

Public Written Comments

Submitted to PCAST
May 1, 2013 to July 15, 2013

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PCAST and an emergency NSF allocation for rapid learning?

From: "Lloyd Etheredge" [REDACTED]

Date: Thu, May 2, 2013 12:26 pm

To: "Dr. John Holdren - Science Adviser to President Obama and Co-Chair, PCAST" [REDACTED] (ore)

Cc: "Dr. Rosina Bierbaum - PCAST" [REDACTED]

Dear PCAST Co-Chairs and Members:

Concerning issues that I have brought to your attention, and more rapid economic recovery, I enclose a proposal (following up the invitation-only IMF summit) for an emergency allocation of funds for rapid learning. Given the current difficulties and limitations at NSF affecting the performance of the social sciences, this initiative will need higher level scientific leadership.

Lloyd Etheredge

>Date: Thu, 02 May 2013 12:11:45 -0400

>To: "Dr. Claudia Goldin - President, AEA" [REDACTED]

>

>"Dr. William Nordhaus" [REDACTED]

>, "Dr. Philip

>Rubin - Assistant Director for Social, Behavioral and Economic

>Sciences" [REDACTED]

>

>

>From: Lloyd Etheredge [REDACTED]

>

>Subject: AEA leadership: An emergency NSF allocation for rapid learning?

>[. . .]

>Dear President Goldin, President-elect Nordhaus, and Dr. Rubin:

>

> To follow-up the invitation-only IMF Conference, I enclose a
> suggestion for AEA leadership to seek an emergency allocation from
> NSF for rapid learning.

>

> The enclosed letter discusses the new NIH Grand Strategy,
> using Big Data, that is producing impressive results. By these
> benchmarks, perhaps \$200 million would be reasonable?

>

>with best regards,

>Lloyd Etheredge

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>Dr. Lloyd S. Etheredge - Director, Government Learning Project

>Policy Sciences Center Inc.

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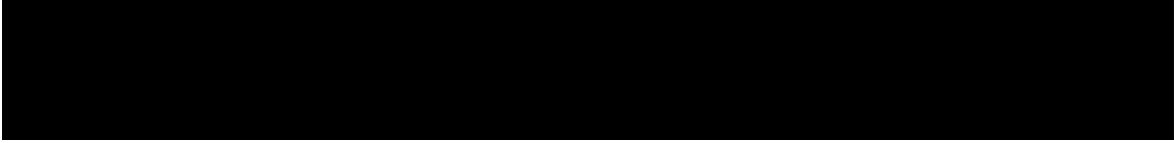
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>develops and integrates knowledge and practice to advance human
>dignity. It was founded by Harold Lasswell, Myres McDougal, and

>their associates in 1948 in New Haven, CT. Further information about
>the Policy Sciences Center and its projects, Society, and journal is
>available at www.policysciences.org.]

Dr. Lloyd S. Etheredge
Policy Sciences Center Inc.



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available at www.policysciences.org.]

THE POLICY SCIENCES CENTER, INC.

Project Director: DR. LLOYD ETHEREDGE

E-mail: [REDACTED]

May 2, 2013

Dr. Claudia Goldin, President
American Economic Association
c/o Department of Economics
[REDACTED]
[REDACTED]

Dear Dr. Goldin:

To follow up the IMF summit, in Washington, on Macro Economic lessons: Would you organize a senior delegation to meet with the National Science Board to request emergency funding for new R&D data systems and rapid learning?

We can do a better job to speed the return of economic health and sustained growth. The fundamental requirement is to give scientists all of the data that we need. This Grand Strategy has been producing breakthroughs at NIH: It can work for macro-economics.

The NIH Model: A Grand Strategy for Macroeconomics (Big Data + Rapid Learning)

The Obama Administration's rapid learning system for biomedical research uses a large N of comprehensive electronic health records. New "Everything Included" data systems (beginning at the molecular level) - pre-populated, linked, and curated at public expense - are available online, with all of the R&D data that researchers request. NIH already has reconceptualized the classification of diseases: once, the dependent variable in cancer was the physical site where a cancer appeared (e.g., lung cancer or breast cancer) and treatments were developed and evaluated for these classifications. Now, it appears (for example) that a half-dozen or more types of cancers might occur in the breast, each with its own complex causal pathways linked to the genetic profile and other characteristics of a particular patient. A series of recent articles in The New York Times outlines the historic promise of extraordinary improvements in treatment by a new Precision Medicine building on these insights.¹

The lesson underscores Nate Silver's comment about successful macroeconomic forecasting: Econometric mathematics is impressive but the data are crap, at least by the standards of new, eclectic, and linked behavioral data needed to understand and influence human behavior and win elections in Ohio.

The Policy Sciences Center Inc. is a public foundation.

The Center was founded in 1948 by Myres S. McDougal, Harold D. Lasswell, and George Dession in New Haven, CT

URL: <http://www.policyscience.net>

The cost-effectiveness (on a global scale) of scientific progress via this AEA initiative is obvious - including, for the long-term growth of economic resources for NSF and its other scientific fields. An emergency allocation by NSF should have its highest priority.² To accelerate discovery, I suggest a maximum velocity design: New NSF-funded R&D data systems for rapid learning should be online, with analysis software and free computing time for initial analysis of smaller Reference Datasets, 24x7. The requests and exploratory recommendations of eclectic, multi-disciplinary planning groups should be implemented rapidly. New, convergent and reliable measures should identify and estimate changing coefficients quickly. Experiments for fast, cross-breeding communications and techniques such as crowd-sourcing and prizes should be added to the mix. Comparable G-20 data should be developed quickly. To accelerate discovery in this emergency phase, NSF's R&D system should pay to merge behavioral data from Mastercard, American Express, social media, Google, and other commercial sources of domestic and cross-national data.³

Looking Ahead: Integrated Complexity

We face obvious anxieties about intellectual control and retaining the achievements of older assumptions. However it may not be necessary for macro-economic policy prescriptions, and a new eclectic synthesis, to abandon such key assumptions as rational choice. For example: Many years ago, MIT invited me to teach an undergraduate course with a multi-disciplinary introduction to causal theories of human behavior. The majority of the thirty cross-disciplinary theories (in the enclosed "map") are, to economists, actually consistent with assumptions of individuals making rational choices. My point is straightforward: Breakthroughs - as NIH has been discovering - may not require paradigm shifts. They can arise from a better job of nailing-down the precise mechanisms and causal pathways affecting different sub-populations.

To implement this AEA-organized initiative social scientists have new and powerful allies and resources: a.) from the world of hedge fund managers whose passions for data, fast analysis, and competitive discovery create a new benchmark; b.) from computer scientists whose pioneering contributions to Big Data and biomedical research are transforming the future.

Missing Variables and Machine Learning

The mathematical challenge for a rapid learning Big Data system catalyzed by AEA leadership is straightforward: new, machine learning algorithms can reliably produce new insights and rapid NIH-level breakthroughs only if we include all of the right variables at the beginning. It is vital to include a full, eclectic, range of ideas and data requests brainstormed across disciplines. (And to move quickly: We have been losing too much data.)⁴

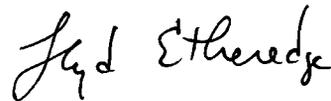
Along with Robert Samuelson's report on the IMF conference, I enclose an Op Ed piece by Jeffrey Sachs (re a search for a new, eclectic synthesis), and an early, prescient letter by Robert Reischauer predicting that, in a changing world, the scientific limitations of government (public) economic data systems would get worse. [More than a decade ago Alan Greenspan also testified to Congress that macro-economists had reached the point of diminishing returns from analyzing and re-analyzing the

limited set of economic statistics collected by the federal government.]

The enclosed posting (by Kalil and Green) to the White House Website suggests that, by analogy, a \$200 million emergency allocation to economists and other social scientists for rapid learning may be reasonable. (However, the success of an AEA initiative is, perhaps, one of the ultimate public goods: We should ask for everything that social scientists need.)

If I can help, please call me at [REDACTED]

With best regards,



Dr. Lloyd S. Etheredge, Director
Government Learning Project

cc: President-elect Nordhaus; AEA Committee on Economic Statistics

Enclosures

- Robert Samuelson, "The End of Macro Magic," Washington Post, April 21, 2013
- Jeffrey Sachs, "We Must Look Beyond Keynes to Fix Our Problems," Financial Times, December 17, 2012.
- Tom Kalil and Eric Green, "Big Data is a Big Deal for Biomedical Research," www.whitehouse.gov, April 23, 2013. Re \$200 million and a \$40 million BD2K initiative.
- Lloyd Etheredge, The Case of the Unreturned Cafeteria Trays and map.
- Robert Reischauer, Letter to the author, December 2002.

Notes

1. By analogy: New and simple "Magic Bullets" for economic recovery may be discovered but the cumulative power of rapid learning also may be, on the NIH model, to achieve cumulative success by refined policies that affect a half-dozen variables for each sub-group in each (possibly, new) classification of economic actors.
2. If the coefficients that physical sciences rely upon were changing, NSF would make such an emergency allocation of funds and shift into a fast discovery mode. If AEA makes the case, the National Science Board should agree to an equivalent investment.
3. A new NSF Deputy Director for Innovation and Economic Growth also can assure high-level leadership and followup within NSF.
4. For example, concerning the other social sciences and the poorly modeled mechanisms of fear (and causal pathways for restored confidence) associated with economic crises: For more than a

half century of mass media, Americans derived their sense of reality from three sober sources of consensus news - television networks that were governed by public licensing and expectations for professional journalism (ABC, NBC, and CBS). Today, a very large percentage of Americans have their sense of national reality created via Fox News, which (“Keep Fear Alive”) is informed by political strategies aimed at a Republican base and traffics in anxiety and controversy. (The PBS Newshour only has about a 2%-3% market penetration and the Wall Street Journal even less.) If we are concerned about economic recovery and the “confidence” of different groups, an obvious multi-disciplinary recommendation is to look at these new causal pathways and psychological effects of media-shaped public dramas.

The End of Macro Magic

By Robert J. Samuelson

Published: April 21, 2013. Washington Post

The International Monetary Fund recently held a conference that should concern most people despite its arcane subject — “Rethinking Macro Policy II.” Macroeconomics is the study of the entire economy, as opposed to the examination of individual markets (“microeconomics”). The question is how much “macro” policies can produce and protect prosperity. Before the 2008-09 financial crisis, there was great confidence that they could. Now, with 38 million unemployed in Europe and the United States — and recoveries that are feeble or nonexistent — macroeconomics is in disarray and disrepute.

Among economists, there is no consensus on policies. Is “austerity” (government spending cuts and tax increases) self-defeating or the unavoidable response to high budget deficits and debt? Can central banks such as the Federal Reserve or the European Central Bank engineer recovery by holding short-term interest rates near zero and by buying massive amounts of bonds (so-called “quantitative easing”)? Or will these policies foster financial speculation, instability and inflation? The public is confused, because economists are divided.

Perhaps the anti-economist backlash has gone too far, as George Akerlof, a Nobel Prize-winning economist, argued. The world, he said, avoided a second Great Depression. “We economists have not done a good job explaining that our macro policies worked,” he said. Those policies included: the Fed’s support for panic-stricken financial markets; economic “stimulus” packages; the Troubled Assets Relief Program (TARP); the auto bailout; “stress tests” for banks; international cooperation to augment demand.

Fair point. Still, the subsequent record is disheartening. The economic models that didn’t predict the crisis have also repeatedly overstated the recovery. The tendency is to blame errors on one-time events — say, in 2011, the Japanese tsunami, the Greek bailout and the divisive congressional debate over the debt ceiling. But the larger cause seems to be the models themselves, which reflect spending patterns and behavior by households and businesses since World War II.

“The events [stemming from] the financial crisis were outside the experience of the models and the people running the models,” Nigel Gault said in an interview. (Gault, the former chief U.S.

economist for the consulting firm IHS, was not at the conference.) The severity of the financial crisis and Great Recession changed behavior. Models based on the past don't do well in the present. Many models assumed that lower interest rates would spur more borrowing. But this wouldn't happen if lenders — reacting to steep losses — tightened credit standards and potential borrowers — already with large loans — were leery of assuming more debt. Which is what occurred.

“We really don't understand what's happening in advanced economies,” Lorenzo Bini Smaghi, a former member of the ECB's executive board, told the conference. “Monetary policy [policies affecting interest rates and credit conditions] has not been as effective as we thought.” Poor economic forecasts confirm this. In April 2012, the IMF predicted that the euro zone (the 17 countries using the euro) would expand by 0.9 percent in 2013; the latest IMF forecast, issued last week, has the euro zone shrinking by 0.3 percent in 2013. For the global economy, the growth forecast for 2013 dropped from 4.1 percent to 3.3 percent over the same period.

Since late 2007, the Fed has pumped more than \$2 trillion into the U.S. economy by buying bonds. Economist Allan Meltzer asked: “Why is there such a weak response to such an enormous amount of stimulus, especially monetary stimulus?” The answer, he said, is that the obstacles to faster economic growth are not mainly monetary. Instead, they lie mostly with business decisions to invest and hire; these, he argued, are discouraged by the Obama administration's policies to raise taxes or, through Obamacare's mandate to buy health insurance for workers, to increase the cost of hiring.

There were said to be other “structural” barriers to recovery: the pressure on banks and households to reduce high debt; rigid European labor markets; the need to restore global competitiveness for countries with large trade deficits. But these adjustments and the accompanying policies are often slow-acting and politically controversial.

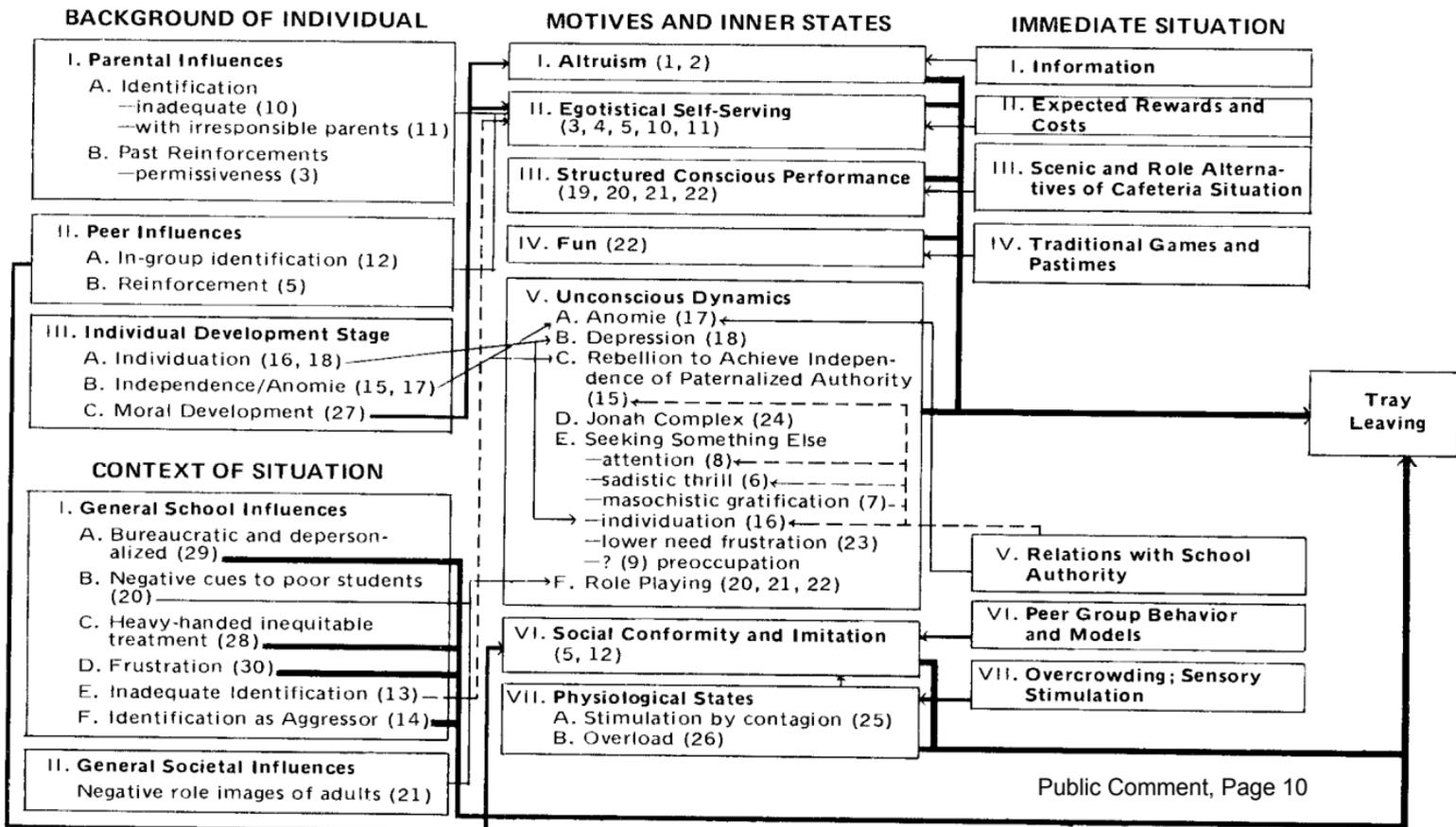
The irony is rich. With hindsight, excessive faith in macroeconomic policy stoked the financial crisis. Deft shifts in interest rates by central banks seemed to neutralize major economic threats (from the 1987 stock crash to the burst “tech bubble” of 2000). Prolonged prosperity promoted a false sense of security. People — bankers, households, regulators — tolerated more risk and more debt, believing they were insulated from deep slumps.

