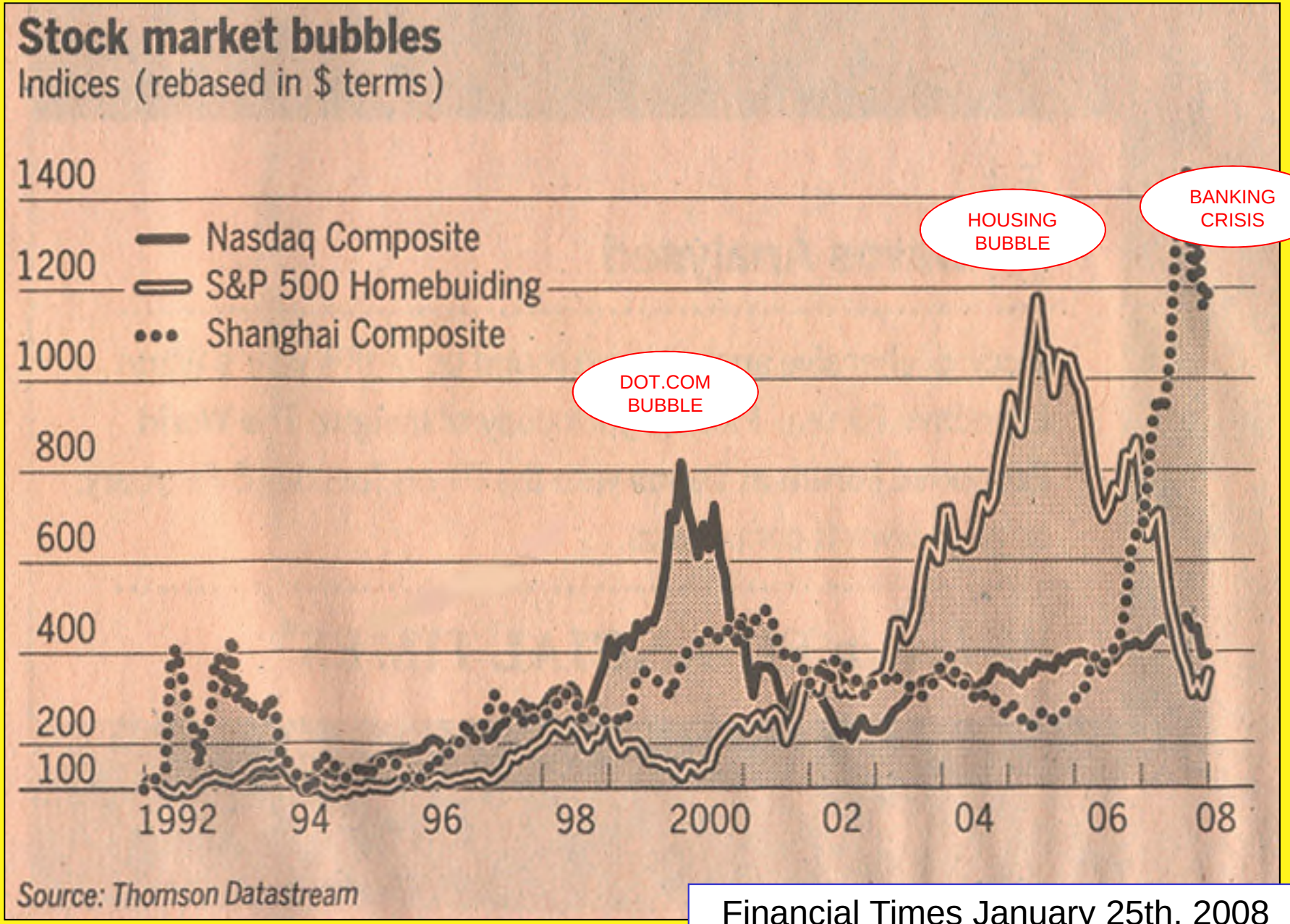
Smith could not foresee how the physical and social contingencies that regulated market behavior in the 18th century would shift with:

1. A technology driven 24/7 world, with diminished natural physical constraint.

2. An business model that fosters individualism and intense competition, with declining rewards for personal and social responsibility and with little regulatory oversight.

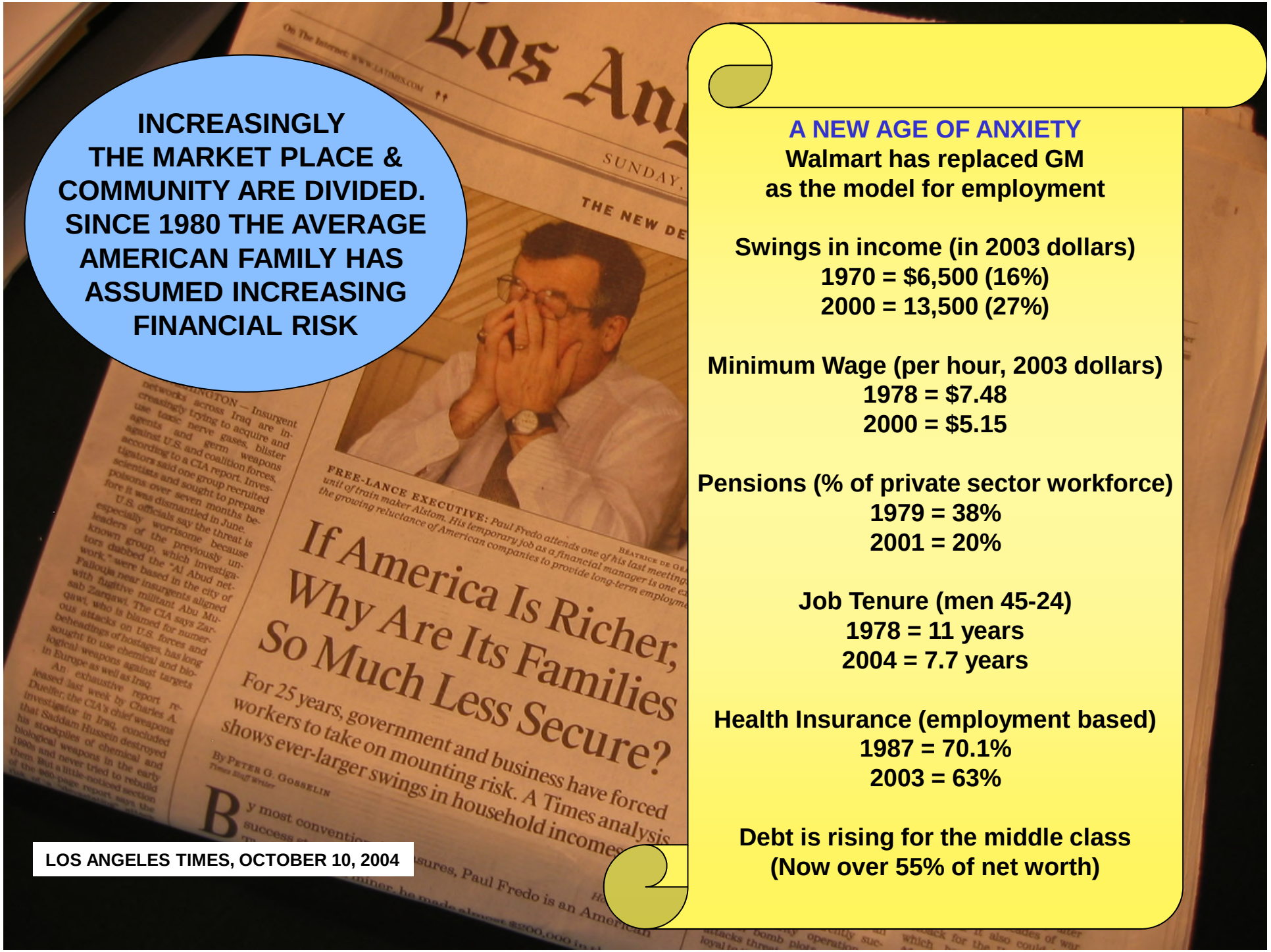
3. Material affluence and an abundance of choice (contrary to the human ancestral experience of scarcity).