But now a cycle of overconfidence has given way to a cycle of under-confidence. The trust in macroeconomic magic has shattered. This saps optimism and promotes spending restraint.

Scholarly disagreements multiply. Last week, a feud erupted over a paper on government debt by economists Kenneth Rogoff and Carmen Reinhart. The larger lesson is: We have moved into an era of less economic understanding and control.

Figure 1.

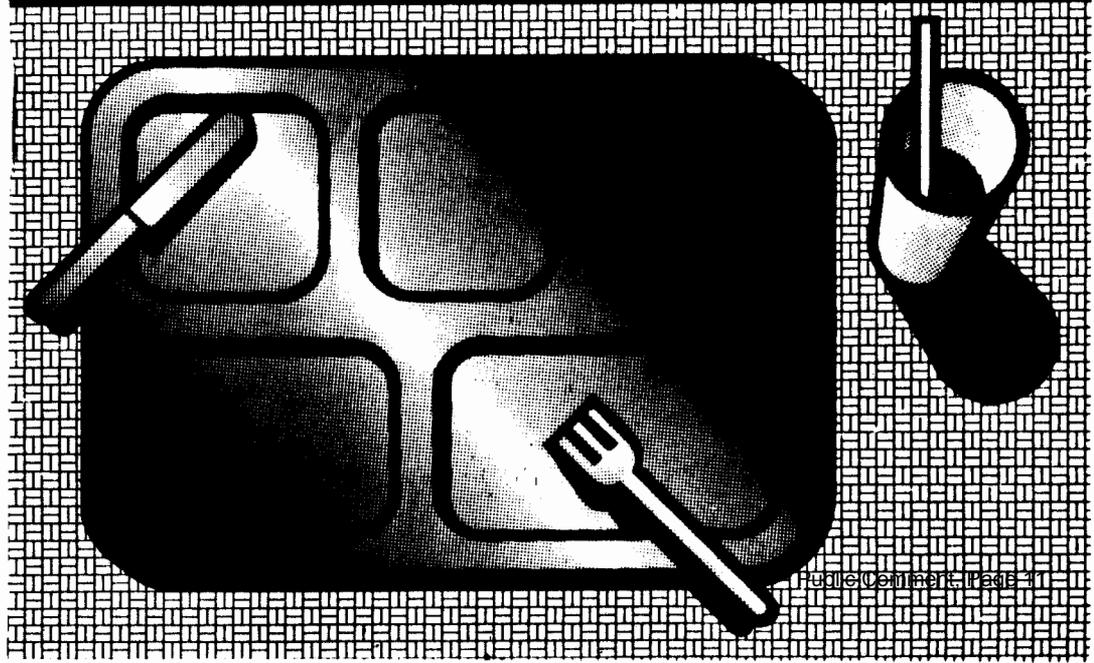
A MAP FOR THE ANALYSIS OF ONE INDIVIDUAL'S TRAY-LEAVING BEHAVIOR



The Case of the Unreturned Cafeteria Trays

An Investigation Based Upon Theories
of Motivation and Human Behavior.

Lloyd S. Etheredge



**THE CASE OF THE
UNRETURNED CAFETERIA TRAYS**

Lloyd S. Etheredge

Massachusetts Institute of Technology

American Political Science Association



The preparation of *The Case of the Unreturned Cafeteria Trays* was supported by Grant GY 9351 from the National Science Foundation to the American Political Science Association for a project to improve undergraduate education in political science. Sheilah R. Koeppen, Director of the Division of Educational Affairs, is the project director. Responsibility to the profession for the project activities, 1972-1975, is exercised by this Steering Committee on Undergraduate Education:

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Table of Contents

Foreword	iv
Acknowledgments	vi
Introduction	1
I. The Cybernetic Model	3
II. Social Learning	6
III. Psychoanalytic Theories	10
IV. Dramaturgical and Role Theory ("All the World's a Stage").	18
V. Humanistic Psychology	23
VI. Specialized Theories	25
VII. Field Theory: Different Strokes for Different Folks?	29
VIII. Thirty Theories in Search of Reality	31
Additional Readings	36
Analysis Topics—The Case of the Unreturned Cafeteria Trays	38

Foreword

Among the major activities of the American Political Science Association, the publication of the *American Political Science Review* and the Annual Meeting provide for exchange of information about research. Other major activities aim to adapt research to teaching needs, particularly at the undergraduate level.

Since the Association's establishment in 1904, there has always been a committee concerned with undergraduate education and, in each decade, an education committee has issued a report recommending instructional goals and strategies. Today, we have a different concept of useful educational activity; the Association is helping prepare instructional materials that can be utilized by teachers and students. The regional seminars for college teachers in the 1960s, supported by a grant from the Ford Foundation, were a notable first effort of this sort. The seminars helped teachers locate and use new sources of course materials and different methods of instruction. Several hundred political scientists participated in these seminars.

At the end of 1972, with the support of a grant from the National Science Foundation, the Association established a Division of Educational Affairs and began to develop publications providing teachers and students with instructional guides and useful materials. *DEA NEWS* for Teachers of Political Science, a newspaper received by all Association members; *SETUPS*, the student learning materials that introduce data analysis techniques and the Instructional Resource Monographs are the initial publications.

Each Instructional Resource Monograph is a guide to source materials or a method of instruction, and is designed primarily for faculty. The fifth monograph, *U.S. Census Data for Political and Social Research*, is accompanied by a manual for students. *The Case of the Unreturned Cafeteria Trays* is another student manual designed to facilitate faculty presentations of source material.

As political science selectively adapts theories and analytical techniques from other social sciences, it is appropriate that political science students learn theories of human behavior, from psychology, social psychology,

sociology, and even economics. In *The Case of the Unreturned Cafeteria Trays* Lloyd Etheredge poses a problem and alternative solutions by way of engaging students in explorations of alternative interpretations of motivations. *The Case* includes readings and exercises for students to apply theories to analyze problems in political life.

Evron M. Kirkpatrick
Executive Director
American Political Science Association
June 1976

Acknowledgments

An early graduate seminar with Harold Lasswell helped to clarify and direct my developing interest in the policy science approach to improving American society. Teaching undergraduate courses in social and political psychology gave me the opportunity to develop the present monograph as a series of lectures. My colleagues Ken McVicar, Geoff Nelson, Jeffrey Pressman, Hayward Alker, and Martha Weinberg aided me with critical comments and useful advice. Eleanor Benson, Jacki Baizley, and Gail Lopata typed the manuscript.

Among the catalysts of this monograph was the pleasure, several years ago, when I read Robert K. Merton's *On the Shoulders of Giants: A Shandean Postscript*. More recently, Graham Allison's *Essence of Decision: Explaining the Cuban Missile Crisis* illustrated the benefits of explicating the images used in policy decision-making.

I want to express a personal debt of gratitude to the M.A.S.C. workshops and to their creator and first director, Felix Simon. The friendships and experiences during my eight years of association were deeply rewarding and were an important catalyst in my understanding of human behavior and the problems of effective leadership.

Finally I want to express my appreciation to the National Institute of Mental Health. Their fellowship support to me through Yale's Psychological Study of Politics program was instrumental in facilitating the interdisciplinary work that was an important part of my education. My thanks as well to Robert E. Lane and John B. McConahay, two men who helped to create and shape that program.

Introduction

Some people hope that "better human understanding" will eliminate coercion and inhumane practices in our world as well as alleviate a wide range of social problems: academic underachievement, use of hard drugs, drunken driving, alcoholism, crime, mental illness, sexism, racism, industrial pollution, and war are but a few examples where the hope has been expressed that better knowledge will help. Perhaps it will. But, if this is to come to pass, we must direct the knowledge of the social sciences toward fashioning better practical alternatives for the organization and conduct of our society.

I have chosen a simple problem to analyze in this way, an example from high school. It has seemed rather easy for my students to identify with the problem: high school is a shared experience in our society, and most high schools seem to have a cafeteria problem. But the analysis presented here is also a prototype of thinking that can be applied (with modifications and elaborations) to many of our social problems. This kind of thinking is, I would submit, useful: a more humane society will be simply the aggregate of all of us finding ways to be more humane and effective in our lives. Perhaps we can profit from stepping back and thinking about how to design institutions and create practices that make this possible.

Over ten years ago, when I was President of my high school Student Council, I was confronted with a problem in human behavior which I still find mysterious. I did not know what to do at the time and, as I have learned more about the complexities of human behavior and about the different theories and viewpoints for analyzing it, I still am not sure about the reasons for the problem, or what I, as a social scientist, would now recommend if I were called upon to give advice.

The situation was this: at my high school it had developed that some students who ate lunch in the cafeteria (almost all of the 2,200 students) were not taking back their trays to the dirty dish room but instead were departing for their classes leaving collections of trays, dirty dishes, and trash on the tables. Not all students were doing this—it was only a

minority. But, by the end of the lunch shifts (there were six of them), the cafeteria was a mess. And, as the principal pointed out when he called me to his office, it did take several man-hours of work by the cafeteria staff to make the place respectable again. Quite naturally, the cafeteria staff was angry and pressuring the principal to do something. And he wanted us (the Student Council) to do something.

Here, then, is our puzzle: what are the causes of this behavior? And what could be done to resolve the problem? The reader should be alerted that I now intend to illustrate a range of plausible answers to these questions by drawing systematically upon theories which social scientists use in thinking about behavior. This is, however, a theoretical paper: it does not solve the mystery of the unreturned cafeteria trays—that is a task for research. There will be no climax or grand finale. The characters and scenery along the way are all there is.

I. The Cybernetic Model

The cybernetic model imagines man as a goal-seeking animal who guides his behavior on the basis of information *feedback* from the environment. The notion of feedback can be illustrated by the example of a radar-controlled missile fired at a moving airplane: as the plane alters its course, radar impulses from the missile, bouncing off the plane, tell the missile how it should correct its flight so it will hit the target.¹

It is possible, of course, to think of a variety of goals which a human being might try to achieve. For the sake of simplicity (and because the assumption is often made in applying cybernetic theory) let us assume that human beings would act laudably (return their trays) except for faulty feedback.

1. Ignorance of Expectations

The first explanation suggested by the cybernetic model is that students who do not return their trays might be ignorant of the expectations of the school. Perhaps they do not realize (because no one ever told them) that they should return their trays. Students would go along with the desires of the school administration if they knew what the expectations were, if the "lack of feedback" were corrected. The solution would be simple: tell them of the expectations.

2. "They Know Not What They Do" (Ignorance of Consequences)

A second and related explanation suggested by the cybernetic model is that students who do not return their trays might be unaware of the *consequences* of their behavior (the accumulated piles of trays, dishes, and trash at the end of the lunch shifts, the extra work for the cafeteria staff).

¹See Norbert Wiener (1962) *Cybernetics*, 2nd ed. Cambridge, New York: MIT Press and Wiley; and Karl Deutsch (1963) *The Nerves of Government: Models of Political Communication*, New York: Free Press of Glencoe.

If this explanation is correct, then the problem could be ended by a different policy choice—for example by taking classes on tours of the accumulated mess or by presenting the cafeteria manager to explain the situation over the public address system.

I have titled this second idea, "They Know Not What They Do," because the phrase is reminiscent of the last words of Christ on the cross: "Father, forgive them, for they know not what they do."² Cybernetic theories, as they are usually employed, are very *forgiving* theories. It is not something about individuals which should be blamed, rather it is something about the faulty information feedback mechanisms of their environment.

I should tell you that the cybernetic model was the one adopted by our student council. We did not believe the first hypothesis was true, that students were unaware of the school's expectations. But we were *hopeful* that, if they became aware of the problems caused by tray-leaving, most students would take back their trays.

I have stressed the word *hopeful* in the last sentence because I must confess that we were unsure that better feedback would be a cure. In part our advice was purely political: we did not want to be a "lackey" of the administration or have any role in policing other students. Yet we had to make some response to the principal's request for assistance if we were to maintain a good working relationship with him. The cybernetic model was a creative compromise to the pressures we were under. We would appear to be doing something without getting involved in coercion.³ Then too, we were young, idealistic, and had an esthetic aversion to coercion.⁴

It might be useful to point out, in passing, that cybernetic theory does have a certain resonance with the assumptions of liberal political views, for example with the belief that people will act well if they are given enough education. Scientists and teachers generally, I think, have this kind of model in the back of their minds in justifying their work: they implicitly assume (as I do, in a way, in writing this monograph) that if people have better differentiated and more sophisticated "maps" of their social environment, if they know what effects are brought about by what causes, then they will act more humanely in the long run.

²Luke 23:34.

³On the way in which such role conflicts can produce attitudes see, for example, F. X. Sutton et al., *The American Business Creed* (1966) Cambridge: Harvard University Press.

⁴On the place of esthetic sensibility in generating an aversion to coercion see Sigmund Freud (1933) "Why War?" *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. XXII, London: Hogarth Press, 203-216.

My high school principal, as you might guess, did not think well either of our recommendations based on cybernetic theory or of our faith in the good will of human nature. He was, centrally, a social learning theorist (by instinct, I think, rather than as a result of any knowledge of the experimental literature). Let me turn, then, to this behavior reinforcement model.

II. Social Learning

The social learning model imagines man as a hedonistic, reward-seeking punishment-avoiding animal. Behavior is the result of the rewards or punishments a man expects in the situation that confronts him, an expectation resulting partly from his past history of reinforcement (behavior which has been rewarded continues, behavior which has been punished decreases).⁵ In research with animals it is usually assumed that food is a positive reinforcer if the animal is hungry, that electric shocks are punishment. It is more complex, in dealing with ordinary human behavior, to determine what will be a reward and what will be a punishment—but usually such things as money, praise, and social acceptance are thought to be rewards while economic costs or criticism from other people are punishments. The model suggests several explanations:

3. Too Permissive an Upbringing

Those students who do not return their trays come from homes where they always were rewarded whether they took their dishes back to the kitchen or not. The student tray-leavers, overly pampered and spoiled as children, were not properly conditioned.