THE FINANCE INDUSTRY



Financial Times January 25th, 2008

IMPACT ON ON PUBLIC HEALTH



INCREASINGLY THE MARKET PLACE & COMMUNITY ARE DIVIDED. SINCE 1980 THE AVERAGE AMERICAN FAMILY HAS ASSUMED INCREASING FINANCIAL RISK

LOS ANGELES TIMES, OCTOBER 10, 2004

A NEW AGE OF ANXIETY

Walmart has replaced GM as the model for employment

Swings in income (in 2003 dollars)
1970 = $6,500 (16%)
2000 = 13,500 (27%)

Minimum Wage (per hour, 2003 dollars)
1978 = $7.48
2000 = $5.15

Pensions (% of private sector workforce)
1979 = 38%
2001 = 20%

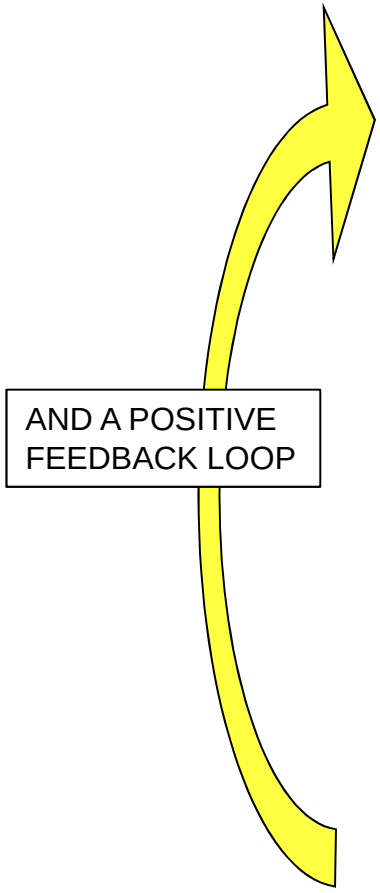
Job Tenure (men 45-24)
1978 = 11 years
2004 = 7.7 years

Health Insurance (employment based)
1987 = 70.1%
2003 = 63%

Debt is rising for the middle class (Now over 55% of net worth)

THE PARADOX OF AFFLUENCE

America's frenzied pursuit of material affluence has spawned an epidemic of:



Increasing Stress & Time Urgency

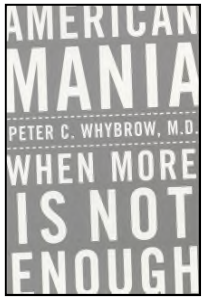
Anxiety & Depression

Obesity & Diabetes

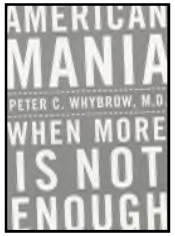
Envy & Relentless Competition

Greed & Corporate Fraud

Growing Indebtedness

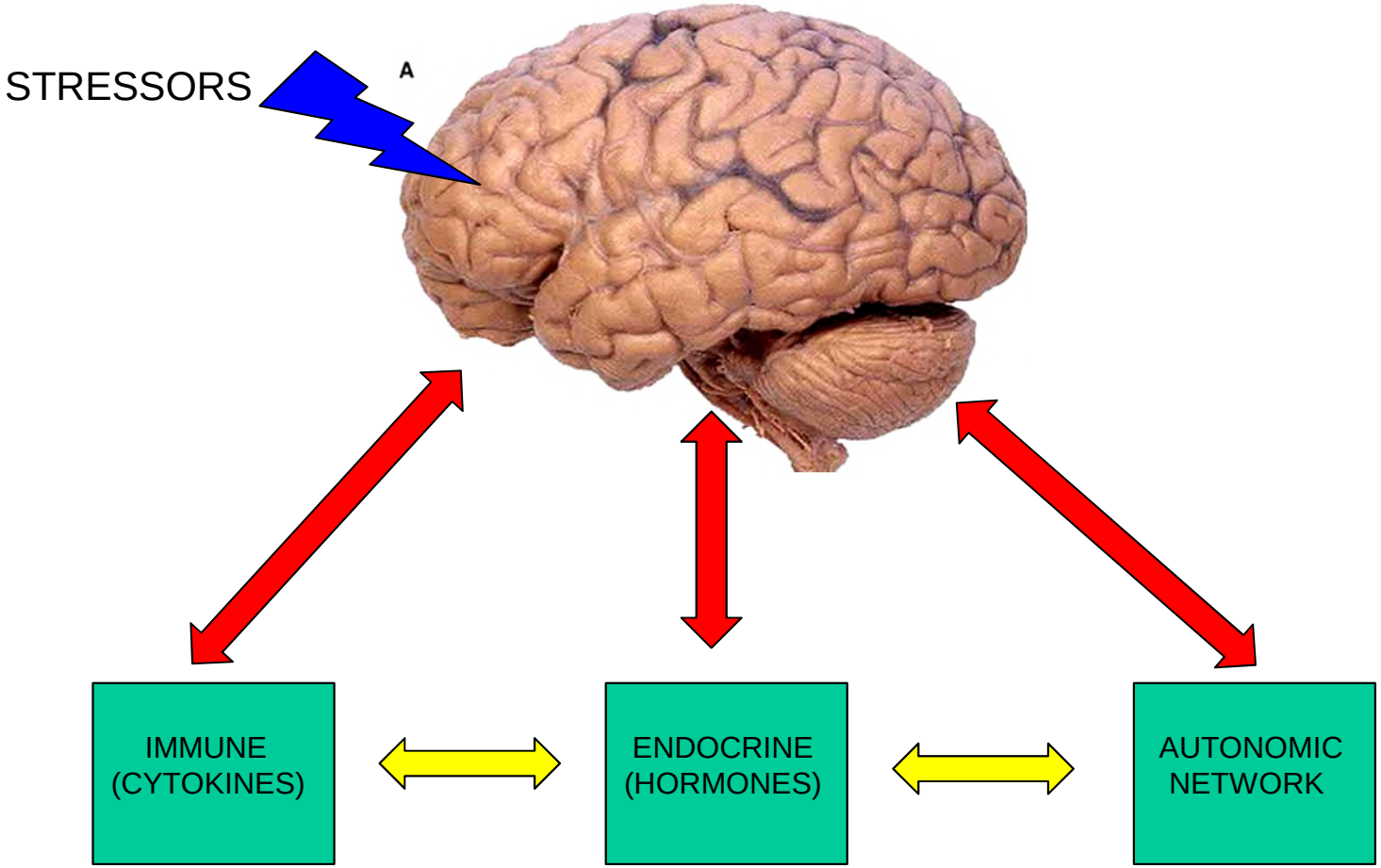


THE DILEMMAS OF AFFLUENCE: UNINTENDED HEALTH CONSEQUENCES



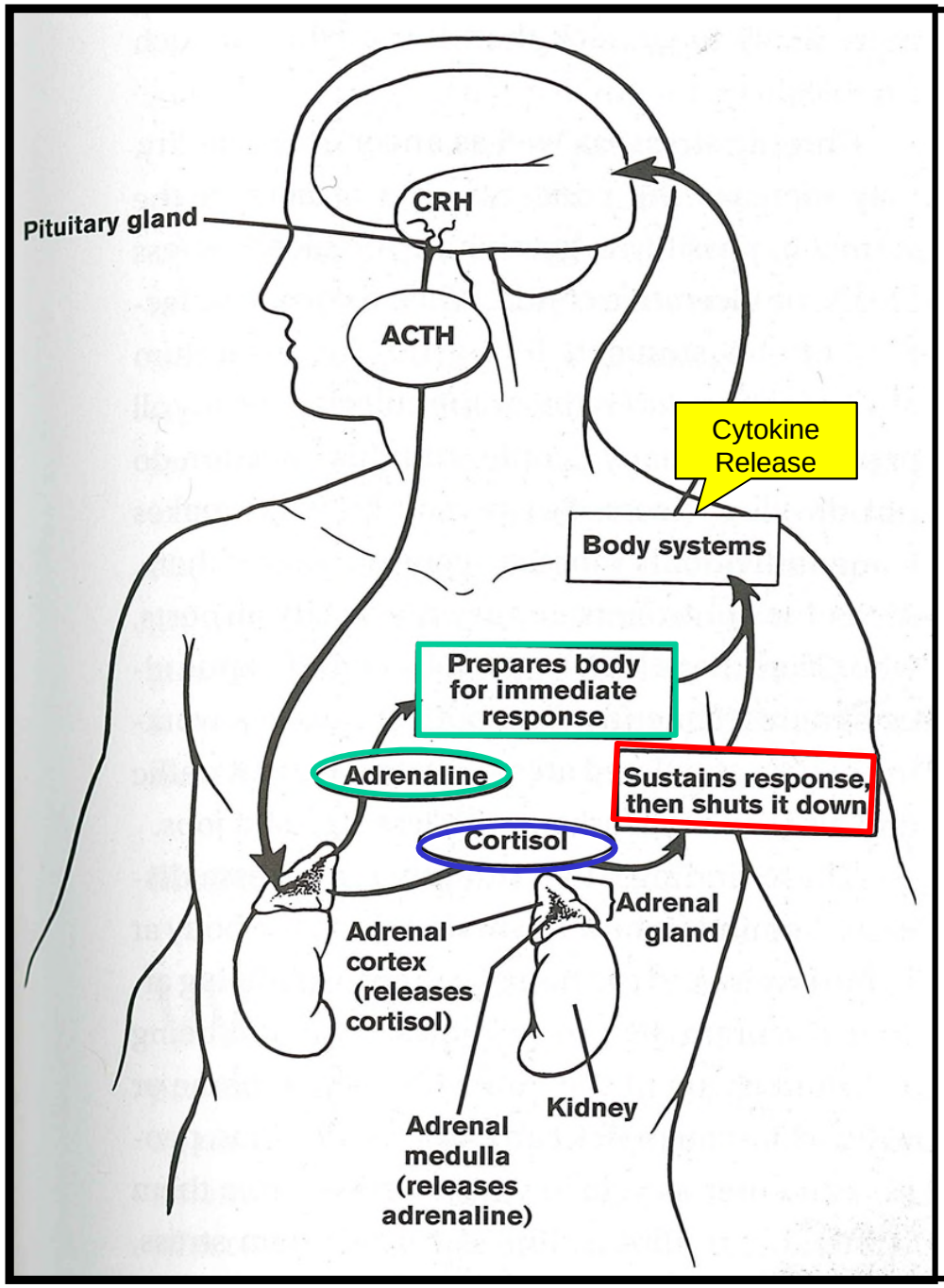
Social Organization and Health Pathology in the Fast New World