4. "What's In It For Me?" (or) "Virtue Doesn't Pay"

Closely related to the preceding hypothesis is the hypothesis that those students who have not been "properly conditioned" also see a net cost in

⁵See for example Morton Deutsch and Robert Krauss (1966) *Theories in Social Psychology*, New York: Basic Books, chapter 4; Albert Bandura and R. H. Walters (1963) *Social Learning and Personality Development*, New York: Holt, Rinehart & Winston; B. F. Skinner (1948) *Walden Two*, New York: Macmillan, (1953) *Science and Human Behavior*, New York: Macmillan, (1971) *Beyond Freedom and Dignity*, New York: Knopf; George C. Homans (1974) *Social Behavior: Its Elementary Forms*, New York: Harcourt, Brace Jovanovich, rev. ed.; and Evelyn MacPherson et al. (1974) "A Comparison of Three Methods for Eliminating Disruptive Lunchroom Behavior," *Journal of Applied Behavior Analysis*, Vol. 7:2, 287-297.

taking their trays back: they are not paid to do it (it does take effort to walk to the other end of the cafeteria and stand in line for a minute or so). Some sages have argued that "virtue is its own reward" but these people are not going to be conned: to them, virtuous conduct requires more than the reward it provides.

My principal, very much a social learning theorist, decided the solution lay in increasing the costs to be incurred by wrongdoers. He adopted a random terror approach. Teacher monitors were placed in the cafeteria; these teachers were most annoyed at spending their lunch hours in a noisy, crowded cafeteria on monitor duty, and they let the students they caught know—in no uncertain terms—what socially objectionable persons they were for not returning their trays. In addition to this criticism, repeat offenders were also subject to the familiar repertoire of high school discipline (detention, suspension, parent conferences, etc.).

This attempted solution to the problem did have a modest effect in getting trays returned. It had this effect, however, at a certain cost—an increase in the irritability of teachers and a police state atmosphere in the cafeteria. The most important benefit, from the principal's point of view, was probably political and symbolic:⁶ the cafeteria staff felt he was acting firmly, that he was "doing the best he could" in the situation. His seemingly decisive action made the cafeteria staff more willing to put up with clearing the remaining trays.

I think it would be unfair to behavior reinforcement theorists, however, to suggest that they would all endorse my principal's actions.⁷ In general, behavior reinforcement research suggests that *rewards* may be more effective in changing behavior than punishments. But, even if my principal knew this, I think he would have chosen the punishment route because he simply had no rewards he could offer: certainly he had no money to pay students, and parents would not have accepted the solution of giving "good" students time off from school or higher grades. In fact I am at a loss, even now, to imagine what rewards a high school principal could give that his students would want: I do not picture the people I went to high

⁶Murray Edelman (1964) *The Symbolic Uses of Politics*, Urbana: University of Illinois Press.

⁷It is interesting to note, as an aside, that the broad application of behavior reinforcement principles in the classroom now seems to be well underway, albeit at a time when the cutting edge of research shows major problems with such applications. A recent review concludes: "The past 2 years have been bad ones for those of us who attempt to apply traditional principles of learning to instruction. Thorndike's principles of learning seem to be crumbling. . . . In fact, each one of the principles confidently enumerated by Skinner in *The Science of Learning and the Art of Teaching* now turns out to be untrue—at least in as general a sense as he believed at that time." Wilbert McKeachie (1974) "Instructional Psychology" in Mark Rosenzweig and Lyman Porter (eds.) *Annual Review of Psychology*, Vol. 25 Palo Alto: Annual Reviews, 161-193.

school with being highly motivated by the principal standing in the dirty dish room and praising them when they brought their trays back.

Perhaps my principal chose coercion only because he had no rewards. In fact, I think he also chose coercion because he was angry and because he *felt* that coercion would produce more change than rewards. (There now is some experimental evidence that individuals who use coercion to produce change *feel* more powerful than individuals who produce the same amount of change through rewards.⁸) Like many other people my principal seemed to believe implicitly that sticks were more effective than carrots.

I should add, I think, that my principal was conservative and probably felt a *moral obligation to society* to do something about the callous "what's in it for me" attitude he perceived. Conservatives and moralists often seem drawn toward coercion.^{9,10} And a social learning theorist like my principal would tend to take tray-leaving more seriously, to view it as representing an attitude that would continue throughout life if it were not stopped.

It is interesting to note, in passing, that the discipline of economics is built upon the assumption of a "what's in it for me" calculation on the part of hedonistic individuals. The economists' perspective would suggest a rather elegant and simple solution to our problem—a market mechanism: all you need do is charge each student a 25¢ deposit on his tray when he buys his lunch. He receives the deposit back when he returns the tray. If he does not return the tray, he loses the deposit—and it becomes in the interest of other students to become entrepreneurs and cart it back.

⁸W. R. Kite (1964) "Attributions of Causality as a Function of the Use of Reward and Punishment" Unpublished Doctoral Dissertation, Stanford University; Barry R. Schlenker and James T. Tedeschi (1973) "Interpersonal Attraction and the Exercise of Coercive and Reward Power" *Human Relations* 26:5 427-439.

⁹Studies of American public education show that a strong conservative leaning is typical of its employees. See, for example, H. Ziegler, M. K. Jennings and G. W. Peaks (1974) "The Decision-Making Culture of American Public Education," in Cornelius P. Cotter (ed.) *Political Science Annual: An International Review*, Indianapolis: Bobbs-Merrill, Vol. 5, 177-226; also the evidence for high percentages of System 1 information processors in O. J. Harvey et al. "Teachers' Beliefs, Classroom Atmosphere and Student Behavior" (1972) reprinted in A. Morrison and D. McIntyre (eds.) *Social Psychology of Teaching*, Baltimore: Penguin Books, 215-229.

¹⁰It is of course not a common practice in our culture to reward people who act morally: the official version is that ethical conduct should be its own reward. However Montaigne in his *Essays* remarks that: "In China, a kingdom in which government and the arts, though they have had no contact with or knowledge of ours, contain examples that surpass them in many excellent features . . . the officers deputed by the prince to inspect the state of his provinces, when punishing those guilty of abusing their office, also reward, out of pure liberality, any whose conduct has been above the common level of honesty." M. E. Montaigne (1580) *Essays*, translated by J. M. Cohen (1958) Baltimore: Penguin Books.

I am not at all certain, however, that my principal would have found such a market system attractive even had he thought of it. As I said, he believed that there was a matter of morals at stake, a moral obligation toward other people. I think he would have been most reluctant to install any system which implied that one could legitimately ignore moral obligations by paying money.¹¹

5. Small Group Rewards ("Evil Companions")

One elaboration of social learning theory would be to look at the groups to which individuals belong. Our research hypothesis would be that in some friendship groups there are *rewards* for leaving trays (e.g. appearing "tough," "courageous," or "independent"). This reference group notion is particularly interesting because it implies that individuals may be relatively insulated from direct influence by the administration. Moreover, it suggests that, for some reference groups, what the administration regards as punishment (e.g. detention) may actually be a reward, a kind of badge of courage, a source of respect and acceptance from other group members.¹² Perhaps breaking up such groups (by rotating lunch shift assignments) would work. Or you could attempt to exert ~~peer~~ group pressure through the student government.

¹¹There are additional ethical problems in that such a market solution would favor rich kids—who presumably could better afford to "buy" the services of poorer kids. This kind of ethical problem is, of course, fundamental in the present use of an economic market system in American society.

¹²A useful discussion of such an approach in the light of juvenile delinquency research is Derek Wright (1971) *The Psychology of Moral Behavior*, Baltimore: Penguin Books; see also S. Glueck and E. Glueck (1965) "Varieties of Delinquent Types," *British Journal of Criminology*, Vol. 5, 238-248.

III. Psychoanalytic Theories

Both the cybernetic and the social learning perspectives are relatively well organized; hypotheses seem to flow in a straightforward way from the image of human behavior. This coherence is not characteristic of the psychoanalytic model. In fact about the only common element among psychoanalytic theories (when applied to a specific situation) is their tendency to emphasize unconscious dynamics and to use a specialized vocabulary. I have organized the following illustration of psychoanalytic theories in three categories: traditional theories which emphasize individual characteristics, traditional theories which emphasize a group and the individual's relation to it, and developmental theories.

A. Traditional Theories—Individual Characteristics

6. Sadism ("Sexual Thrill")

It might be said that those individuals who do not return trays are sadistic. That is, they seek and receive a kind of perverse sexual thrill from an act of aggression. Assuming that the act of aggression is against the administration, not returning trays would be somewhat like teasing a caged animal: the principal could snarl about the situation over the public address system, but this expression of anger or frustration on the part of the principal would only encourage tray-leaving. Perhaps the best he can do is to expel the student offenders.

7. Masochism ("Asking for Punishment")

A reverse interpretation could also be generated from a psychoanalytic image of man: perhaps the individuals who leave their trays unconsciously want to be punished. Hence they transgress: as Freud put it, the masochist, "In order to provoke punishment . . . must act against his own interests, ruin the prospects which the real world offers him, and possibly

destroy his own existence in the world of reality."¹³ As another psychoanalyst has put it, "Unconscious wishes to be raped, punished, beaten or devoured may all contribute to rebelliousness."¹⁴

This interpretation is somewhat similar to the psychoanalytic idea that crimes may be motivated by an overpowering existing sense of guilt, a desire to be punished.¹⁵ The individual not only receives relief and gratification from the realistic criticisms he now can direct at himself, his deviant acts also involve the external world in a kind of ploy to assist him in self denigration. Perhaps ignoring the behavior would be effective—the masochist would seek his punishment elsewhere. (Although, perhaps a refusal to punish would make tray-leaving especially gratifying to the masochist—as in the old joke: "Hit me," said the masochist. "No," said the sadist.)

8. Narcissistic Gratification ("Attention-Seeking")

It is also possible, of course, that neither aggression nor sadism is involved at all. We have all heard parents say of children who misbehave or are fussy that they are "just looking for attention." Perhaps it is so in this case as well: desiring recognition from his environment, and unable to obtain it in other ways, a lonely or troubled individual might commit deviant acts so that he can at least obtain some sort of personal relationship with someone. Providing alternative sources of attention and recognition might work.

10. Inadequate Identification with Parents

In psychoanalytic theory conscience is formed by identification with the parents. It may be that those individuals who do not return their trays tend to lack a conscience—in other words, they would have sociopathic tendencies and simply be "out for themselves." Inadequate identification with parents, then, is a companion theory to the earlier "virtue doesn't pay" explanation of the social learning perspective. It differs only in suggesting that inadequate identification with parents (rather than a permissive upbringing) is involved.¹⁶ Perhaps therapy would help, although it has not proven too helpful with people with sociopathic tendencies.¹⁷

¹³Sigmund Freud (1924) "The Economic Problem of Masochism" *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Vol. XIX, London: Hogarth Press, 1967, 167-170.

¹⁴Ludwig Eidelberg (ed.) (1968) *Encyclopedia of Psychoanalysis*, New York: Free Press, 369.

¹⁵Sigmund Freud (1918) "Some Character-Types Met With in Psychoanalytic Work" *The Standard Edition*, Vol. XIV, op. cit., 332-333.

¹⁶See Wright op. cit., Glueck and Glueck op. cit.

¹⁷Robert Martinson (1974) "What Works?—Questions and Answers About Prison Reform," *The Public Interest*, Vol. 36 (Spring 22-64).

11. Identification with Irresponsible Parents

Tray-leaving would not be predicted only by inadequate identification. It may arise because the same sexed parent (with whom the child presumably identified strongly in childhood) did not take the responsibility for his own behavior, or was cruel, harsh, unprincipled, or self-serving.¹⁸ Both this theory and the preceding one would suggest that, in the long term, the school system should seek to induce parents to change their child-rearing practices.

B. Psychoanalytic Group-Centered Theories

12. "Us Against Them" (In-group solidarity supported by displacement of aggression (scapegoating) against out-groups)

The traditional energy model of the human mind in psychoanalytic theory posits the existence, within each individual, of a fixed quantity of aggressive and libidinal energies. These energies are thought to be conserved in the sense that they are always present and cannot be added to or destroyed. An individual's personality structure is constituted from how he apports and organizes these energies. For example, he may express some in direct action; he may use some energies to keep the lid on other energies or impulses (repression); he may express some of them in a modified form (a mechanism called sublimation), or he may express them against some person or object other than their original target (a mechanism called displacement).

Freud, in his analysis of the psychic economy of groups, proposed that unalloyed group morale, cohesion, and loyalty were supported by the tendency of group members to displace their fund of aggressive tendencies toward outside groups. The love of group members for each other, in other words, becomes more pure as their aggressive energies are redirected more exclusively against outsiders and as love is withdrawn from the outsiders and diverted to members of the in-group. Freud put the sobering matter this way:

When once the Apostle Paul had posited universal love between men as the foundation of his Christian community, extreme intolerance on the part of Christendom toward those who remained outside it became the inevitable consequence.^{19,20}

¹⁸ See Wright, *op. cit.*, Glueck and Glueck, *op. cit.*

¹⁹ Sigmund Freud (1930) *Civilization and Its Discontents*, in *The Standard Edition*, *op. cit.* Vol. XXI 114-115.

²⁰ See also the excellent review of other theoretical approaches to the in-group out-group problem in Robert A. LeVine and Donald T. Campbell (1972) *Ethnocentrism: Theories of Conflict, Ethnic Attitudes, and Group Behavior*, New York: Wiley.

More recently, in the case of Nazi Germany, it has been proposed that the high morale and unity of the German state was sustained by "scapegoating" the Jews, the invention of a common enemy helping to unify the German people. A familiar theme in science fiction movies during the Cold War was based on the same notion: the threat from outer space dissolves normal political conflicts as all nations unify in joint effort against the common alien enemy. In a somewhat attenuated form this same dynamic often can be seen in high schools: nothing, it seems, is associated with high morale or school spirit as much as a football team or basketball team which regularly defeats opposing schools.

This body of speculation, the "in-group solidarity sustaining aggression against out-groups" hypothesis, suggests that the individuals who leave trays will be found to be close friends of other individuals who leave trays. Their common aggression against others would be in the service of sustaining their bonds with one another.

If this "we-against-them" dynamic is the explanation of tray-leaving the most obvious policy recommendation, similar to that discussed earlier under social learning theory—"Evil Companions"—would be to adopt a policy that would alter these associations (e.g. rotation of lunch shift assignments).

13. Inadequate Identification With the School or Principal

A second group-centered hypothesis utilizing psychoanalytic theory would focus upon the school itself and posit that students who do not return their trays have an inadequate identification with the school. In other words, they do not feel the welfare of the school as their own welfare, they are not personally concerned when the school has a problem.

I said earlier that my high school principal implicitly used a behavior reinforcement theory when he put teacher monitors in the cafeteria to catch students who did not return their trays. In fact he also adopted an "inadequate group identification" theory. He felt that deviating individuals had insufficient pride in their school and so, at the time he announced the creation of teacher monitors over the school public address system, he tried to increase identification with the school and to utilize this dynamic to change behavior. He spoke *glowingly* of the great history and high ideals of Walter Johnson High School. He spoke *darkly* of "those few individuals," that "minority of students," who did damage to these ideals. He spoke *fervently* of his hope that all of us could once again feel pride in our school and strengthen its great traditions and ideals.

I must confess that, at the time, I felt somewhat embarrassed for the principal when he made this speech. My friends and I were too cynical—and, in our own minds, too intelligent—to be taken in by this kind of emotionalism. We were highly sensitive to being manipulated, and we suspected that he cared far more for getting those trays taken back than he genuinely cared about the "traditions" of a relatively new suburban high

school which had been in existence only seven years. But probably he truly believed what he said: it seems to be characteristic of conservatives to assume that social institutions have great traditions and high ideals.

14. Too Strong an Identification with the School (Identification with the Aggressor)

The previous theory argued that tray-leaving could arise from *weak* identification with the school. However the same behavior could also result from the opposite process, a *strong* identification with the school if individuals felt the school to be hostile or indifferent to them.