STRESS IS THE BRAIN'S EMERGENCY RESPONSE



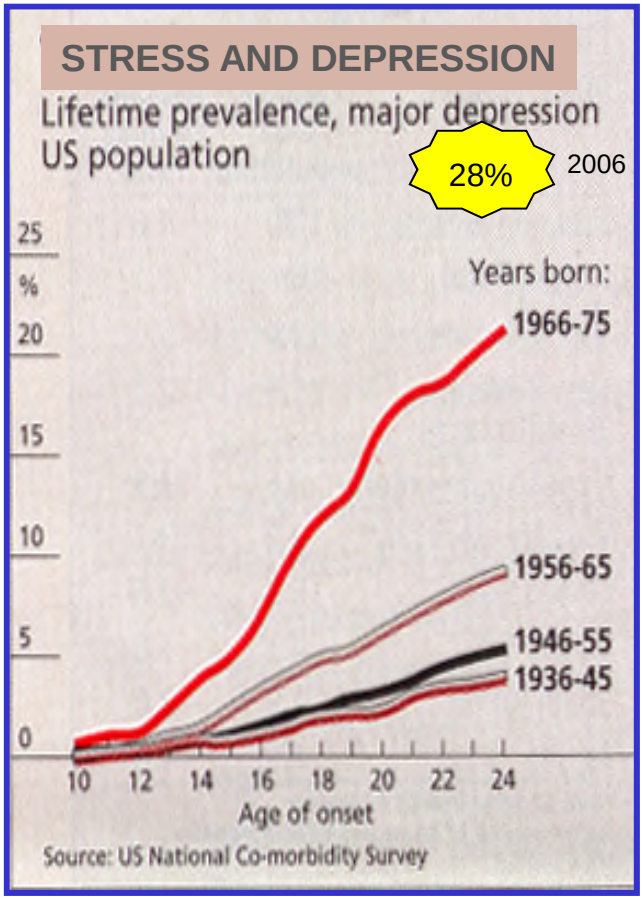
BI-DIRECTIONAL COMMUNICATION AMONG THE BRAIN AND OTHER BODY SYSTEMS

VIA THE AUTONOMIC, ENDOCRINE AND IMMUNE SYSTEMS



THE STRESS RESPONSE

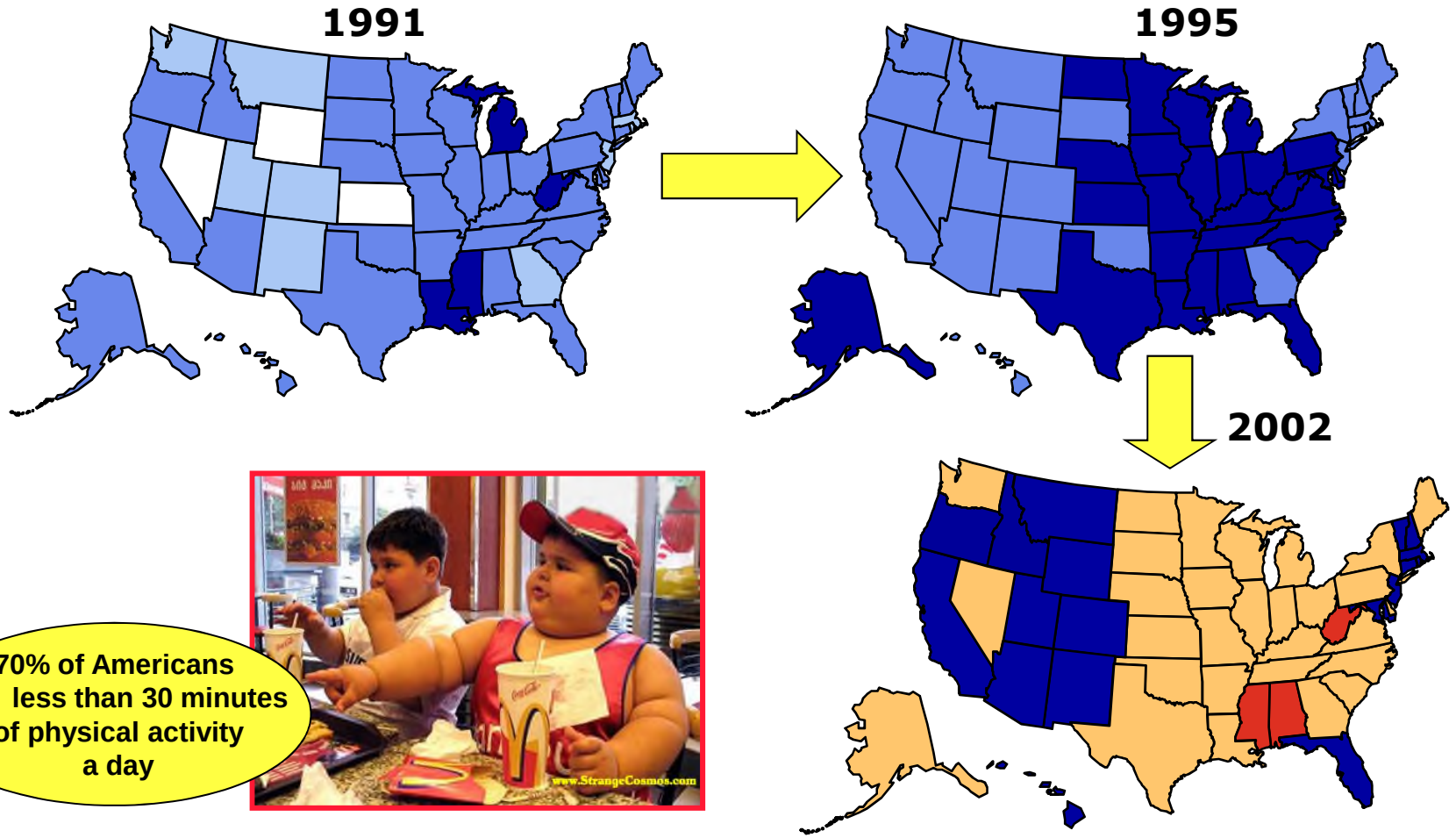
….is designed for acute challenge



Obesity Trends* Among U.S. Adults

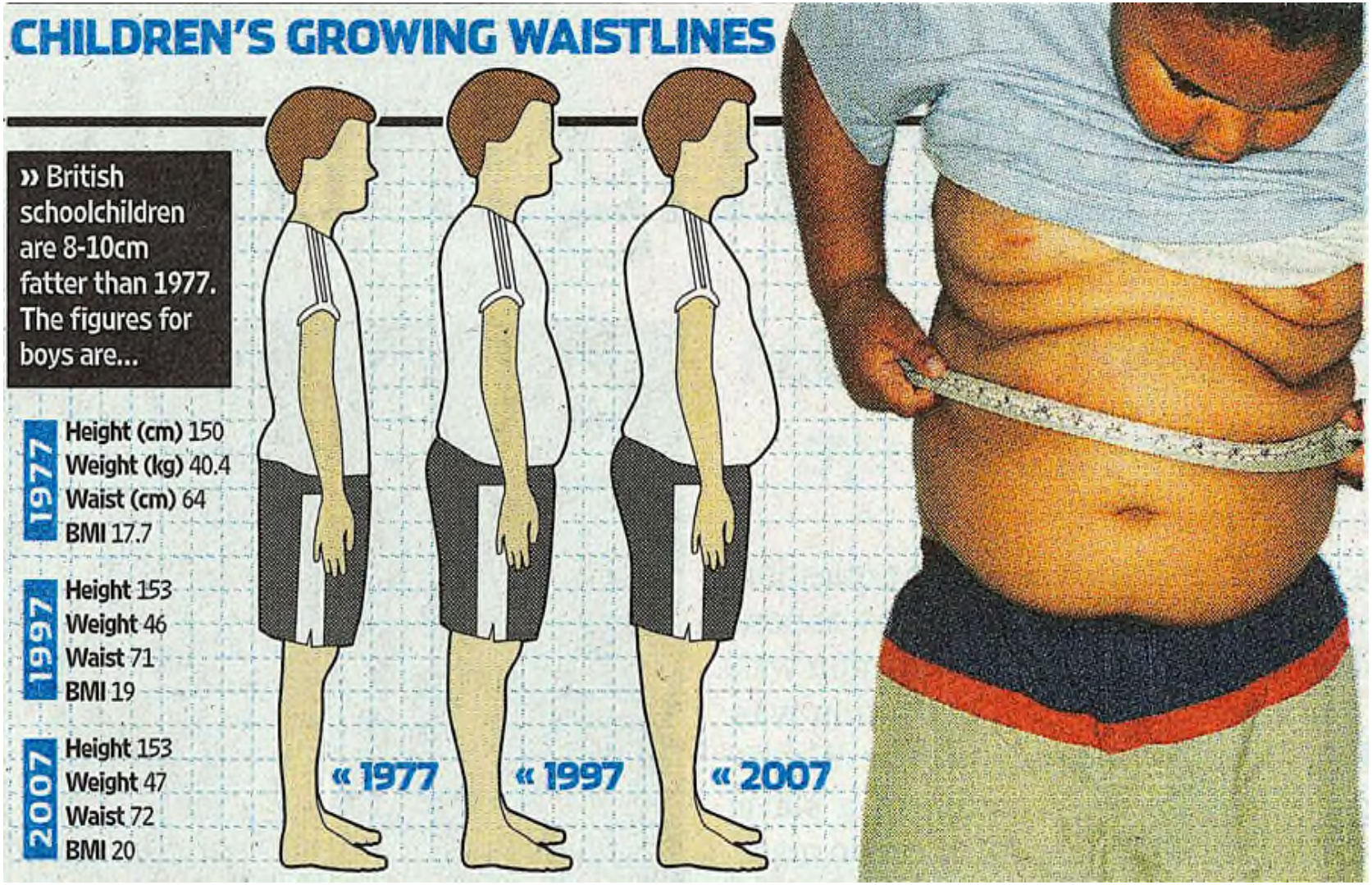
BRFSS, 1991-2002

(*BMI ≥30, or ~ 30 lbs overweight for 5' 4" woman)