An illustration will make this dynamic clear. Bruno Bettelheim²¹ reported on the behavior of other inmates he observed in Nazi concentration camps. He found that, far from opposing the brutality of the guards, there were some prisoners who actually began to imitate (identify with) the guards. Bettelheim interpreted this behavior as "identification with an aggressor," a psychological defense: rather than feel defenseless victims of their oppressors, the identification made inmates feel at one with them, a participant in their brutal power.²²

If the "identification with an aggressor" hypothesis is correct we should think of those students who do not take back their trays as manifesting the same indifference and callousness toward the welfare of others as they feel the school system expresses toward them. The school system should become more benevolent.

C. Psychoanalytic Developmental Theories

By now we have crossed through two of the three groups of psychoanalytic hypotheses. Developmental theories, particularly focusing on adolescence, are relatively new (i.e. post Freudian) with the exception of the first to be considered (rebellion against authority).

15. Rebellion Against Parental Authority

In this perspective the school administration is seen as a parent surrogate (via "transference") and resentments against parental authority are expressed within the school. The "real" sources of tray-leaving would have to be sought in the home and the effective elimination of conflict in the home. Schools sometimes adopt this theory in recommending family counseling in the case of "behavior problems."

²¹B. Bettelheim (1943) "Individual and Mass Behavior in Extreme Situations," *Journal of Abnormal and Social Psychology*, Vol. 38, 417-452.

²²See also Anna Freud (1948) *The Ego and the Mechanisms of Defense*, New York: International Universities Press.

Psychoanalytic theory might also suggest, however, that rebelliousness is not an attempt to overcome *current* difficulties with authority in the home but, rather, an attempt to win old un-won battles from earlier in life which continue in the unconscious of the individual. Thus individual therapy might be required.

16. Deviation in the Service of Individuation

Deviant acts (like tray-leaving) may actually be committed by the individual in the service of obtaining a sense of himself as an individual who can act separately from the wishes of authority. In this sense tray-leaving, like other delinquent acts of adolescence, might be in the long term psychological interest of some individuals. Unlike a social learning approach (which would see anti-social behavior as something which the individual will continue if he "is allowed to get away with it") this ego development perspective would suggest that minor deviant acts are really a passing stage of development and may be quite beneficial in relation to the actual gains in a sense of personal identity and integrity which can accrue. It is sometimes argued that one of the benefits of juvenile gangs or friendship groups is the service they perform in this way by encouraging the individual to commit minor deviant acts, and by freeing him to commit these acts (reducing his guilt by sharing it).²³ Other unfortunate side effects (e.g. inhibitions in performing school work) have also been attributed to passive rebellion stemming from the same desire on the part of the individual to obtain or retain some sense of himself as a separate being.²⁴ We should note that, clamping down hard, the school might achieve short term gains but at longer term costs to the individuals' development.²⁵

17. Separation Anxiety, Regression, and Structure Seeking (Anomie)

Rather than manifesting a positive developmental trend, however, adolescents who leave trays might do so from developmental difficulties and a cry for help. Progressing through adolescence involves a reduction in the external structures of life. An adolescent may face considerable

²³Erik Erikson (1966) "Eight Ages of Man" reprinted in Leon Gorlow and Walter Katkovsky (eds.) *Readings in the Psychology of Adjustment* (1968) New York: McGraw Hill, 297-317.

²⁴Howard Helpern (1964) "Psychodynamic and Cultural Determinants of Work Inhibition in Children and Adolescents" *Psychoanalytic Review*, Vol. 51, 173-189; also Helpern (1969) "Psychodynamic Correlates of Underachievement" in Gloria and Monroe Gottsegen (eds.) *Professional School Psychology*, New York: Grune and Stratton, Vol. 3, 318-337.

²⁵Note the considerable evidence suggesting the importance of providing an adult-influence, peer-influence balance in the interests of long term development of altruism and moral autonomy in Derek Wright, *op. cit.*

anxiety about the prospect of moving out on his own, choosing a college, getting a job, many may face a decision about marriage. If the individual is rushed into more freedom than he can handle, he may become increasingly anxious; he may have difficulty in concentrating or "getting it together," he may feel adrift or that he is sinking, unable to cope. For at least some people behavior can become bizarre, disorganized, or antagonistic without faith that someone else's firm hand is at the tiller. In this perspective the leaving of trays would be both a symptom of this kind of regression and a desperate, inchoate call for help—a desire to have benevolent authority step in, set down definite rules and structure, and thereby relieve the individual from his sense of being deserted.²⁶ If this theory is correct, then the principal should make rules and insist that this structure be adhered to: he will get his trays returned and also help his students.

18. Depression

The Group for the Advancement of Psychiatry has presented a psychoanalytic interpretation of depressive tendencies during adolescence in the following developmental perspective:

The withdrawal from the parents normally causes a kind of mourning reaction or episodes of depression in the adolescent. Psychologically this is similar to mourning the actual loss of a loved person. Since the parents in fact are present, however, the cause of the depression is obscure to both the adolescent and his parents and is likely to be labeled simply as "moodiness."²⁷

The GAP views these depression episodes as a consequence of growing independence, an increasing psychological separation from the parents. This depression could account, in turn, for why some people do not return their trays. It is not (as suggested earlier) that they are preoccupied, their energy directed elsewhere. On the contrary, they have no energy or desire to do anything.

Retrospect on Psychoanalytic Theories

I have not elaborated extensively on the separate policy implications of psychoanalytic theories. In large part this is because they bring very few good ones to mind except for sending tray-leavers to psychotherapy where they could learn more about their unconscious dynamics. Psycho-

²⁶Robert K. Merton (1957) "Social Structure and Anomie" reprinted in his *Social Theory and Social Structure*, rev. ed; New York: Free Press, 131-160.

Sebastian DeGrazia (1948) *The Political Community: A Study in Anomie*, Chicago: University of Chicago Press.

Marshall B. Clinard, ed. (1964) *Anomie and Deviant Behavior*, New York: Free Press.

²⁷Group for the Advancement of Psychiatry, *Normal Adolescence: Its Dynamics and Impact* (1968) New York: Scribners, p. 67.

analysts themselves are notably reticent when it comes to suggesting policy alternatives other than psychotherapy.²⁸ I suspect, however, that much more could be done, reliably, in these directions. At a minimum, the trend toward including psychology as a part of the school curriculum seems hopeful.

²⁸A useful discussion is Geston E. Blom (1972) "A Psychoanalytic Viewpoint of Behavior Modification in Clinical and Educational Settings" *Journal of the American Academy of Child Psychiatry*, 11:4 (October) 676-693.

IV. Dramaturgical and Role Theory ("All the World's a Stage")

Dramaturgical and role theories, as their names imply, imagine that people are continually playing roles. These roles are *clusters* of behaviors and perspectives. In the role theory perspective, an individual does *not* perform a given action because he enjoys it (although he may), rather he acts the way he does because that is the role he is playing. And individuals do not necessarily adopt their roles because they find the roles, in sum, more gratifying than alternative roles. Rather they simply feel that it is *their* role or the *appropriate* role, a part of their identity.

19. Act/Scene Ratio

Most of the dramaturgical or role hypotheses to be discussed here invoke the name of different roles. One hypothesis, however, differs from these. This is the notion advanced by Kenneth Burke²⁹ that:

From the motivational point of view, there is implicit in the quality of a scene the quality of the action that is to take place within it. This would be another way of saying that the act will be consistent with the scene.

If we pause to reflect on the scene provided by my high school cafeteria it is apparent that there was considerable impersonality, a rather objectionable institutional air about the long rows of formica topped tables and nondescript (sometimes broken) wooden chairs: it was noisy, the walls were made of cinder block with a dreary light green glaze. Burke would suggest that we would be more likely to find rather callous impersonal behaviors (like leaving trays) in this impersonal, institutional setting.

We would need, to be rigorous, to identify some other characteristic to go with Burke's hypothesis since people differ in their actions in the same setting. One avenue might be to explore personality factors that cause

²⁹Kenneth Burke (1945) *A Grammar of Motives*, New York, 6-7.

individuals to differ in their susceptibility to being influenced by the scenes in which they are a part.

If Burke is correct, then the solution to our problem would lie in introducing a degree of *elegance* into high school dining. Tablecloths, noise dampening materials, flowers, carpets, etc. would provide different cues and produce a setting where people would be more inclined, automatically, to return their trays.

20. "Loser"

It is said that people can come to play the role of "Loser" in their lives. In formal language, we would say that they have developed a "negative identity" and that they go through life always calibrating their behavior so that they will be looked down upon by other people.

Jeanne Maracek and David Mettee³⁰ recently published experimental work which substantiates the concept of a "loser" syndrome. Subjects performed an experimental task and were told that they had done exceptionally well. The subjects then had a chance to perform the task again and, consistent with a loser syndrome prediction, those subjects who already had a strong sense of low self-esteem did make substantially more errors on the second performance of the task. In other words, knowing what the standards for success were, these losers *unconsciously* modified their behavior so they would tend to fail.

The possibility of a loser syndrome has also concerned Kai and Erik Erikson,³¹ and they have applied the idea in recommending changes in policies for dealing with juvenile delinquents. Their concern is that if an adolescent is caught and punished he may develop a negative identity—he may begin to think of himself, in other words, as a loser or as a criminal or an outcast. Having labelled the adolescent a "loser," then, society is engaging in a self-fulfilling prophecy because the adolescent will tend to act out this identity in the future. (Women's Liberation writers have used a similar idea in criticizing the constrained roles and self-fulfilling prophecies inflicted on women in our society.)

There is, in fact, some intriguing additional evidence which supports the idea that you can establish a negative identity in a transgressor by catching him and punishing him and that, as a result, he will transgress more in the future than if you had not caught him and punished him. For example, a study in a British boarding school for boys compared two groups of boys with identical past histories for smoking. The only difference between the groups was that the boys in one group had, at one time or another, been

³⁰J. Maracek and D. Mettee (1973) "Avoidance of Continued Success as a Function of Self-Esteem, Level of Esteem Certainty, and Responsibility for Success," *Journal of Personality and Social Psychology*, 22:1, 98-107.

³¹Erik Erikson and Kai T. Erikson (1957) "The Confirmation of the Delinquent" *Chicago Review*, 15-23.

caught smoking (which was against the rules of the boarding school) and had been punished for it. In this group which had been caught smoking and punished for it, a great number of boys were *still* smoking several years later.³²

Research bearing on the "loser" syndrome suggests two ideas. First, the school itself may bear responsibility for establishing these negative identities. If so, we would expect to find that those individuals who do not return their trays have been given a great many negative cues over the years by the school system: low grades, for example, could establish negative identities, roles which individuals then act out in the cafeteria.³³

The second idea a loser syndrome suggests is that the use of coercion and punishment will be a serious error. For, if tray-leavers are caught and punished, this can strengthen a sense of negative identity. Perhaps the school administration would succeed, to some extent, in getting the cafeteria problem under control—but it might do so at the cost of increasing other behavioral, academic, and developmental difficulties for those whom it punishes.

21. Peter Pan Syndrome

Peter Pan did not want to grow up. He wanted to stay young forever. If we infer from the story, we might imagine that he conceived growing up as equivalent to becoming like the awful Captain Hook, and his wish to stay young was a desire to avoid playing this kind of role.

I have chosen the illustration of a "Peter Pan Syndrome" deliberately because one of the major observers of modern youth, Kenneth Keniston, has proposed something quite similar. Young people today, he writes, believe that "beyond youth lie only stasis, decline, foreclosure, and death."³⁴ Young people balk at joining the "establishment" because to them this means playing a role which has extremely negativistic connotations. Responsibilities, in short, are seen as burdens; being mature is no fun.

The Peter Pan Syndrome suggests that those individuals who do not take back their trays confront a choice, in their own minds, between two

roles. The first role, the one they elect to play for themselves, is a role of freedom, moderate irresponsibility, emotional spontaneity, variety, and fun. The role they reject is a role which they see as oppressive, deadening, mechanical and rather boring and tiresome. In the choice between life and death those who leave their trays have elected life.³⁵

Perhaps, if the adults in the school were to become more alive and fun-loving, they would provide models different from Captain Hook. Few of them, at least in my high school, seemed very joyful about their work.³⁶

22. Game Playing

One additional hypothesis illustrating a role theory perspective is the notion of a game in which students and administration are each playing a part according to certain time-honored but unwritten rules. In this perspective the game "Who Will Return the Trays?" is a fun-filled pastime for the students involved. They leave trays, the principal growls about it over the public address system, teacher monitors are put into the cafeteria. But students continue to play the game with their own countermoves: watching for when the teacher monitor is looking in the other direction before exiting for their next class (leaving their trays behind them). Of course the student knows that, if he is caught leaving his tray, nothing particularly serious will happen—he might get an angry word, or, at worst, he might have to go to a detention study hall: it would be like a game of ice hockey in which an offender can be caught in a transgression and will go to the penalty box briefly but knows he will rejoin his teammates in the game after awhile. The "Return the Trays" game the students play with the administration could be seen, in this light, as similar to other games students play in high school classrooms with teachers—for example, the "Who's Done Their Assignment for Today?" game (in general, in my high school, few students had done their assignments—and the ball then was back in the teacher's court and he or she had to figure out a countermove).

Note that it is not necessary for both students and administration to play the game. What is necessary is only that students see it as a game. In fact, if they do see "Who Will Return the Trays?" in this way, I am not

³²J. W. Palmer (1966) "Smoking, Caring, and Delinquency in a Secondary Modern School," *British Journal of Preventive School Medicine*, Vol. 19, 18-23.

³³In Sennett and Cobb's analysis "losers" tend to band together in friendship groups where they establish their own standards for recognition separate from—and often antagonistic to—the school's values (e.g. toughness, recalcitrance, etc.). The "losers" thus establish an insulated counterculture which salvages some degree of self-regard. A similar esteem enhancing function may occasionally be served on college campuses by some drinking fraternities: not everyone can make A's in class, but anybody can get plastered and brag about all of the silly things he did. See Richard Sennett and Jonathan Cobb (1972) *The Hidden Injuries of Class*, New York: Knopf.

³⁴Kenneth Keniston (1971) *Youth and Dissent*, New York: Harcourt Brace Jovanovich, 17.

³⁵Some psychologists would see the Peter Pan Syndrome as calling for psychotherapy. Through it, Pearce and Newton argue, "The grim concept of social responsibility is transformed into pleasure in the privilege of social participation on as wide a base as the person's capacities will permit." See Jan Pearce and Saul Newton (1963) *The Conditions of Human Growth*, New York: Citadel Press, 444.

³⁶What may be involved is a special case of the distinction sociologists draw between "up front" and "back stage" behavior. Restaurant managers, for example, can be quite irreverent and fun-loving when they are behind the scenes; but they become somber and a bit stiff when they appear before their official audience of customers. See, for example, Erving Goffman (1969) *The Presentation of Self in Everyday Life*, New York: Doubleday, 119.

sure what the administration could do about it. If the principal were to announce over the public address system, "Look, I'm not going to play games—I want those trays taken back," he might have little effect. Students (at least at my high school) would likely have seen such a statement by the principal as a particularly clever countermove, only a shrewdly calculated attempt to win the game by pretending there was no game.

V. Humanistic Psychology

Humanistic psychology views men as having an innate tendency to "grow," a term which is usually taken to mean becoming more humane, altruistic, productive, loving, and so forth. If we view not returning cafeteria trays as indicative of some blockage in the growth process, Abraham Maslow's work suggests two hypotheses:

23. Lower Need (e.g. Sexual) Deprivation

Maslow views men as being motivated by a hierarchy of needs—the "higher" needs motivate only when lower needs are satisfied.³⁷ If returning trays is seen as indicative of a "higher" (more altruistic) motivation, then not returning trays might arise from the deprivation of any of the "lower" needs—of which sexual satisfaction is, in Maslow's view, one. Thus we would expect that the students who do not return trays are those who are more sexually frustrated and deprived, and a high school administration which wanted to deal with the cafeteria tray problem would have to concern itself with facilitating adequate sexual satisfaction for its students. I suspect, however, that it will require higher consciousness on the part of school administrators before they are willing to consider this theory seriously. They were most reluctant, at least in my day, even to acknowledge the existence of what one of them called (privately) "the ultimate relationship."³⁸

³⁷ Abraham Maslow (1970) *Motivation and Personality*, New York: Harper and Row, revised edition.