•Source: CDC. Mokdad A H, et al. JAMA 1999;282:16: JAMA 2001;286:10: JAMA 2003;289:1

BRITAIN IS NOT FAR BEHIND THE USA

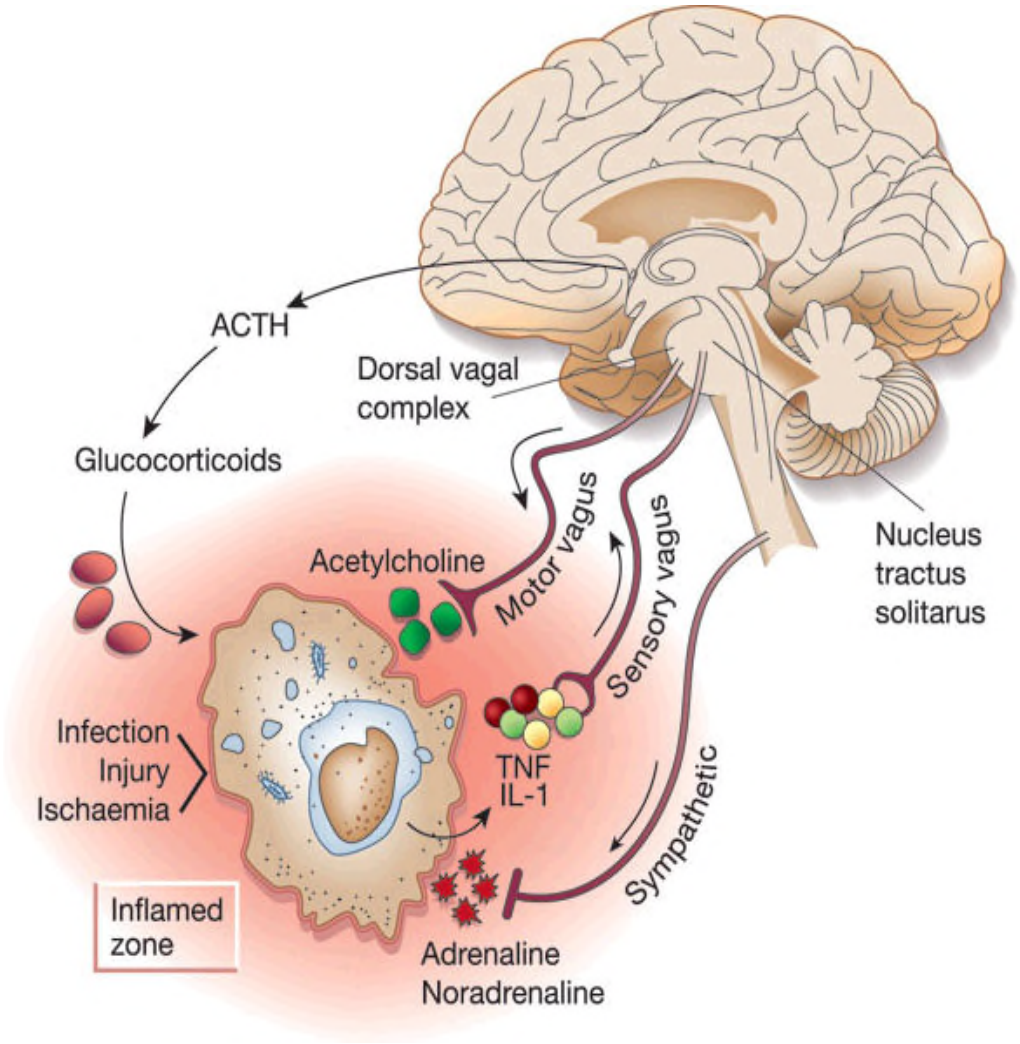


Data source: SA Jebb et al. *Public Health Nutrition*: 7(3), 461–465, 2007

TIME URGENCY & A CASCADE OF UNINTENDED HEALTH CONSEQUENCES

Stress, Social Organization and Health Pathology in the Fast New World

SLEEP DEBT AND THE IMMUNE SYSTEM



SLEEP LOSS induces a functional alteration of the monocyte proinflammatory cytokine response

After one night of sleeping 4 hours, monocyte production of Interleukin 6 (IL-6) and tumor necrosis factor α (TNF-α) is significantly greater compared with morning levels following uninterrupted sleep.
In association there was a 3-fold increase in transcription of IL-6 messenger RNA and a 2-fold increase in TNF-α messenger RNA.
(Irwin M et al, Arch Intern Med, 166 Sept 11, 2006)

SEMEL INSTITUTE UCLA

SLEEP DEPRIVATION, WEIGHT GAIN & OBESITY

SHORTENED SLEEP IS A HALLMARK OF LIFE IN THE FAST NEW WORLD: FOR MANY AMERICANS SELF REPORTED SLEEP TIME HAS DECREASED BY 1-2 HRS EACH NIGHT DURING THE WORKING WEEK, WITH CATCH-UP AT THE WEEKEND

SLEEP DURATION

PROPORTION OF YOUNG ADULTS SLEEPING 8- 8.9 HOURS PER NIGHT HAS DROPPED FROM 40.8% IN 1960 TO 23.5% IN 2001 **(SLEEP IN AMERICA POLL, NATIONAL SLEEP FOUNDATION, WASHINGTON DC, 2001)**

PROPORTION OF THOSE SLEEPING FEWER THAN 7 HOURS PER NIGHT HAS DOUBLED FROM 15.6% TO 37.1% **(SLEEP IN AMERICA POLL, NATIONAL SLEEP FOUNDATION, WASHINGTON DC, 2001)**

WEIGHT GAIN & OBESITY

OVER THE SAME TIME PERIOD THE INCIDENCE OF OBESITY HAS DOUBLED

IN 2001 0VER 60% 0F THE US POPULATION WAS CONSIDERED OVERWEIGHT, AND OF THOSE 27% WERE OBESE WITH A BMI OVER 30**.** **(FLEGAL KM et al; JAMA 2002; 288,1723-7)**

BODY MASS INDEX (BMI) = WEIGHT IN KILOGRAMS ÷ HEIGHT IN METERS SQUARED

IS THERE AN ASSOCIATION BETWEEN TIME ASLEEP AND OBESITY?

KRIPKE STUDY: **(KRIPKE DF et al, Arch Gen Psych. 59: 131-136, 2002)**

IN A SURVEY OF SLEEP DURATION AND INSOMNIA IN 1.1 MILLION PARTICIPANTS, INCREASED BMI WAS ASSOCIATED WITH DECREASED SLEEP TIME (LESS THAN 7-8 HRS).

THE WISCONSIN SLEEP COHORT STUDY: **(TAHERI S et al; PLoS Medicine, on line. 1; 3, 2004)**

IN THIS NATURALISTIC STUDY OF 1,O24 COMMUNITY-BASED PARTICIPANTS, IN PERSONS SLEEPING LESS THAN 8 HOURS (74.4% of the sample) INCREASED BMI WAS PROPORTIONAL TO DECREASED SLEEP TIME (measured by polysomnography).

HABITUALLY SHORT SLEEP (5 VERSUS 8 HRS) WAS ASSOCIATED WITH 15.5% LOWER SERUM LEPTIN LEVELS AND 14.9% HIGHER SERUM GHRELIN LEVELS

LEPTIN is a peptide hormone secreted by adipocytes that helps regulate food intake and energy balance. Acting primarily through the hypothalamus it **suppresses appetite** and stimulates energy expenditure

.

GHRELIN is a peptide secreted primarily by the stomach that **stimulates appetite**, fat production and body growth, leading to increased food intake and body weight.

BODY MASS INDEX (BMI) = WEIGHT IN KILOGRAMS ÷ HEIGHT IN METERS SQUARED

SLEEP DEBT DISRUPTS METABOLIC AND ENDOCRINE FUNCTION

(Spiegel and Van Cauter et al *Lancet* 354; 1435-9, 1999)

Eleven young men (18-27 years), were restricted to 4 hrs sleep/night for 6 nights as part of a longer 16 day comparative study. Participants were fed carbohydrate rich foods (62%) every five hours.

1) A loss of REM that was proportional to the sleep period

2) The nocturnal TSH (thyroid axis) surge was strikingly decreased and the free thyroxin index increased during the sleep debt condition.

3) The diurnal cortisol (steroid axis) rhythm was flattened with a rise of cortisol in the late afternoon and early evening.

4) **Carbohydrate tolerance was impaired. Rate of glucose clearance was 40% slower in sleep debt condition than during the recovery period, and the acute insulin response was 30% lower. These differences are similar to those described in early diabetes and in ageing.**

SLEEP DEBT IN HEALTHY YOUNG MEN:

VARIATION IN LEPTIN, GHRELIN, HUNGER AND APPETITE

(Spiegel K et al *Annals of Internal Medicine* 14, 846-850, 2004)

Twelve healthy young men (means: age 22 years, BMI 23.6), were subjected to restricted (4 hrs) and extended sleep time (10 hrs) in a cross-over design. After the experimental night calorie intake was kept constant by IV glucose infusion and daytime profiles of plasma leptin, ghrelin levels and subjective ratings of hunger and appetite were obtained.

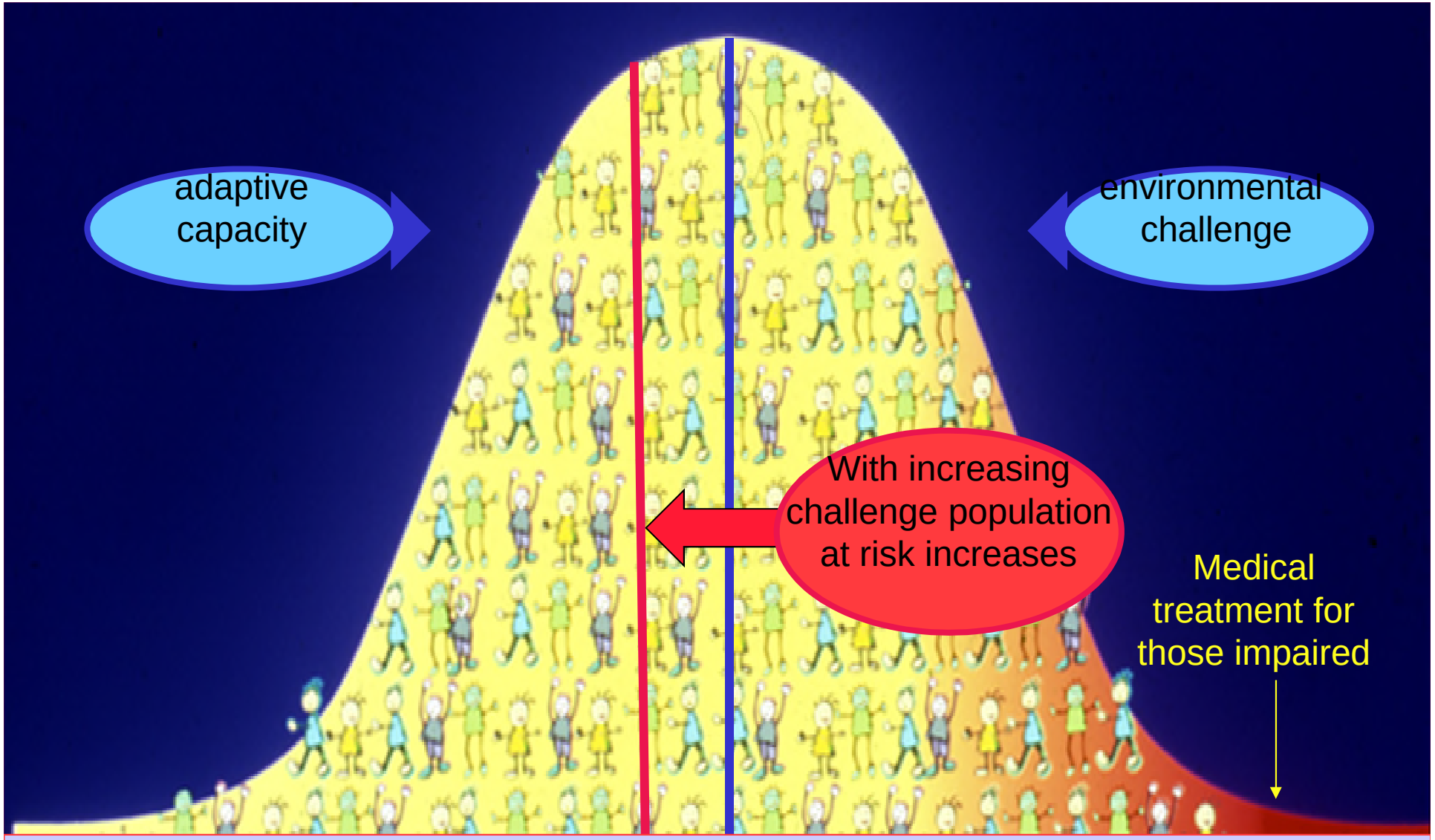
Sleep restriction, versus the extended sleep period, was associated with:

1) **Reduction in the appetite suppressing hormone leptin (18%; p=0.04)**

2) **Increase in the appetite enhancing plasma ghrelin (28%; p<0.04)**

3) **Increased hunger (24%; p<0.01)**

4) **Increased appetite (23%; p=0.01) especially for calorie dense foods with high carbohydrate content (increase, 33% to 45%; p=0.02)**



IMPACT OF A CHANGING SOCIAL ENVIRONMENT ON HEALTH AND BEHAVIOR

SEMEL INSTITUTE UCLA

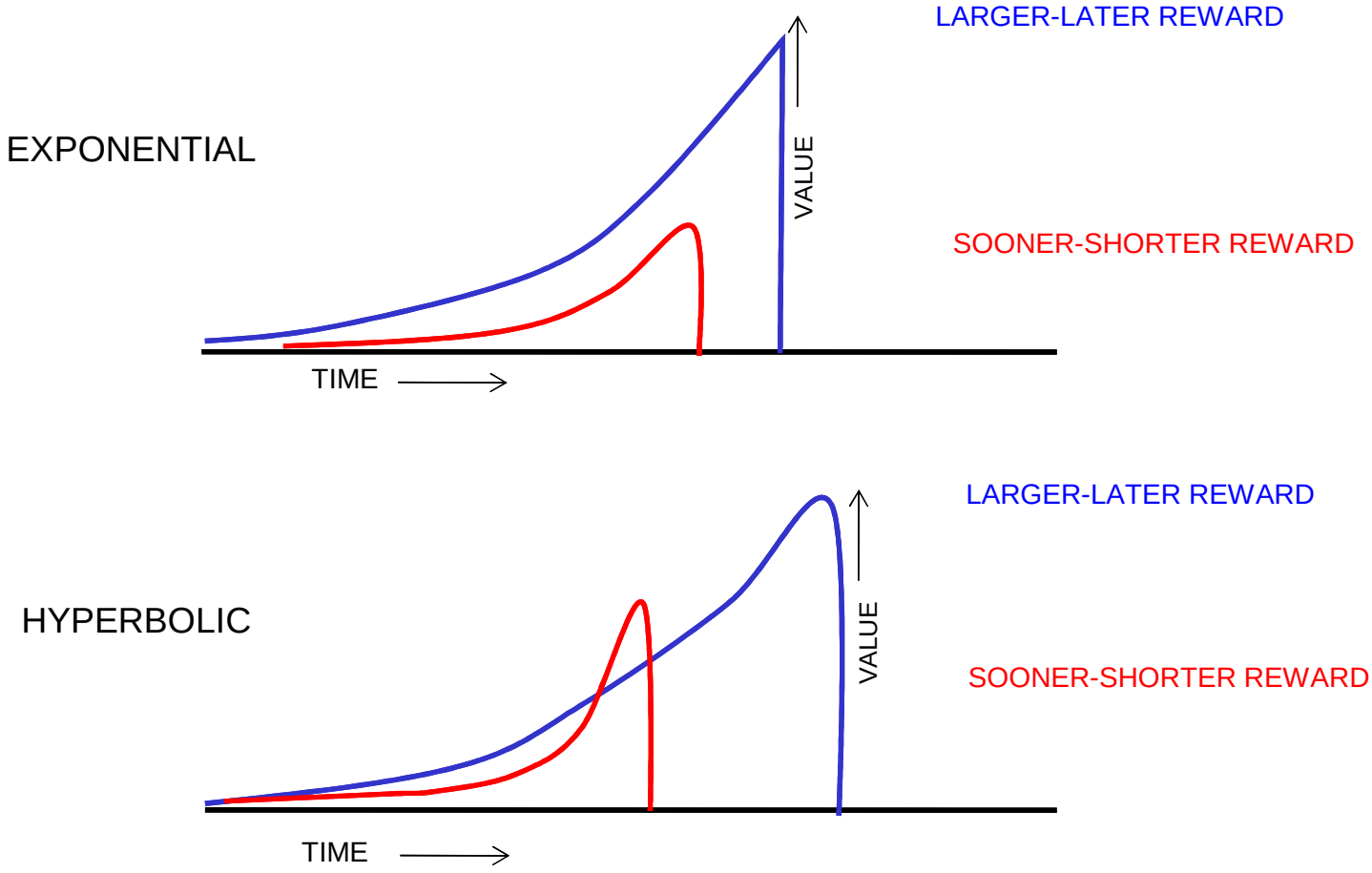
MATERIAL AFFLUENCE AND THE FAST NEW WORLD:
PUSHING THE LIMITS OF SOCIAL & PHYSICAL TOLERANCE:

BECAUSE CHOICE IS FALLIBLE

AFFLUENCE IS A CHALLENGE

How can the satisfaction of immediate desires
be balanced against
the future interests of the individual and of society?

ACCEPTING WHO WE ARE AS EVOLVED CREATURES

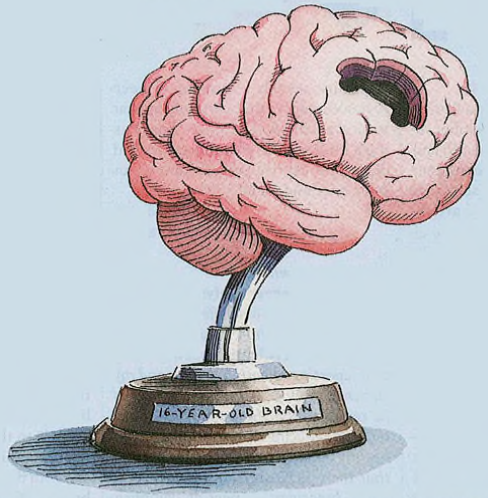


THE CRITICAL CHOICE: IMMEDIATE CONSUMPTION OR FUTURE INVESTMENT?