³⁸ An excellent study of some of the political problems connected just with providing accurate sex education is provided by Mary Breasted (1970) *Oh! Sex Education*, New York: Praeger. See also Lester A. Kirkendall (1989) "The School Psychologist and Sex Education," in Gloria and Monroe Gottsegen (eds.) *Professional School Psychology*, Vol. 3, New York: Grune and Stratton, 148-171.

24. The Jonah Complex

Maslow also writes that many people fear their highest potentialities.³⁹ They do not feel *strong* enough to feel too good about themselves, too noble or virtuous or competent. Counter to what Keniston would say (The Peter Pan Syndrome) or what a social learning theorist would say, taking back trays is seen as psychologically rewarding by these people but they avoid the behavior because they could not stand that much gratification.

VI. Specialized Theories

There are six rather specialized theories that can be applied to the tray problem: emotional contagion, reduced altruism from sensory overload, equity theory, Kohlberg's theory of moral development, depersonalization theory and frustration-aggression theory.

25. Monkey See/Monkey Do (Emotional Contagion)

Classic analyses of human behavior in large groups point to a range of phenomena which occur in these settings.⁴⁰ One is the phenomenon of emotional contagion—behavior and feelings spread more rapidly. If this mechanism operates in the cafeteria (perhaps with some being more susceptible than others) then we would simply say that, somehow, the act of not returning trays got started—and it spread. If emotional contagion of this sort occurs in the high school cafeteria one solution might be to partition the single large room into a series of smaller rooms, thus reducing the extent to which individuals are part of a large mass.

26. Sensory Overload and Reduced Altruism

One of the traditional hypotheses about life in large cities is that there is so much sensory stimulation (e.g. noise, large numbers of people, activity), that people have to reduce their emotional involvement with (and concern for) most of the people they meet in order to retain some kind of equilibrium.⁴¹ Thus we would expect (assuming some individuals reduce their emotional involvement with their environment more strongly than others) that not returning cafeteria trays would be a result of the

³⁹ Abraham Maslow (1968) "The Jonah Complex" in Warren Benish et al. (eds.) *Interpersonal Dynamics*, New York: Dorsey, rev. ed. See also Sigmund Freud's related discussion of people who are destroyed by success, (1916) "Some Character Types Met With in Psychoanalytic Work" in *The Standard Edition*, Vol. XIV, op. cit., 316-331.

⁴⁰ See for example Gustav LeBon (1893) *The Crowd*, London: Unwin.

⁴¹ Georg Simmel (1950) "The Metropolis and Mental Life" in Kurt W. Wolff (ed.) *The Sociology of Georg Simmel*, New York: Free Press, 408-424.

Stanley Milgram (1970) "The Experience of Living in Cities," *Science*, Vol. 167, 1461-1468.

crowded conditions in the cafeteria (and perhaps in the school in general). The effective resolution of the tray problem, by this theory, would be to reduce crowding, install sound deadening materials, etc.

27. Kohlberg Moral Development Theory

Kohlberg has advanced considerable evidence for a new theory which sees moral development occurring in a sequence of six stages.⁴² He has studied moral *reasoning* (how a person explains or justifies an act as moral or immoral), but the stage theory seems also to predict moral *behaviors* as well.⁴³ One of the lower stages of moral development is hedonistic morality (i.e. moral appropriateness is derived from the "what's in it for me" attitude identified earlier as an assumption in social learning theory).

The highest stage is the stage of individual ethical principles (the individual makes up his own mind in a principled way about what is right or just), and greater altruism and sense of individual responsibility seem to be associated with this stage as well. Kohlberg's theory would tell us that those who leave their trays may be at a lower level of moral development. The solution to the problem then would be careful attention by the school to curriculum innovations that would move students to higher stages of moral development. (This task apparently cannot be done by simple exhortation.)⁴⁴

28. Equity Theory (Golden Rule Psychology)

Equity theory is probably best expressed, in its basic form, by the *lex talionis* of antiquity, "An eye for an eye, a tooth for a tooth." In other words, it is the proposition that, to the extent they can, people are motivated to repay others, to behave toward others the way others behave toward them. If you treat others with kindness and respect, the theory proposes, they will treat you with kindness and respect. Give them a hard time and they will tend to give you a hard time when they have the opportunity.⁴⁵

In the case of the unreturned cafeteria trays equity theory would tell us that students were expressing a basic and situationally-induced resentment

against the school: the regimentation, low marks, boredom, large classes, and a somewhat authoritarian structure are inducing them to repay the school for the hassles and indignities to which they have been subjected.

It is interesting, in this connection, to observe that equity theory would predict that the only way to resolve the problem would be to make high school a place where students are treated with respect and dignity, a great many rewards are forthcoming, and so forth. Only if the administration lives up to the Golden Rule will students do likewise. Note that the use of coercion or punishment is very unwise if equity theory is correct since these will only motivate further student underground resistance in either the classroom or the cafeteria.

29. Depersonalization

An increasing number of studies point to the possibility that depersonalization and anonymity tend to dissolve the obligations and humanizing restraints in individual conduct.⁴⁶ If so, we would expect to find those leaving their trays to be students who receive less recognition from the school, to be the "forgotten," ignored students, the ones for whom neither teachers nor administrators have time.⁴⁷

Interestingly, there is now some general evidence for a depersonalization theory. Not only are students "depersonalized," it appears that school administrators and teachers are not seen as fully human, at least by high school students—a condition which may further promote callousness and indifference toward them.⁴⁸ If depersonalization theory is correct then a principal should concern himself with reducing the impersonal, bureaucratic atmosphere of the school. Students must feel known, recognized, and cared about; and they should feel those who run the school are "personalized" human beings engaged in honest human relationships rather than role performances.

30. Frustration-Aggression

If we think of leaving trays as an aggressive act, then perhaps frustration-aggression theory can help us to understand it.⁴⁹ What might

⁴²L. Kohlberg (1969) "Stage and Sequence: The Cognitive-Developmental Approach to Socialization" in D. A. Goslin (ed.) *Handbook of Socialization Theory and Research*, Chicago: Rand McNally.

⁴³N. Haan, M. B. Smith, and J. Block (1968) "The Moral Reasoning of Young Adults," *Journal of Personality and Social Psychology*, Vol. 10, 183-201; James Fishkin et al. (1973) "Moral Reasoning and Political Ideology," *Journal of Personality and Social Psychology*, 27:1, 109-119.

⁴⁴See Derek Wright, op. cit., chapter 10; also, E. Turiel (1966) "An Experimental Test of the Sequentiality of Development Stages in the Child's Moral Judgements," *Journal of Personality and Social Psychology*, Vol. 3, 611-618.

⁴⁵Elaine Walster et al. (1973) "New Directions in Equity Research," *Journal of Personality and Social Psychology*, 25:2, 151-176.

⁴⁶L. Festinger, A. Pepitone, and T. Newcomb (1952) "Some Consequences of Deindividuation in a Group," *Journal of Abnormal and Social Psychology*, Vol. 47, 382-389; P. G. Zimbardo (1969) "The Human Choice: Individuation, Reason and Order Versus Deindividuation, Impulse and Chaos," in D. Levine (ed.) *The Nebraska Symposium on Motivation, 1969*, Lincoln: University of Nebraska Press.

⁴⁷Paradoxically, the large modern high school was developed, in part, from a desire for efficiency—yet this very "efficiency" of bigness may carry with it depersonalization and larger costs in vandalism and anti-social behavior.

⁴⁸Derek Wright (1962) "A Comparative Study of the Adolescent's Concepts of His Parents and Teachers," *Educational Review*, Vol. 14, 226-232.

⁴⁹John Dollard et al. (1939) *Frustration and Aggression*, New Haven: Yale University Press.

produce the frustrated students who, the theory holds, would be likely to express their frustration as aggression against the school? It *might* be that the most objectively deprived students would be the most frustrated. But the available evidence suggests that frustration may depend instead on *relative* deprivation, that is the gap between what a man wants or feels entitled to receive and what he actually does receive.⁵⁰

As with equity theory, one possible solution is to increase the rewards to students, thus reducing frustrations. However if *relative* deprivation is involved, then several other alternatives become plausible depending on how students form their comparison levels:⁵¹ one alternative might be to equalize existing rewards so that students would not face invidious comparisons with one another. Or the school might de-emphasize the achievement ethic: rather than dangle the carrot of an idealized academic success in front of many students who can never achieve it, the school could adopt a more humanistic set of ideals that everyone could meet; paradoxically, it may be that high standards, by inducing a sense of inadequacy and frustration, turn out to be counterproductive. Or the problem might be a lot simpler than this, a matter of providing better food in the cafeteria.⁵²

VII. Field Theory: Different Strokes for Different Folks?

I have reserved discussion of field theory until the end because it does not offer specific hypotheses. Rather it offers a general perspective on the hypotheses that have preceded.

Field theory asks that we imagine each individual as living in a psychological "life space," a psychological space which includes a variety of personal and situational *forces* that, in combination, determine behavior.⁵³ Field theory alerts us that our preceding theories are *not* mutually exclusive. In the same individual there may be a "what's in it for me" attitude, a tendency to be deviant in the service of developing a greater sense of his own identity, a mild degree of depression, certain sadistic tendencies, a loser syndrome, some susceptibility to emotional contagion (and so forth). *All* of these factors (and perhaps others affecting him in opposite directions) may be at work and, by their sum, produce the final behavior we observe.

By proposing the image of *separate* individual life spaces, field theory also alerts us that the relevant constellation of forces—the presence or absence of particular forces and their strength if present—may well differ from individual to individual. To account fully for tray-leaving, then, we *may* need all of the theories reviewed so far (not to mention others that might have to be discovered). We might need a somewhat different explanation for each individual.⁵⁴ And we might need to find a variety of "solutions," each of which will affect somewhat differently the behavior of different individuals.

It is important to emphasize, however, that field theory *only suggests* this maximum complexity might be present. It does *not* rule out, on

⁵⁰L. Berkowitz (1972) "Frustrations, Comparisons and Other Sources of Emotional Arousal as Contributors to Social Unrest," *Journal of Social Issues*, 28:1, 77-91.

⁵¹Leon Festinger (1954) "A Theory of Social Comparison Processes," *Human Relations*, Vol. 7, 117-140; David Sears and John McConahay (1973) *The Politics of Violence: The New Urban Blacks and the Watts Riot*, Boston: Houghton Mifflin.

⁵²It is possible that special privileges for teachers and administrators are sources of student frustration—in some high schools teachers are allowed to cut in the front of the long cafeteria lines, they have lounges where they can smoke, etc.

⁵³Deutsch and Krauss, op. cit.

⁵⁴G. A. Kelly (1955) *The Psychology of Personal Constructs*, 2 Vols. New York: Norton.

theoretical grounds, the possibility that a few factors might actually account for most of the differences between the people who return trays and those who do not.

VIII. Thirty Theories in Search of Reality

Perhaps the reader is a bit dazed by now, finding that he has been forced to withdraw some of his attention as theories piled up and stimulus overload became a reality. It will be well, then, to call a halt at this point. I have diagrammed the thirty theories in Figure 1.⁵⁵

A quick glance at the diagram shows that many linkages are still unstated, especially how background factors in individual development affect variations in fun seeking, certain unconscious dynamics, social conformity, and physiological responses. There are, of course, other theories about all of these things, but it would add little to go into them here: the purpose has been to inventory and introduce basic traditions of explanatory theory, not to write an exhaustive anatomy.

I do want to indicate, however, that there are several avenues I have not explored. There is the Marxist theory of a possible "haughty bourgeoisie indifference" of some students toward the working class employees of the cafeteria and the Maoist policy solution of decreasing depersonalization, altering rewards and punishments, and increasing identification by requiring the students to serve as workers and all members of the school to engage in public mutual and self-criticism sessions. More importantly, I have made the implicit assumption that returning trays is desirable behavior: reversing this assumption could turn up disquieting syndromes

⁵⁵A thoughtful, exceptionally useful map for the analysis of personality effects on politics is M. Brewster Smith (1968) "A Map for the Analysis of Personality and Politics," *Journal of Social Issues*, Vol. 24, 15-28.

My map, for reasons of simplicity, ignores the possibility that the factors which sustain behavior may be different from those that first start it (e.g. a "try it, you'll like it" mechanism). One way in which behavior, once instituted, can change its psychological meaning see the discussion of cognitive consistency and self-attribution in Deryl Bem (1970) *Beliefs, Attitudes and Human Affairs*, Belmont, Calif.: Brooks/Cole. I am indebted to Gary Wolfsfeld for a discussion of these additional complexities that should be included in an exhaustive analysis of possibilities.

that might characterize some students who return their trays—e.g. automatic "authoritarian" obedience of anyone in authority.⁵⁶

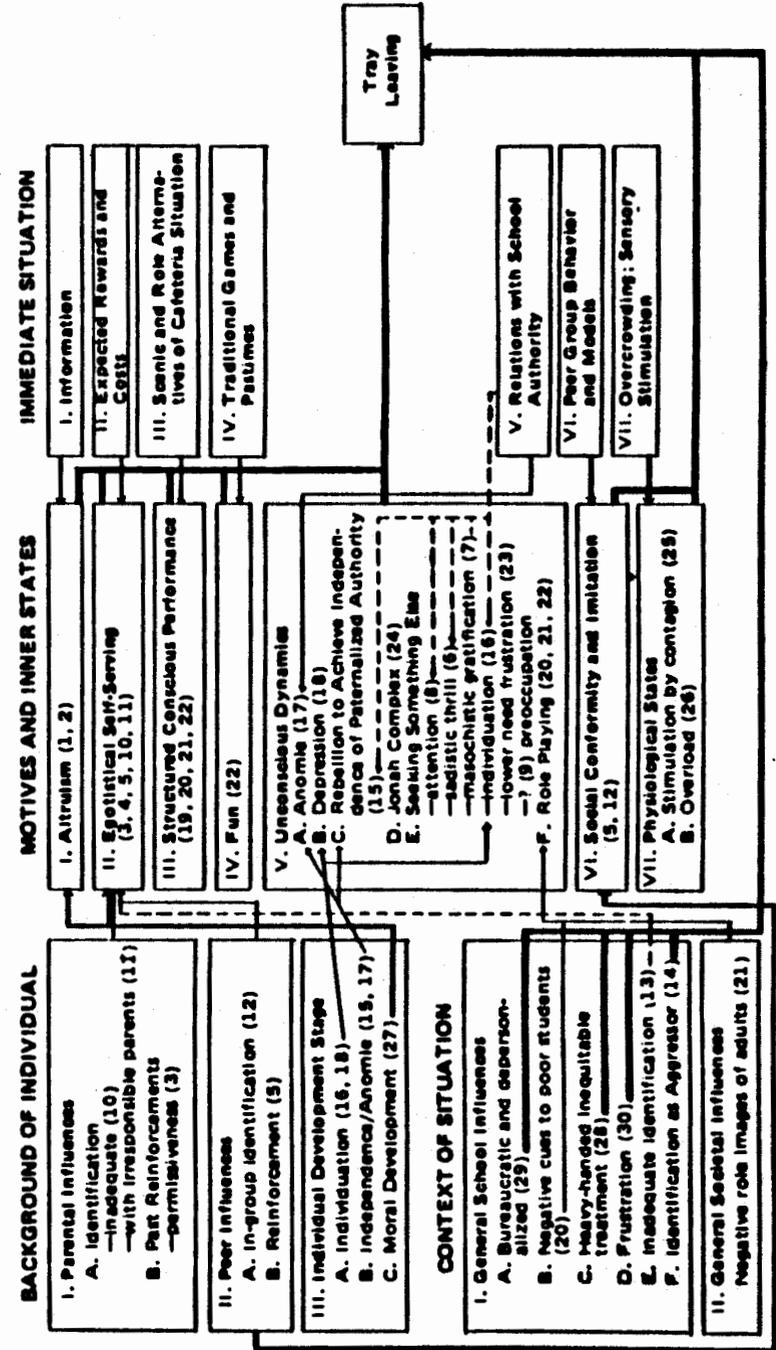
But I think we have surveyed the major theories. Taken together in the map they show the types of factors which potentially interact to affect a single behavior in one person: his *individual background*, the broader *context* of the society and social institutions of which he is a part, his *motives and inner states* in all their complexity, the many facets and dimensions of the *immediate situation*.