From AINSLIE: BREAKDOWN OF WILL, Behavioral and Brain Sciences 28, 635-673, 2005

Why do most 16-year-olds drive like they're *missing a part of their brain?*

BECAUSE THEY ARE.



Even bright, mature teenagers sometimes do things that are "stupid." But it's not really their fault. It's because their brain hasn't finished developing.

The missing part is called the dorsal lateral prefrontal cortex, and it plays a critical role in teens' decision-making and understanding of future consequences. Problem is, it doesn't fully develop until their 20s. **This is one of the reasons why 16-year-old drivers have crash rates three times higher than 17-year-olds and five times higher than 18-year-olds.**

Car crashes kill more than 4,000 teens every year. And injure nearly 400,000. Is there a way for teens to get their driving experience more safely? Is there a way their brains can be given the time to mature as completely as their bodies? Allstate thinks so.

SUPPORT THE STANDUP ACT

The STANDUP Act* (H.R. 1895) creates a National Graduated Driver Licensing (GDL) law that would give teens on-the-road experience gradually while helping them avoid risky conditions. **When states have implemented comprehensive GDL programs, the number of fatal crashes among 16-year-old drivers has fallen by almost 40%.**

Let's help our teenagers not miss out on tomorrow just because they have something missing today. Please tell your congressional representatives that you support the STANDUP Act. **Go to allstate.com/STANDUP.**

It's time to make the world a safer place to drive. That's Allstate's Stand.

Allstate. You're in good hands. | Auto Home Life Retirement

* The STANDUP Act is the Safe Teen And Novice Driver Uniform Protection Act of 2009.

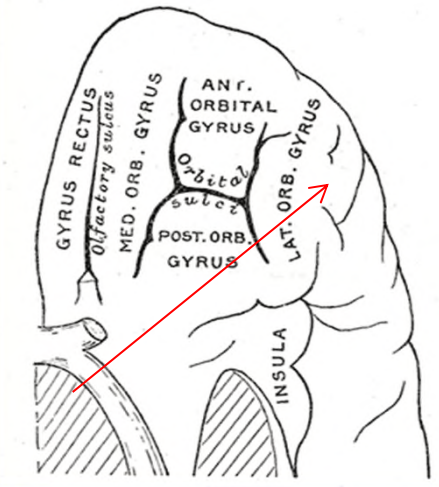
The Cupped Hands logo is a registered service mark and "That's Allstate's Stand" is a service mark of Allstate Insurance Company, Northbrook, IL. © 2009 Allstate Insurance Company

Sources: National Science Teacher Association, 2007; U.S. Department of Transportation National Highway Traffic Safety Administration, 2007; Centers for Disease Control and Prevention, 2007 and 2008

ONE REASON WHY ADOLESCENTS HAVE A DISPROPORTIONATE NUMBER OF CAR ACCIDENTS IS THAT THE LATERAL PRE-FRONTAL CORTEX IS LATE IN DEVELOPMENT……

NUDGING THE ORBITAL-FRONTAL CORTEX

Sometimes we need help….

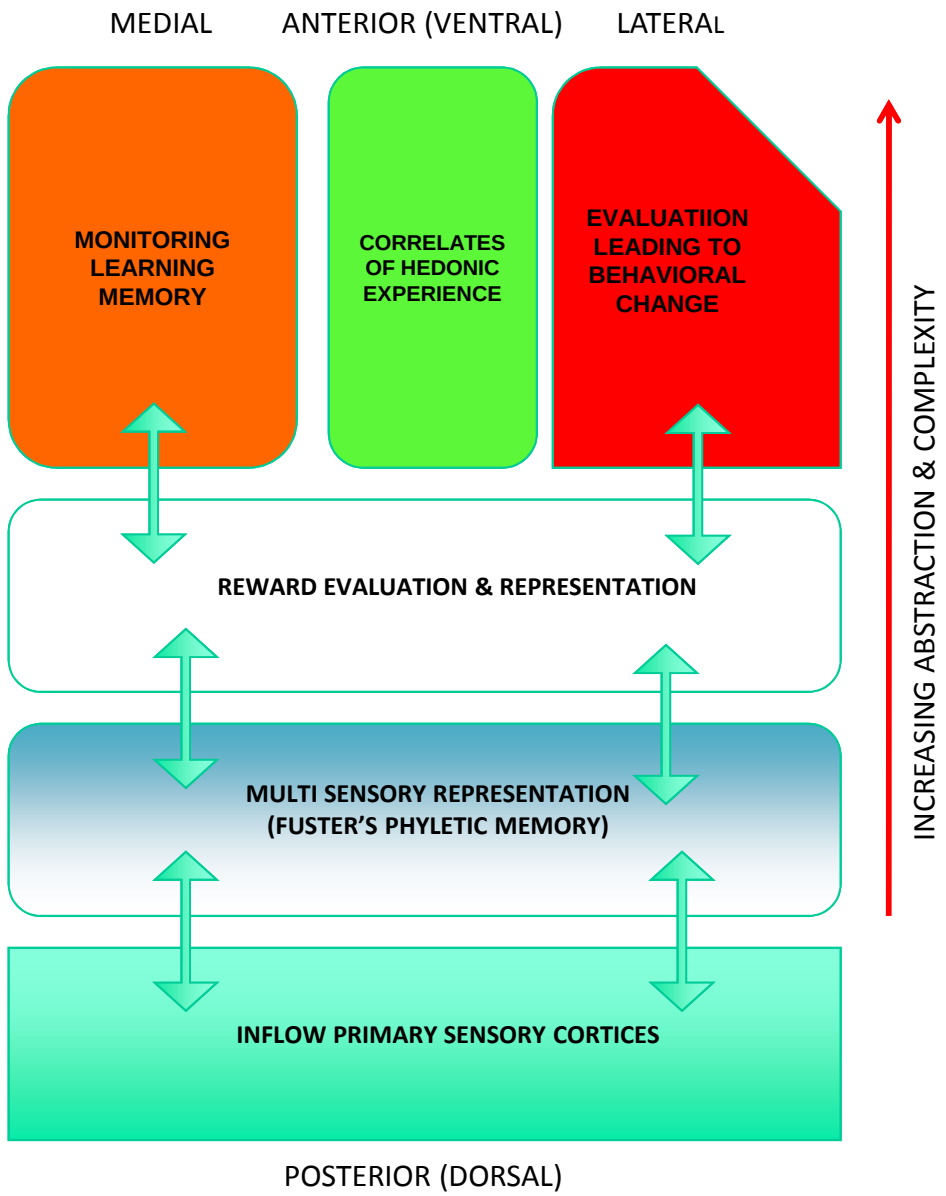


GRAY'S ANATOMY

THE ORBITAL & MEDIAL PREFRONTAL CORTEX NETWORK (OMPFC)

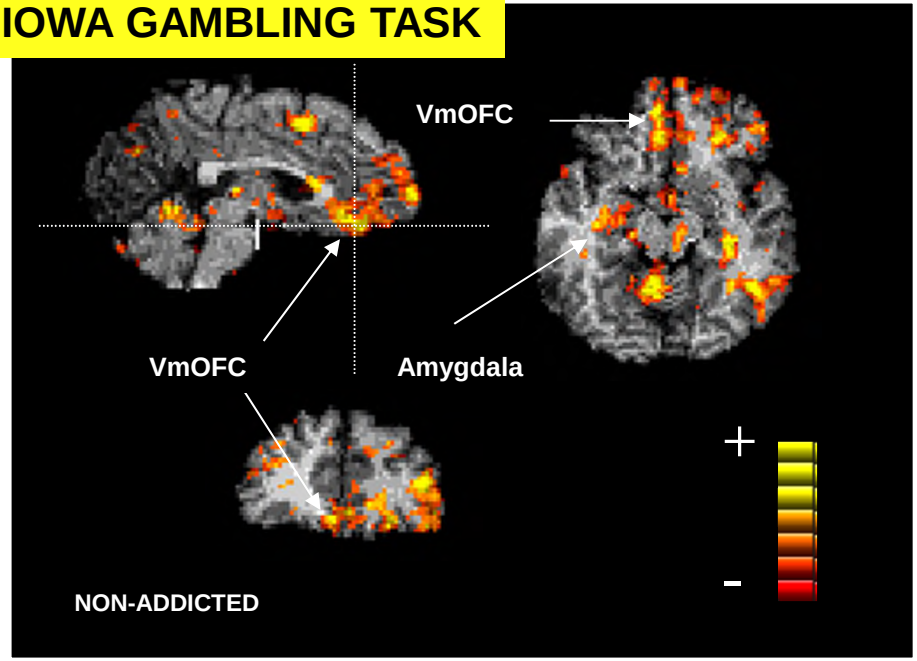
There is both a medio-lateral and a anterio-posterior distinction of function.

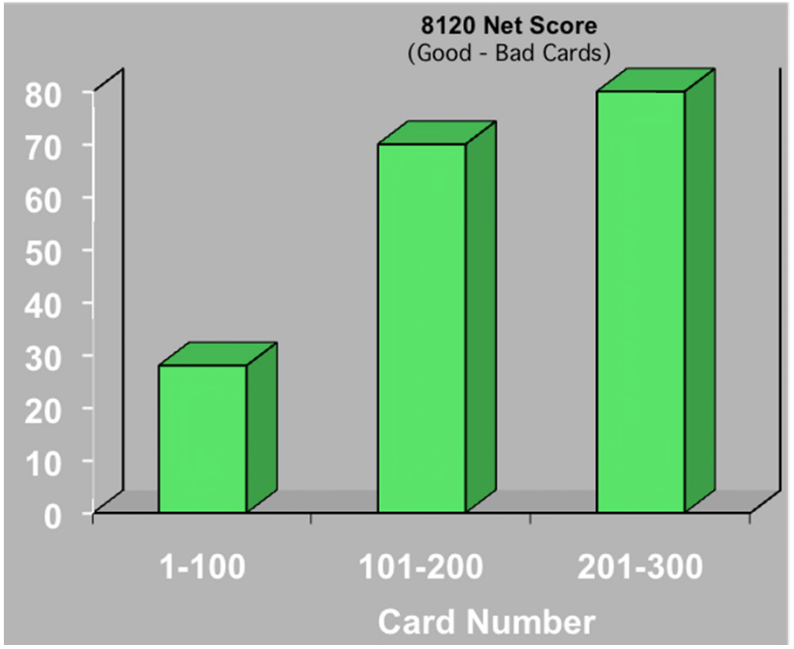
Sensory information arrives from the periphery to the primary sensory cortices where the stimulus identity is decoded. The information is integrated in the posterior parts of the pre-frontal lobes and assigned a reward value as it moves anteriorly. From there it can influence subsequent behavior (ventro-lateral prefrontal region), be stored for learning and memory (ventro-medial area), or be made available to subjective hedonic experience. Subjective reward value is modified by internal state (e.g. hunger). Reciprocal communication is sustain between the pre-frontal cortex and other regions, e.g. amygdala and nucleus accumbens. (META-ANALYSIS OF NEUROIMAGING DATA)

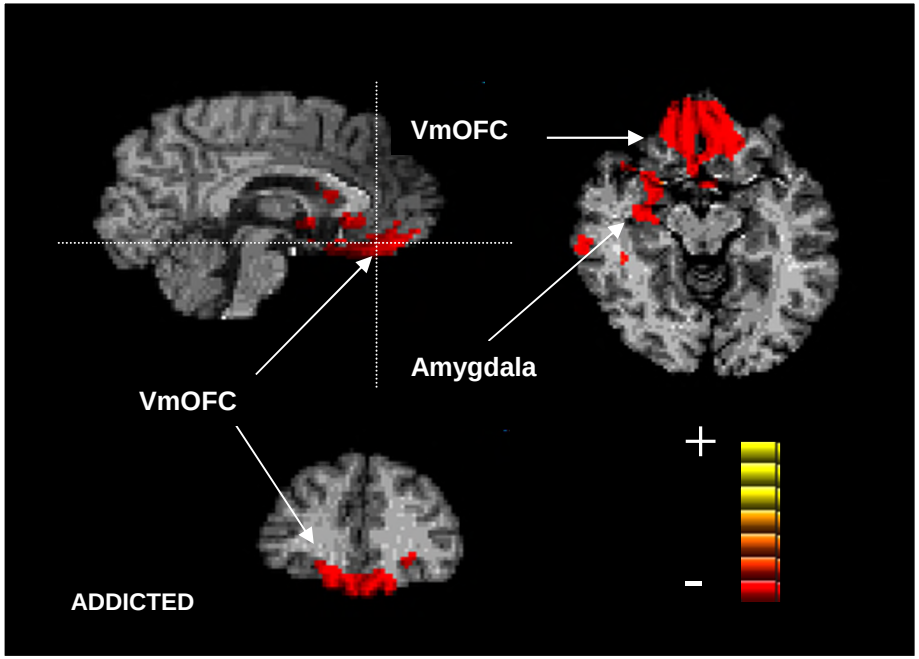


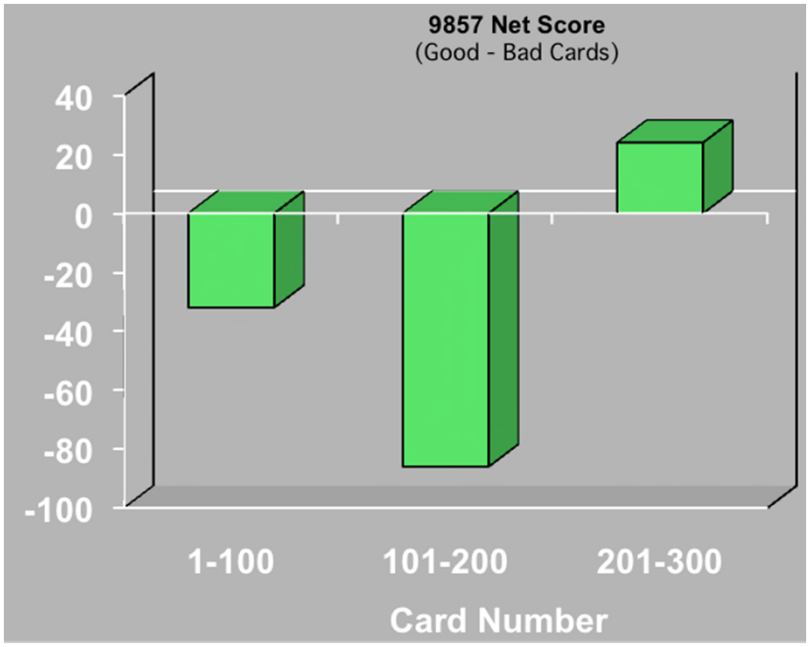
FROM: MORTEN KRINGELBACH, NATURE REVIEWS 6: 691-702, 2005

IOWA GAMBLING TASK





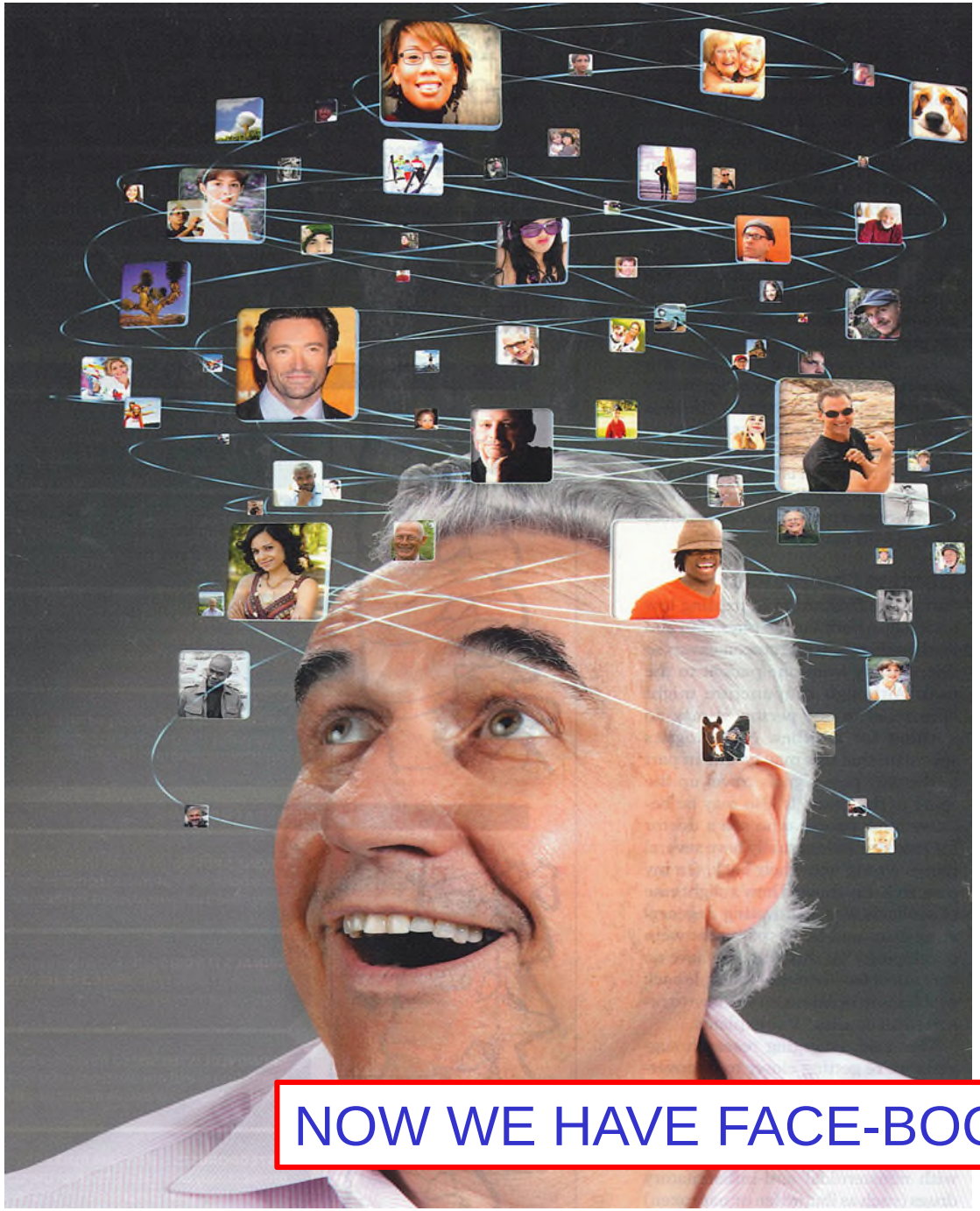




COURTESY OF EDYTH LONDON PHD, LABORATORY OF MOLECULAR NEUROIMAGING, SEMEL INSTITUTE, UCLA

CHOICE AND SOCIAL (EMPATHIC) BEHAVIORS WERE ONCE SHAPED IN THE MARKET….