Anyone reading social science literature or the popular press will encounter different authors beating the drums for different theories: cost-benefit theories of voting, inadequate child-rearing as a theory of crime, theories of unconscious determinants of war and so forth. A map such as that in Figure 1 may be useful in keeping all of these different ideas in an organized perspective. And the complexity of the map demonstrates why the professional social scientist, although he values individual insights, nevertheless wants hard evidence before he will believe any one plausible theory is a major explanation.

Possibly it requires a sense of humor to consider a minor problem like unreturned cafeteria trays from thirty different points of view. But the important point is that most major problems of human behavior have an analogous structure: some people are criminals but others are not, some nations go to war but others do not, some people find society alienating but others do not, some students think and work up to their potential but others do not, some people are racially prejudiced but other people are not. The thirty different theoretical perspectives identified different policy alternatives and strategic intervention points which men of good will might use to solve such problems and make this a better world. These policy options are summarized in Table 1.

Some of these thirty theories might be called "conservative" theories: they attribute the cause of the problem to something about individuals and they recommend intervening to change individuals to solve the problem. Other theories could be called "liberal" theories: they attribute the cause of the problem more to the surrounding social structures and practices and they recommend intervening to change this environment to solve the problem. It is true, in America, that each individual has the right to advocate his ideology through an equal vote in the decision-making process. But embedded in liberal and conservative perspectives are theories of human behavior: from the viewpoint of a social scientist the best way to decide among theories is to assemble evidence, not dismiss them (or champion them) because they fit the relatively uninformed prejudices and partial insights that have been the traditional guidelines for resolving policy questions in our society.

Figure 1.
A MAP FOR THE ANALYSIS OF ONE INDIVIDUAL'S TRAY-LEAVING BEHAVIOR



⁵⁶T. W. Adorno et al. (1969) *The Authoritarian Personality*, New York: Norton.

Table 1
Theories and Policy Options: A Summary

Theories	Policy for Behavior Change
I. Cybernetic	
1. Ignorance of Expectations	Information about expectations
2. Ignorance of Consequences	Information about consequences
II. Behavior Reinforcement	
3. Permissive Up-Bringing	Better reinforcement schedules by parents
4. What's In It for Me?	Deposit system; give rewards if possible; increase costs
5. Small Group Rewards	Breakup groups, use student government to exert peer group pressure
III. Psychoanalytic Model	
6. Sadism	Therapy; Expulsion
7. Masochism	Therapy; ignore it (?)
8. Attention Seeking	Therapy; Alternative source of attention
9. Preoccupation	Reminders
10. Sociopathic Tendencies	Therapy (?); better child rearing
11. Identification with Irresponsible Parents	(?); better child rearing
12. In-group/Out-group	Break up groups
13. Inadequate Identification with School or Principal	Strengthen identification with school; better leadership
14. Identification with School as Aggressor	Increase benevolence of school system
15. Rebellion Against Parental Authority	Family or individual therapy
16. Deviation in the Service of Individuation	Therapy
17. Separation Anxiety, Regression, Structure Seeking (Anomie)	Strengthen and enforce rules; Therapy
18. Depression	Therapy
IV. Dramaturgical/Role Model	
19. Act/Scene Ratio	Add elegance to high school dining
20. "Loser"	Therapy
21. Peter Pan Syndrome	Better role models, (fun loving but responsibility, charisma)
22. Game Playing	(?)
V. Humanistic Model	
23. Lower Need (e.g. Sexual) Deprivation	Provide or facilitate meeting of unmet needs; sex; sex education
24. Jonah Complex	(?)
VII. Specialized Theories	
25. Emotional Contagion	Break large room into small sections
26. Sensory Overload and Reduced Altruism	Reduce pace of life, noise levels, crowding; break large room into small sections
27. Kohlberg Moral Development Theory	Design curriculum innovations to facilitate development of moral reasoning
28. Equity Theory (Golden Rule Psychology)	Provide more overall rewards from school system; better and more attractive food; <i>don't punish!</i>

Table 1. Theories and Policy Options: A Summary (continued)

Theories	Policy for Behavior Change
29. Depersonalization	Break up large schools; more personal inter- est of staff in all students; facilitate seeing cafeteria and other staff as individuals
30. Frustration/Aggression	More rewards from school system; equalize rewards; de-emphasize achievement ideals in favor of more humanistic ones; elimin- ate special privileges for staff.

Additional Readings

I. How Decisions Are Made in American Government

- Charles E. Lindblom (1968) *The Policy Making Process*, Englewood Cliffs: Prentice Hall.
- Aaron Wildavsky (1964) *The Politics of the Budgetary Process*, Boston: Little, Brown.
- Graham Allison (1971) *Essence of Decision: Explaining the Cuban Missile Crisis*, Boston: Little, Brown.
- John Steinbruner (1974) *The Cybernetic Theory of Decision*, Princeton: Princeton University Press.

II. How American Government Sometimes Uses Social Science Theories

- Peter Marris and Martin Rein (1973) *Dilemmas of Social Reform*, Chicago: Aldine, second edition.
- Daniel P. Moynihan (1973) *The Politics of a Guaranteed Income*, New York: Vintage.

III. Some Additional Case Study Material on Public Policy Formation

- Theodore Marmor (1973) *The Politics of Medicare*, Chicago: Aldine Publishing Company.
- Eric Redman (1973) *The Dunce of Legislation*, New York: Simon & Schuster, Inc.
- Jeffrey Pressman and Aaron Wildavsky (1973) *Implementation*, Berkeley: University of California Press.
- Eliot, Chambers, Salisbury and Prewitt (1965) *American Government: Problems and Readings*, New York: Dodd, Mead & Co.

IV. Theories in Social Psychology and Political Science

- Morton Deutsch and Robert M. Krauss (1965) *Theories in Social Psychology*, New York: Basic Books.

- Oran R. Young (1968) *Systems of Political Science*, Englewood Cliffs: Prentice Hall.
- Mancur Olson (1971) *The Logic of Collective Action*, Cambridge: Harvard University Press.
- Thomas Schelling (1963) *The Strategy of Conflict*, Oxford: Oxford University Press, Chapter 2.
- Murray Edelman (1964) *The Symbolic Uses of Politics*, Urbana, Ill: University of Illinois Press.

Analysis Topics-

The Case of the Unreturned Cafeteria Trays

I. Applying the Arguments of Different Theories

1. Social Learning Theory

A Marxist might say that a market mechanism solution to any social problem is inherently immoral because it sanctions individual selfishness and greed as the determinants of behavior. Would you agree or disagree?

2. Inadequate Identification and Depersonalization

A Marxist might find it significant that most students in my high school were middle class or upper-middle class; 85% went on to college. The cafeteria workers and janitorial staff were blue collar "functionaries." Do the actions of the students who leave their trays display an indifference and callousness toward these people that is a part of any class system? How does the Communist Chinese government attempt to prevent the development of "bourgeois arrogance" in its citizens?

3. Game Playing

In a sense the student government in my case study was "playing politics." Were we morally right to do what we did, morally wrong, or do you think that perhaps moral judgements should not apply to "games?" What do you think about politicians who "play politics?"

4. Maslow Need Hierarchy Theory

Maslow would propose that a healthy and satisfying love life is one prerequisite for good citizenship. Does this sound far-fetched to you or does it sound accurate?

5. Moral Development Theory

For his book *Political Ideology*, Robert E. Lane conducted extended depth interviews with working class men. He found that those men who worried about their ability to control their own impulses favored strong, moralistic, law-and-order government. They seemed to be saying that they needed and wanted the threat and realistic fear of reprisal from government authority as an aid to deterring their own anti-social impulses. Kohlberg would agree that there are people like this. Clearly then the ideal of applying the same laws equally to all men is bad policy since the same laws and law enforcement practices can restrict unduly the people at the highest levels of moral development and be too lenient for those at the lower ends. Do you agree or disagree with this argument? Do you think police and courts already work on a rough-and-ready theory of this kind by giving out different punishments and enforcing laws differently for different groups?

II. Analyzing the Viewpoint of the Paper

1. The paper implies that liberals and conservatives are just deficient social scientists, that they advocate policies based on attitudes which embody theories for which they have no really good evidence. Is this characterization fair?
2. The paper implicitly argues that public policy should be based on good social science theory. What is the likelihood that such an approach would lead to totalitarianism or elitism? Is the approach anti-political?

III. Exercises in Thinking from Different Viewpoints

1. Some people in America make a very good living while other people are poor. Is poverty the fault of individuals or the fault of their environment? Propose three theories that would tend to blame the poor for their poverty and three theories that would tend to blame society.
2. Some people vote and others do not. Propose six alternative theories to explain this difference. (Note: do not automatically equate voting as a "good thing" analogous to returning trays.) On the basis of your political science courses, what theories are best?
3. Suppose that the Governor of your state appoints you to a special citizens' advisory committee on drunken driving. The Governor wants something done about the high loss of life due to the drunken driver problem. Your committee has \$50 million to spend and a promise that the Governor will sponsor any constitutional laws that you propose. Outline five alternative approaches to solving the drunken driver problem.

- 4. Some people in other countries are revolutionaries opposed to "American imperialism." Other people are not. Propose five theories to explain this difference. Which theories do you think are best? What evidence can you offer to support your choice?**
- 5. During the Kennedy administration the Russian government placed nuclear missiles on the island of Cuba. Propose seven alternative theories about why they might have done this.**

ROBERT D. REISCHAUER
President

Direct [REDACTED]

Fax: [REDACTED]

E-mail: [REDACTED]

December 23, 2002

Dr. Lloyd S. Etheredge, Director
Government Learning Project
The Policy Sciences Center, Inc.
[REDACTED]

Dear Dr. Etheredge:

Thank you for your letter and thoughtful attachment. I am in complete agreement that the economic data we collect has significant deficiencies that limit our ability to understand the economy's problems and chart future policy.

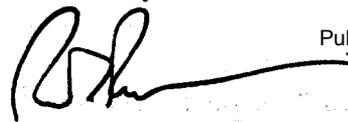
We don't collect some information that is needed and gather much that we could do without. We collect other data in insufficient detail and almost always take too long to release the data for it to be useful in policy decisions.

As you know better than I, there are many reasons for this situation. What we collect and how we collect it reflects the forces at play in the first half of the last century and those forces do not want to give anything up. Congress has little interest in devoting more scarce budget resources to collect new and better information. Few economists who use the data appreciate its limitations. They have been raised on certain data sets and treat them as if they are part of the underlying environment, not subject to change. They put a premium on continuity and don't want discontinuity in the data sets they know and use.

I don't think I would be as critical as you are about CNSTAT/NCR. I don't think they would have much of an impact even if they had done the studies and made the recommendations you think warranted. Nor do I think universities (Yale or Harvard) or the Fed could make much of a dent in the problem. Rather, I think a presidential or congressional study commission is called for—one with a clear mandate and a promise that added resources will be devoted to strengthening the statistical system based on the commission's report. Unfortunately, the prospects for such an initiative rising to the top of policymakers' lists of things to do is very, very low.

Nevertheless, I wish you well in your efforts.

Sincerely,



We must look beyond Keynes to fix our problems

By Jeffrey Sachs

[A different kind of growth path is required, says Jeffrey Sachs]

For more than 30 years, from the mid-1970s to 2008, Keynesian demand management was in intellectual eclipse. Yet it returned with the financial crisis to dominate the thinking of the Obama administration and much of the UK Labour party. It is time to reconsider the revival.

The rebound of Keynesianism, led in the US by Lawrence Summers, the former Treasury secretary, Paul Krugman, the economist-columnist, and the US Federal Reserve chairman Ben Bernanke, came with the belief that short-term fiscal and monetary expansion was needed to offset the collapse of the housing market.

The US policy choice has been four years of structural (cyclically adjusted) budget deficits of general government of 7 per cent of gross domestic product or more; interest rates near zero; another call by the White House for stimulus in 2013; and the Fed's new policy to keep rates near zero until unemployment returns to 6.5 per cent. Since 2010, no European country has followed the US's fiscal lead. However, the European Central Bank and Bank of England are not far behind the Fed on the monetary front.

We can't know how successful (or otherwise) these policies have been because of the lack of convincing counterfactuals. But we should have serious doubts. The promised jobs recovery has not arrived. Growth has remained sluggish. The US debt-GDP ratio has almost doubled from about 36 per cent in 2007 to 72 per cent this year. The crisis in southern Europe is often claimed by Keynesians to be the consequence of fiscal austerity, yet its primary cause is the countries' and eurozone's unresolved banking crises. And the UK's slowdown has more to do with the eurozone crisis, declining North Sea oil and the inevitable contraction of the banking sector, than multiyear moves towards budget balance.

There are three more reasons to doubt the Keynesian view. First, the fiscal expansion has been mostly in the form of temporary tax cuts and transfer payments. Much of these were probably saved, not spent.

Second, the zero interest rate policy has a risk not acknowledged by the Fed: the creation of another bubble. The Fed has failed to appreciate that the 2008 bubble was partly caused by its own easy liquidity policies in the preceding six years. Friedrich Hayek was prescient: a surge of excessive liquidity can misdirect investments that lead to boom followed by bust.

Third, our real challenge was not a great depression, as the Keynesians argued, but deep structural change. Keynesians persuaded Washington it was stimulus or bust. This was questionable. There was indeed a brief depression risk in late 2008 and early 2009, but it resulted from the panic after the abrupt and maladroit closure of Lehman Brothers.

There is no going back to the pre-crisis economy, with or without stimulus. Unlike the Keynesian model that assumes a stable growth path hit by temporary shocks, our real challenge is that the growth path itself needs to be very different from even the recent past.

The American labour market is not recovering as Keynesians hoped. Indeed, most high-income economies continue to shed low-skilled jobs, either to automation or to offshoring. And while US employment is rising for those with college degrees, it is falling for those with no more than a high school education.

The infrastructure sector is a second case in point. Other than a much-hyped boom in gas fracking, investments in infrastructure are mostly paralysed. Every country needs to move to a low-carbon energy system. What is the US plan? There isn't one. What is the plan for modernised transport? There isn't one. What is the plan for protecting the coastlines from more frequent and costly flooding? There isn't one.

Trillions of dollars of public and private investments are held up for lack of a strategy. The Keynesian approach is ill-suited to this kind of sustained economic management, which needs to be on a timescale of 10-20 years, involving co-operation between public and private investments, and national and local governments.

Our world is not amenable to mechanistic rules, whether they are Keynesian multipliers, or ratios of budget cuts to tax increases. The UK, for example, needs increased infrastructure and education investments, backed by taxes and public tariffs. Therefore, spending cuts should not form the bulk of deficit reduction as George Osborne, UK chancellor, desires. Economics needs to focus on the government's role not over a year or business cycle, but over an "investment cycle".

When the world is changing rapidly and consequentially, as it is today, it is misguided to expect a "general theory". As Hayek once recommended to Keynes, we instead need a tract for our times; one that responds to the new challenges posed by globalisation, climate change and information technology.