…..BALANCING PLEASURES AGAINST PATIENCE, PRUDENCE, COMMITMENT AND RESPONSIBILTY.


NOW WE HAVE FACE-BOOK….

THE CHALLENGE OF OBESITY
Nuffield Council on Bioethics: Public Health Interventions

Choice in the affluent society. Public Health interventions progress from supporting individual choice and responsibility to State intervention. Inevitably, the benefit to society of any public health intervention must be weighed against the loss of individual freedom.

INCREASING INDIVIDUAL FREEDOM →

Monitoring	Annual physical exam for children
Provide Information	More exercise, more vegetables
Enable Choice	Build bicycle paths; free fruit in schools
Guide Choice by default standards	Vegetables standard; Chips must be requested
Guide Choice through incentives	Tax breaks for bicycle purchase; normal weight
Guide Choice through disincentives	Tax on cars used in inner city
Restrict Choice	Use of saturated fats banned in restaurants
Eliminate Choice	Advertising to children: (Easier said than done)

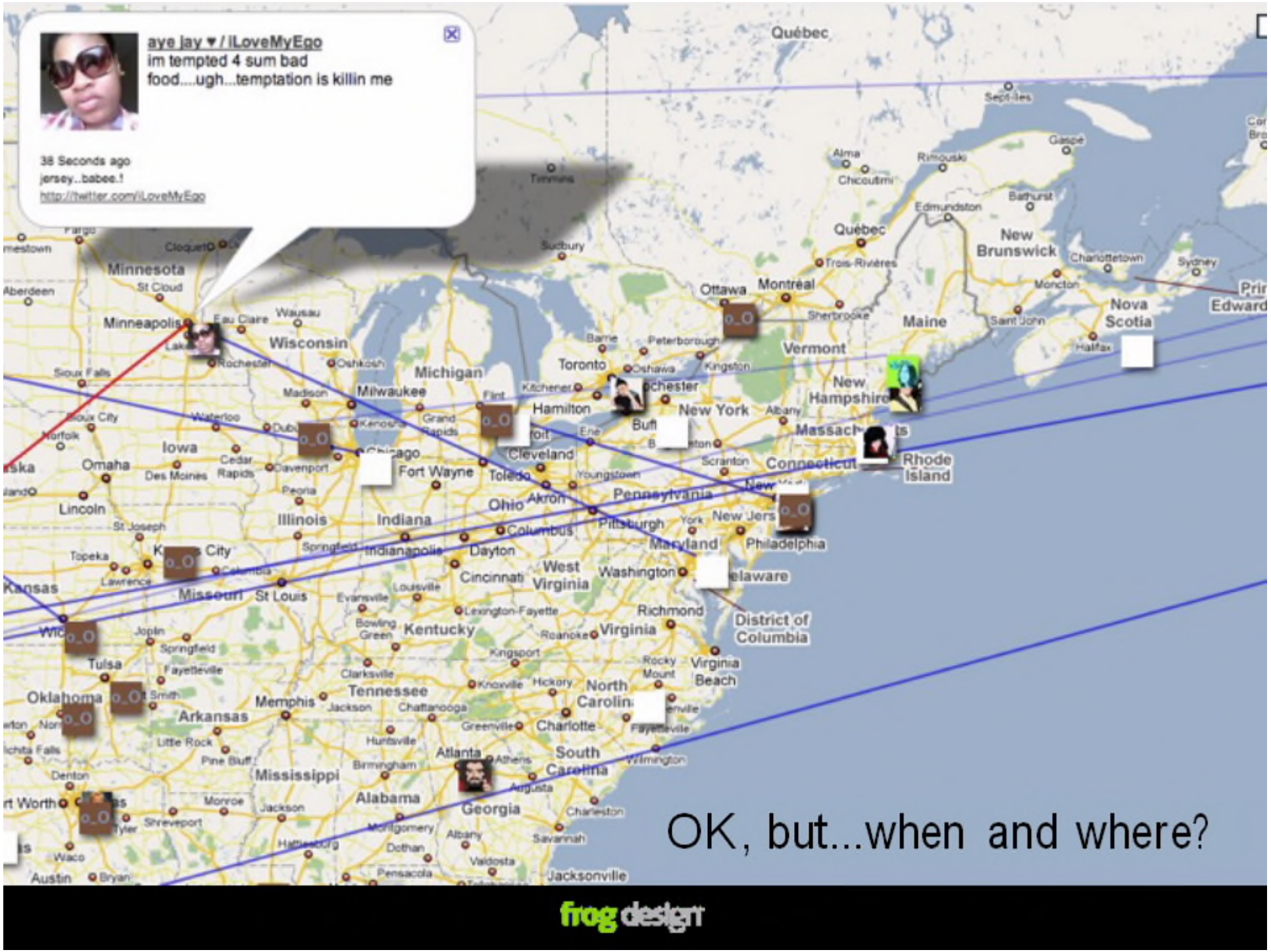
INCREASING STATE INTERVENTION →

“TEMPTD” – A WEB BASED TOOL TO AID WEIGHT CONTROL

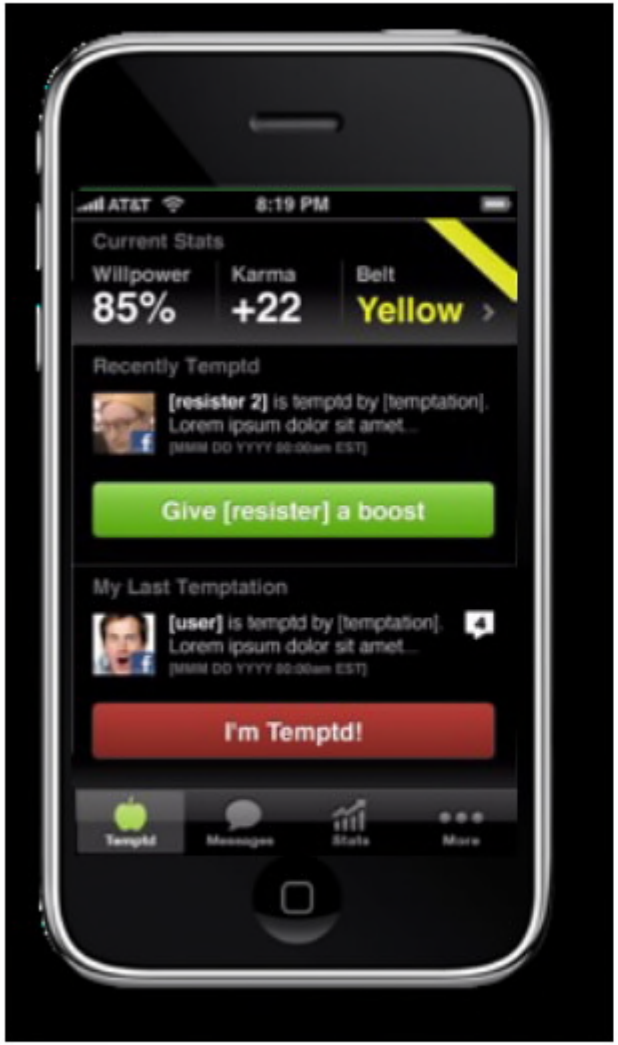
Robert Fabricant: Frog Design, New York

The US is drowning in healthcare costs related to lifestyle and personal behavior, with preventable, chronic conditions like diabetes accounting for more than 70% of total expenditures.

What if you could place a set of powerful decision-support tools in the palm of someone’s hand that they can access wherever and whenever they need to?


aye jay ♥ / iLoveMyEgo
im tempted 4 sum bad food....ugh...temptation is killin me
38 Seconds ago
jersey..babee.!
http://twitter.com/iLoveMyEgo
OK, but...when and where?
frog design

OUTSOURCING THE LATERAL PRE-FRONTAL CORTEX ?



temptd supports meaningful improvements in personal health decision-making by:

- Helping people improve their personal health behavior in a sustained manner by rewarding even the smallest decisions, both successes and failures.
- Encouraging people to boost each other and amplify the most influential support behavior as part of the growing temptd community.

Each of these behaviors is rewarded through a game engine that combines Willpower and Karma Points to recognize personal achievements and track ongoing progress.

TWO "AFFLUENT" SOCIETIES: BALANCING THE INDIVIDUAL AND COMMON WEALTH

UNITED STATES		NORWAY
$37,624	Per Capita GDP	$37,108
> 25%	OBESITY	< 10%
4.1%	Military Spending of GDP	1.9%
15%	Health Spending of GDP	10%
26%	All Taxes of GDP	43%
1,824	Hours Worked per Year	1,363
17%	Children in Poverty	3%
765	Private Vehicles per 100,000 People	494
12%	Foreign-Born Residents	9%
715	Prison Inmates per 100,000	64
0.41	Index of Income Distribution*	0.26
0.56	Correlation of Income Across Generations	0.23

*The lower a country's index, the more equal are the residents incomes

Source: Andrew Hacker: "They'd Much Rather Be Rich", New York Review of Books 10/11/07

DAVID RETURNS HOME TO FLORENCE AFTER TWO YEARS ON LOAN AT AN AMERICAN FINE ART MUSEUM

PERHAPS NORWAY WOULD HAVE BEEN A BETTER CHOICE?

www.peterwhybrow.com