The writer is director of the Earth Institute at Columbia University

December 18, 2012 7:25 pm

To understand Christmas, go to the pub

By John Kay

With gift-giving as with finance, it takes an eclectic approach to understand human behaviour. Why do we exchange gifts? I once enjoyed a heated debate with a group of anthropologists. After discussing what we might learn from each other we adjourned to the pub, where the debate continued. We bought rounds of drinks. But why?

For the anthropologists, the custom of standing a round represented ritual gift exchange. They drew an analogy with Native American potlatch festivals, where tribes would gather to eat, sing, dance and confer lavish presents – sometimes treasured or essential possessions – on each other. The economists preferred a more hard-nosed explanation. Buying drinks in rounds rather than individually was a means of reducing transaction costs. The number of dealings between the customers and the bar was reduced, and the need for small change diminished.

I proposed an empirical test between the competing hypotheses. Did you feel successful or unsuccessful if you had bought more drinks than had been bought for you?

Unfortunately, the result was inconclusive. The anthropologists believed their generosity enhanced their status. The economists sought to maximise the difference between the number of drinks they had consumed and the number they had bought. They computed appropriate strategies for finite games and even for extended evenings of indeterminate length. The lesson is that if you want a good time at a bar, go with an anthropologist rather than an economist.

So it is a relief that Christmas sounds more like a potlatch than a mathematical economist's multi-period equilibrium. The purpose of the festival is plainly not transaction-cost minimisation. Although commercial

interests obviously profit from Christmas, the economic function of the event is not apparent. Indeed, from time to time economists point out the inefficiency of customary gift exchange: the gifts we receive are often less valuable to us than those we would have bought ourselves with the money the donor devoted to their purchase. Canadian missionaries made the same observation. Concerned that such festivals seriously damaged the economic welfare of the tribes, they successfully lobbied the government to criminalise potlatches.

A narrow focus is characteristic of scientific method but gets in the way of understanding social phenomena. That was my error when I sought the “true” explanation in the pub. The custom of the round has both economic and social advantages, and it is likely that both help to account for its prevalence and persistence. The earnest missionaries and misanthropic economists who want to shut festivals down because they damage the economy have missed the point that the prospective enjoyment of such events is the reason we engage in economic activity in the first place.

The economists who argue that the rationale of the family is found in cost savings have a point. Two together can live more cheaply than two separately, if not as cheaply as one. But anyone who thinks the quest for scale economies is the primary explanation of the human desire for family life is strangely deficient in observational capacity, as well as common sense.

The “economics of the family” is a prime example of an economic imperialism that seeks to account for all behaviour through a distorted concept of rationality, an extreme example of economists’ notorious physics envy. Some models developed in physics demonstrate a combination of simplicity and wide explanatory power so remarkable that it makes no sense to think about the world in any other way.

But such powerful explanations are rarely available in other natural sciences, and almost never in social sciences. Even the visit to the bar is governed by a complex and tacit collection of social conventions. How do you know that you have bought the beer but only rented the glass?

So if you want to understand, say, the 2007-08 financial crisis, your approach must be eclectic. You need to work through standard economic models of financial markets because without them you cannot appreciate how many market participants – and most regulators – think. But you also need the perspectives of journalists, historians and psychologists. And, of course, you need the anthropological insight that accounts for the peculiarity of human institutions, whether you are dealing with the pub, potlatch or trading floor.

johnkay@johnkay.com

Project Sonic

From: "moises marcelo" [REDACTED]
Date: Fri, May 3, 2013 11:22 am
To: "info@tvworldwide.com" <info@tvworldwide.com> ([more](#))

Good afternoon to clarify that come with this target'm using Project Sonic projections have thoughts but at the moment I am not in conflict to use this project is that its operation is for people who are in such state as hostage kidnapping like this technology is active in Brazil and how do I turn off this project.

Sincerely,
Moise's Marcelo Nascimento

Sonic Projector

From: "moises marcelo" [REDACTED]

Date: Fri, May 3, 2013 11:30 am

To: [REDACTED] ([more](#))

Good afternoon to clarify that come with this target'm using Sonic Projector projections have thoughts but at the moment I am not in conflict to use this project is that its operation is for people who are in such state as hostage kidnapping like this technology is active in Brazil and how do I turn off this project.

Sincerely,
Moise's Marcelo Nascimento

From: Clark Tibbs VHO-PVI-CTA [REDACTED]

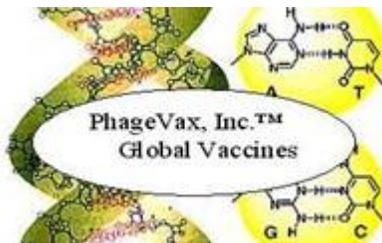
Sent: Friday, May 10, 2013 3:34 AM

To: John Woloszyn

Cc: AMR - AntiMicrobial Resistance Study Group in UK; USAID Ms. Jean Horton-Ombudswoman; USAID Suzanne Johnson; USAID Casey-Linn Finnerty; USAID Dean Cabrera; Ford, Knatokie; [k-](#)

Subject: Back to John Woloszyn & Over to Dr. Stachell-NWU :: Cholera in Haiti :: (PhageBiotics) & Intralytix Shigella Product Video & Your US Patent Links - courtesy Phagevax

Importance: High



10 May 2013

-
John ... Thanks for sharing your Video !

-
Also, your Video comes up as this YouTube Link:

https://www.youtube.com/watch?v=L3Ky3g4ZYQA&feature=youtube_gdata_player

-
5 Minutes and 12 seconds of "Pure Delight" ... very well done. That announcer has a very calming voice. You have used him before on other of your Videos.

-
This Video is an excellent transition from your 3 current (FDA Approved) "food-based" products to your Phage-based Shigella Product !

-
This will pave the way for your in-vivo MRSA Product and Phage-based Products that address the fast-spreading CRE-types (in US People and in 200+ US Hospitals):
Klebsiella spp. + non-O157 E.coli spp. (The "Big Six") + Acinetobacter spp. ... many carrying the NDM Genes (1 through 8, to date) and CTX-M Genes !

-
The other (3 or more) Intralytix Videos come up on the right-hand side of the YouTube page, as well. [This continues the consumer education and builds consumer confidence and consumer demand.]

-
I like the Patent Notices at 4 mins 49 seconds. People can stop the Video and write down the US Patent Numbers and do a USPTO Search !

-
7,459,272 December 2, 2008

Reduction in bacterial colonization by administering bacteriophage compositions

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7459272.PN.&OS=PN/7459272&RS=PN/7459272>

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8,003,323 August 23, 2011

Reduction in bacterial colonization by administering bacteriophage compositions

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8003323.PN.&OS=PN/8003323&RS=PN/8003323>

-
Can we please do something about the **Cholera in Haiti** and the rest of the world ?
I have a wonderful paper that IDs the exact Phages that kill various types of Cholera, at least, at the time, in water, in a particular country.
[Please see this Attachment. Excellent Graph on Page 3. Great Pictures of the Phages on Page 4 from 2001 to 2003] Published Feb. 2005

-
ALSO, BELOW IS FROM:
<http://www.cidrap.umn.edu/cidrap/content/fs/food-disease/news/apr1613scan.html>

Toxin mutations may help explain virulence of Haiti's cholera strain

The *Vibrio cholerae* strain that invaded Haiti in 2010 has a combination of toxin-gene mutations that may help explain the severity of disease and render it more like a strain that was prevalent in the **1800s**, according to a study published today in *mBio*.

The strain, called **altered El Tor**, emerged in about 2000 and is more virulent than strains that had been circulating since the 1960s, according to a press release from Northwestern University Feinberg School of Medicine, where the study was done.

[Karla J. F. Satchell, PhD](#), and a colleague analyzed genomic sequences for the new strain and found that the gene for the main cholera toxin had converted to a form similar to that produced in strains prevalent during cholera epidemics in the 1800s.

<http://fsmweb.northwestern.edu/faculty/FacultyProfile.cfm?xid=10285>

In addition, the new strain had acquired a mutation that inactivated the MARTX toxin, previously recognized as important for evading the immune system. Also, the strain had a third, as yet uncharacterized mutation, perhaps to compensate for the loss of MARTX, according to the release.

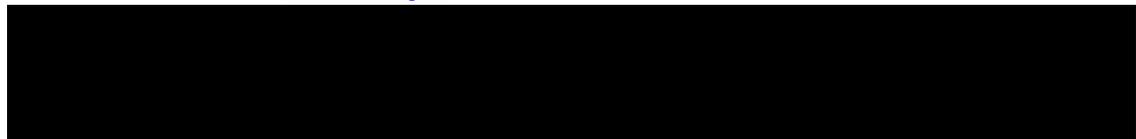
The findings also further confirm that the strain in Haiti probably originated in Nepal, which is consistent with previous findings from whole-genome analysis and public health studies, according to the release.

Apr 16 *mBio* [abstract](#) Apr 16 Northwestern University [press release](#) Related Dec 10, 2010, [CIDRAP News story](#)

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Great work, Sir !

-
Clark Tibbs, CEO
PhageVax, Inc. www.PhageVax.com
CAGE CODE: 4M4V6 www.sam.gov



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----- Original Message -----

From: [John Woloszyn](#)

To: [Tibbs Clark](#) ; [VHO-PVI-CTA Clark Tibbs](#)

Sent: Wednesday, May 08, 2013 12:28 PM

Subject: PhageBiotics

Greetings from Copenhagen. Please talk a look at this: <http://tinyurl.com/itxprobiotic>

John

Sent from my iPad=

Seasonal epidemics of cholera inversely correlate with the prevalence of environmental cholera phages

Shah M. Faruque*, Iftekhar Bin Naser*, M. Johirul Islam*, A. S. G. Faruque*, A. N. Ghosh†, G. Balakrish Nair*, David A. Sack*, and John J. Mekalanos*‡§

*Molecular Genetics Laboratory, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka-1212, Bangladesh; †National Institute of Cholera and Enteric Diseases, Calcutta 700010, India; and ‡Department of Microbiology and Molecular Genetics, Harvard Medical School, 200 Longwood Avenue, Boston, MA 02115

Contributed by John J. Mekalanos, December 7, 2004

The relationship among (i) the local incidence of cholera, (ii) the prevalence in the aquatic environment of *Vibrio cholerae*, and (iii) bacterial viruses that attack potentially virulent O1 and O139 serogroup strains of this organism (cholera phages) was studied in Dhaka, Bangladesh. Over nearly a 3-year period, we found that significantly more environmental water samples contained either a phage or a phage-susceptible *V. cholerae* strain than both ($P < 0.00001$). The number of cholera patients varied seasonally during this period and frequently coincided with the presence of pathogenic *V. cholerae* strains in water samples that otherwise lacked detectable cholera phages. Interepidemic periods were characterized by water samples containing cholera phages but no viable bacteria. Our data support the conclusion that cholera phages can influence cholera seasonality and may also play a role in emergence of new *V. cholerae* pandemic serogroups or clones.

bacteriophage | seasonality | epidemiology | emergence | lysogeny

Epidemics of cholera caused by toxigenic *Vibrio cholerae* belonging to the O1 or O139 serogroups are a major public health problem in many developing countries of Asia, Africa, and Latin America (1). Cholera epidemics occur with seasonal regularity in the Ganges delta region of Bangladesh and India. Epidemics usually occur twice during a year, with the highest number of cases just after the monsoon during September to December. A somewhat smaller peak of cholera cases also is observed during the spring, between March and May. Although *V. cholerae* is a human pathogen, these bacteria constitute part of the normal aquatic flora in estuarine environments, and water is clearly a vehicle for transmission of *V. cholerae*. Although the seasonality of cholera in Bangladesh and elsewhere has been temporally associated with numerous physical and biological parameters (2), these associations do not directly cause epidemics, nor do they end them. More than a century of public health experience has shown that toxigenic O1 and O139 *V. cholerae* cells cause cholera epidemics and that the elimination of these cells from drinking water ends cholera epidemics. The parameters that directly modulate the level of viable cells belonging to the pathogenic clones of *V. cholerae* O1 and O139 in the Ganges delta aquatic environment remain unknown. Furthermore, the fact that pathogenic strains of *V. cholerae* are clonally distinct from environmental, nonpathogenic *V. cholerae* strains (1) undermines proposed mechanisms of seasonality and pandemic spread that are based on data from studies measuring the abundance of all *Vibrio* species in the aquatic environment (2).

Bacterial viruses (phages) are known to play a critical role in the evolution of pathogenic bacterial species, and *V. cholerae* in particular. For example, cholera toxin genes are transferred to nontoxigenic strains by means of a lysogenic filamentous phage, CTX Φ (3). Here we show that the presence of bacterial viruses acting on *V. cholerae* O1 or O139 (cholera phages or vibriophages) inversely correlates with the occurrence of viable *V. cholerae* in the aquatic environment and the number of locally reported cholera cases. We also demonstrate that some envi-

ronmental *V. cholerae* strains of both epidemic and nonepidemic serogroups carry lysogenic phages and produce phage particles that kill epidemic strains. We identified at least one common O1 phage that is able to use several *V. cholerae* non-O1/non-O139 strains as alternative hosts. Such alternative hosts and lysogenic environmental *V. cholerae* strains may potentially act as cofactors in promoting cholera phage “blooms” within aquatic environments and thus negatively influence transmission of phage-sensitive, pathogenic *V. cholerae* strains by aquatic vehicles.

Materials and Methods

Detection and Isolation of Phages. Environmental water samples were obtained in sterile containers, and initial processing of the samples to detect vibriophages and to culture for *V. cholerae* was done within 3 h of collection. For detection of phages, logarithmic-phase cells (500 μ l) of each of 10 host bacterial strains in nutrient broth (Difco) were mixed with 3.5-ml aliquots of soft agar (nutrient broth containing 0.8% Bactoagar, Difco), and the mixtures were overlaid on nutrient agar plates. The 10 strains used for screening vibriophages were G-3669 (El Tor), G-7555 (El Tor), P-27457 (El Tor), AM-33363 (El Tor), AP-13550 (El Tor), AT-2352515 (El Tor), AL-30457 (El Tor), AI-885 (O139), AI 1852 (O139), and AL-11089 (O139). Aliquots of water (10–50 μ l), which were prefiltered through 0.22- μ m-pore filters (Millipore) to make them bacteria-free, were inoculated on the plates, and the plates were incubated for 16 h at 37°C. Aliquots of water samples mixed with serial dilutions of a control phage strain (10–10⁴ particles per ml) were used as positive controls in all phage assays. A sample was scored positive for phages when a plaque was observed on the bacterial lawn in the plates. Plaques were counted to estimate the concentration of phage particles in the water. Phages from representative plaques were further purified and used for the production of high-titer stocks. High-titer phage stocks were used to prepare phage nucleic acids and to test for host range, morphology by electron microscopy, and DNA restriction patterns and hybridization (see *Supporting Materials and Methods*, which is published as supporting information on the PNAS web site).

Culture of Environmental Samples. Water samples were analyzed for the presence of *V. cholerae* by methods described in ref. 4. Briefly, an aliquot (35 ml) of each water sample was centrifuged at 4,500 \times g, and the pellet was resuspended in 3.5 ml of 10 mM PBS (pH 7.4). The suspension was vortexed to dislodge any bacteria adhering to solid particles and then centrifuged at low speed (1,000 \times g) to precipitate particulate matter. One milliliter of this suspension was added to 10 ml of alkaline peptone water (APW) [peptone 1% (wt/vol)/NaCl 1% (wt/vol), pH 8.5] contained in 20-ml screw-cap glass tubes and incubated at 37°C with shaking for 6–8 h. Dilutions of this APW culture were streaked on taurocholate tellurite gelatin agar plates (5). Suspected *Vibrio*

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Table 1. Presence of specific vibriophages and susceptible *V. cholerae* strains belonging to the O1 and O139 serogroups in two major rivers and a lake in Dhaka, Bangladesh, between January 2001 and November 2003

Source of water	No. of water samples analyzed* (A)	No. of water samples (%)				P value†
		Phage-positive and <i>V. cholerae</i> -negative (B)	Phage-negative and <i>V. cholerae</i> -positive (C)	Samples positive for either phage or <i>V. cholerae</i> (B + C)	Both phage- and susceptible <i>V. cholerae</i> -positive (D)	
Gulshan Lake	63	26 (41.2)	19 (30.1)	45 (71.4)	1 (1.5)	0.0001
Buriganga River	62	30 (48.3)	12 (19.3)	42 (67.7)	2 (3.2)	0.004
Turag River	96	31 (32.2)	18 (18.7)	49 (51.0)	2 (2.0)	0.02
Total samples	221	87 (39.3)	49 (22.1)	136 (61.5)	5 (2.2)	<0.00001

*Samples were collected from two different points along each of the Gulshan Lake and Buriganga River and from three different points along the Turag River in Dhaka, Bangladesh. Samples were scored as phage-positive if they contained phages that plaqued on O1 or O139 *V. cholerae* indicator strains. Samples were scored as *V. cholerae*-positive if they contained O1 or O139 strains. Fifteen samples contained both phages and *V. cholerae*, but 10 of these strains were resistant to the coisolated phage and, accordingly, were eliminated from column D in the analysis.

†Significance of D being lower numerically than expected by chance alone given A number of samples scored as B, C, or D. Statistical analyses were performed by using EPI INFO 6.0. The significance of difference in proportions was evaluated by the χ^2 test.

colonies were picked and subjected to biochemical and serological tests to identify *V. cholerae* belonging to the O1 and O139 serogroups.

Data Analysis. Frequency of isolation of vibriophages and *V. cholerae* from different water samples was summarized into tables for group comparisons. Statistical analyses were performed by using EPI INFO 6.0 (USD, Stone Mountain, GA). The significance of difference in proportions was evaluated by the χ^2 test.

Results

Influence of Environmental Vibriophages on Cholera. To study the prevalence of vibriophages and *V. cholerae* in the environment, we systematically analyzed water samples collected from two major rivers and a lake in Dhaka, the capital of Bangladesh, where cholera epidemics occur every year. Sampling was done monthly during a period between January 2001 and November 2003. A panel of 10 different *V. cholerae* clinical isolates from recent and previous epidemic outbreaks of cholera was used as potential indicator strains to detect the presence of vibriophages in water. All water samples also were analyzed for the presence of *V. cholerae* by standard enrichment culture techniques and for the presence of O1 and O139 serogroup strains by serological methods.

We found that the majority of water samples showed an inverse correlation between the presence of vibriophages capable of lysing a given serogroup of *V. cholerae* and the presence of a strain of that same serogroup (Table 1). Of a total of 221 water samples analyzed from January 2001 to November 2003, 114 samples (51.5%) contained either a vibriophage or an epidemic *V. cholerae*, whereas only 15 samples (7.2%) contained both. Of these 15 samples, 10 samples contained *V. cholerae* that were resistant to the phage present in the same sample. Overall, the number of water samples containing both a vibriophage and an epidemic *V. cholerae* strain susceptible to coisolated phages was significantly less than that predicted by chance alone based on the frequency of samples that contained either vibriophages or phage-susceptible *V. cholerae* ($P < 0.00001$). Thus, if a phage lytic to epidemic *V. cholerae* O1 was present in a water sample, the water was free of phage-susceptible *V. cholerae* O1 strains (Table 3, which is published as supporting information on the PNAS web site). Conversely, a majority of those water samples that contained either *V. cholerae* O1 or O139 did not contain a detectable phage that lysed the corresponding serogroup strain. Many samples were obtained that carried an O1 strain but only O139-specific phages (e.g., Gulshan Lake in July 2001, August

2002, January 2003, and March 2003 and Buriganga River in October 2001 and October 2003). Similarly, other samples contained an O139 strain but only O1-specific phages (e.g., Gulshan Lake in May 2002). If a *V. cholerae* strain of a specific serogroup was present in a water sample together with a phage that recognized the same serogroup, in most of these cases (73%) the actual strain present was resistant to the coincidentally isolated phage. To address the possibility that *V. cholerae* present in the water sample were simply killed during processing of water samples by phages present in samples, we performed control experiments on "spiked" water samples containing known concentrations of *V. cholerae* O1 and O1 phages (Table 4, which is published as supporting information on the PNAS web site). These experiments supported the conclusions noted above in that spiking water samples with phages only modestly reduced the titers of viable *V. cholerae* and then only when phages were added at levels >100 plaque-forming units/ml.

Our finding of an inverse association between the presence of virulent phages and phage-susceptible *V. cholerae* O1 or O139 in environmental water led us to examine whether incidence of cholera due to these two serogroups could also be correlated with these findings. We investigated this possibility by using a diarrhea surveillance program of the International Centre for Diarrhoeal Disease Research in Dhaka, Bangladesh (ICDDR, B) (6). Diarrhea patients in and around Dhaka city are usually treated in the Dhaka diarrhea hospital of ICDDR, B. In the Dhaka hospital, stool samples from 2% of all diarrhea patients presenting for treatment are analyzed for the presence of all known diarrheal pathogens, including *V. cholerae*. Monthly numbers of cholera patients extrapolated from this 2% surveillance system were compared with the monthly phage isolation data during the same period. As shown in Fig. 1, cholera epidemics due to either the O1 or O139 serogroup strains generally coincided with a marked reduction in the prevalence of vibriophages specific for the serogroup dominating a particular epidemic wave. For example, the early upward slope of epidemic curves most often corresponded to periods of low vibriophage isolation (e.g., see the O139-dominated epidemic occurring from February to April of 2002 and the corresponding bars for isolation of O139-specific bacteriophages in Fig. 1). This inverse relationship between the prevalence of a serogroup-specific vibriophage and the incidence of cholera due to that serogroup of *V. cholerae* was seen on both sides of the epidemic wave. Temporal blooms of serogroup-specific phages usually coincided with the downward slope of epidemic curves dominated by the corresponding serogroup of *V. cholerae* (e.g., see May–September 2001, January–April 2003, and July–August

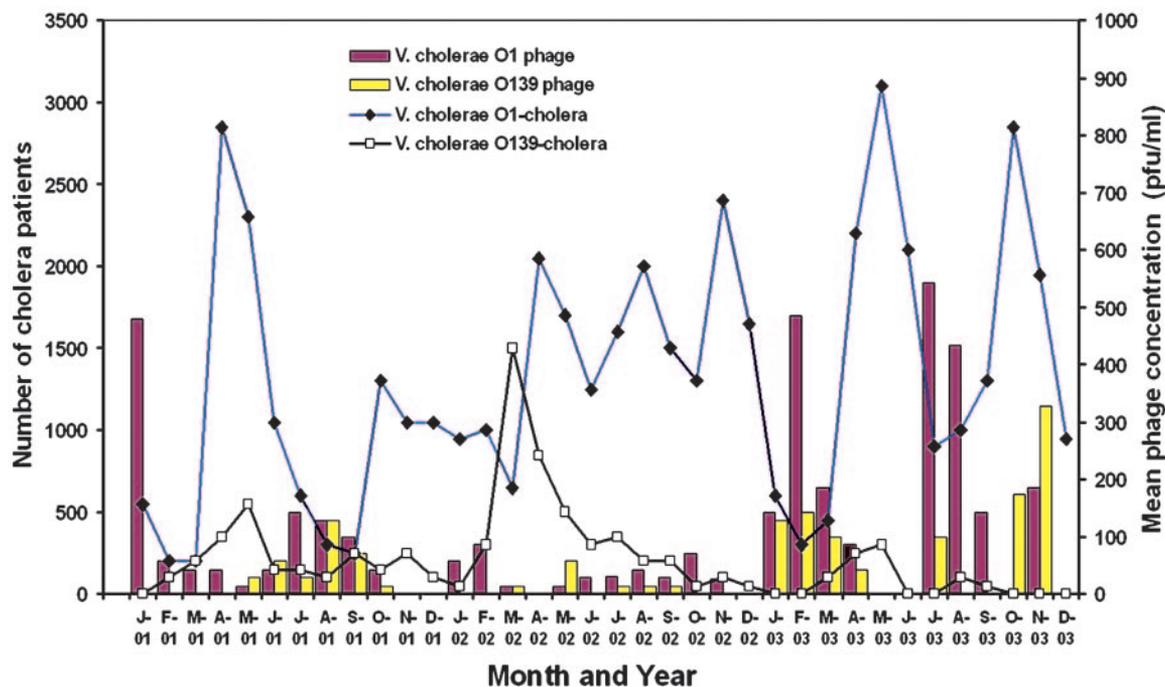


Fig. 1. Mean concentration of lytic vibriophages in the aquatic environment of Dhaka, Bangladesh, and the estimated number of cholera cases reporting to the International Centre for Diarrhoeal Disease Research hospital in Dhaka from 2001 to 2003. Number of cholera cases is extrapolated from a 2% surveillance sample of all patients presenting for treatment. pfu, plaque-forming units.

2003 in Fig. 1). Additionally, on one occasion these dynamic changes in serogroup-specific cholera incidence occurred out of temporal register for O1 and O139. From January to March of 2002, when the incidence of O1 cases was falling, the incidence of O139 cases was dramatically increasing (Fig. 1). Thus, environmental factors (2) that might be conducive or inhibitory to cholera epidemics (temperature, salinity, pH, UV light, aquatic carbon, copepod, or plankton levels) either occasionally affect the two serogroups of cholera differently, or, alternatively, some other serogroup-specific parameter modulates temporal incidence of the disease. If the presence of phages in the aquatic environment has an adverse effect on cholera transmission, then serogroup-specific phage predation provides a feasible parameter that might modulate the occasional temporal discordance between epidemics caused by the two serogroups O1 and O139.

Diversity of Phages and Their *V. cholerae* Hosts. We characterized vibriophages isolated from the environmental surveillance for

their genetic and phenotypic diversity (Table 2) and observed their morphology by electron microscopy (Fig. 2 and Table 5, which is published as supporting information on the PNAS web site). During this period, we observed only six phage types, which were designated JSF1, JSF2, JSF3, JSF4, JSF5, and JSF6 based on the restriction patterns of their genomes. Whereas JSF1, JSF4, and JSF5 genomes cross-hybridized, those of JSF2, JSF3, and JSF6 were unique and did not cross-hybridize with any of the other phages. Thus, the phages represented four genetically unrelated groups. Phage JSF3 was specific for *V. cholerae* O139 strains, whereas all other phages were specific for *V. cholerae* O1 strains. However, JSF6 could use, in addition to O1 strains, a number of *V. cholerae* non-O1/non-O139 strains as alternative hosts; JSF6 phages produced from these non-O1/non-O139 host strains were virulent against *V. cholerae* O1 strains (Fig. 3).

Production of Phages by Lysogenic *V. cholerae*. All phages except JSF2 produced clear plaques, suggesting that these phages were

Table 2. Characteristics of vibriophages isolated from surface water samples in Bangladesh between January 2001 and November 2003

Phage designation	Host specificity	Plaque type	Isolation of lysogens*	Phage production by lysogens*	Crossimmunity	DNA homology
JSF1	<i>V. cholerae</i> O1	Clear	–	–	JSF4, JSF5	JSF4, JSF5
JSF2	<i>V. cholerae</i> O1	Turbid	+	+	None	None
JSF3	<i>V. cholerae</i> O139	Clear	+ [†]	+ [†]	None	None
JSF4	<i>V. cholerae</i> O1	Clear	+ [†]	+ [†]	JSF1, JSF5	JSF1, JSF5
JSF5	<i>V. cholerae</i> O1	Clear	–	–	JSF1, JSF4	JSF1, JSF4
JSF6	<i>V. cholerae</i> O1 and some non-O1	Clear	–	–	None	None

*Minus sign indicates that the phage designated was negative for the property being scored; plus sign indicates that the phage was positive for the property being scored.

[†]JSF3 and JSF4 phages appear to be primarily lytic but can occasionally persistently infect a host strain. Such persistently infected cells shed virus and display viral immunity but do not show typical chromosomal junction fragments consistent with stable integration of the viral genome into the bacterial chromosome.

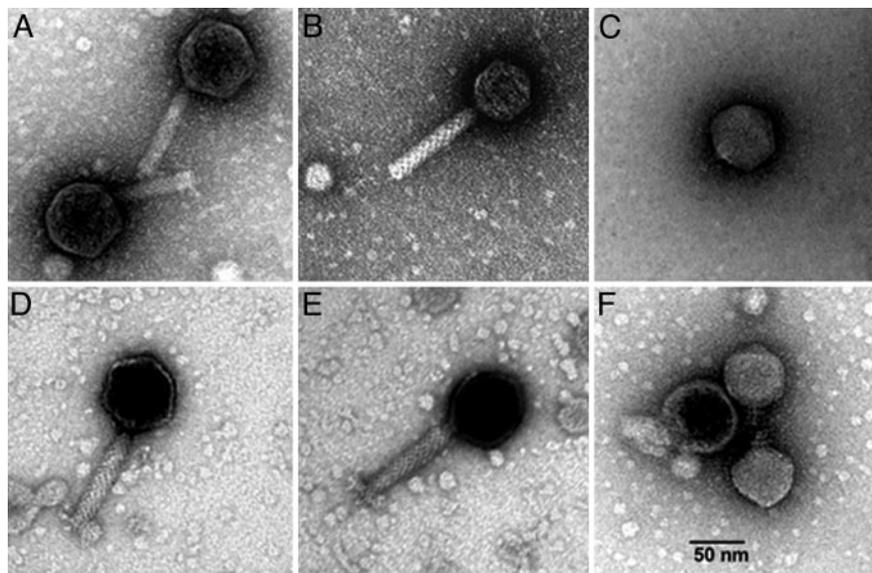


Fig. 2. Electron micrograph of vibriophages isolated from environmental waters in Bangladesh. (A–F) Morphology of phages JSF1–JSF6. (Scale bar: 50 nm.)

lytic and highly virulent for *V. cholerae*. JSF2 was a temperate phage related to the previously described κ group of phages (7, 8), as revealed by electron microscopy (hexagonal isometric head of 52.3 ± 1.7 nm and tail of 89.7 ± 2.2 nm \times 15.9 ± 1.2 nm, with cross-striations), and produced characteristic turbid plaques on susceptible *V. cholerae* O1 strains. Temperate vibriophages exemplified by the κ group of vibriophages can grow lytically (killing the host cell and producing numerous progeny phage particles) or form lysogenic *V. cholerae* cells (9, 10). Lysogenic cells are immune to κ phages but carry dormant prophages that can be induced to replicate lytically through signals that typically cause DNA damage (e.g., UV irradiation). Furthermore, one highly conserved gene (*glo*) encoded by κ vibriophages has been shown to provide resistance to superinfection by other κ phages through the process of surface exclusion (11). Thus, we reasoned that lysogenic bacterial cells might on occasion shed viable phage particles to which they as a population were clearly immune. These phages in turn could amplify quickly if the aquatic environment contained sufficient susceptible *V. cholerae* cells, thus interrupting an ongoing cholera epidemic by reducing the

concentration of viable *V. cholerae* cells in water and their transmission to new victims.

To evaluate this hypothesis, we analyzed all *V. cholerae* strains isolated from the environment during the study period for the presence of lysogenic phages by DNA hybridization using probes derived from the genome of each of the six phage types isolated. Several strains belonging to the O1, O139, or non-O1/non-O139 serogroups were found to carry lysogenic phages related to JSF2, JSF3, or JSF4. Probing of Southern blots with labeled phage DNA revealed patterns of hybridizing fragments derived from these strains that matched those derived from the native phage genomes (see Fig. 5, which is published as supporting information on the PNAS web site). Probe-positive *V. cholerae* strains were further tested for phage production in their culture supernatant. These strains spontaneously produced significant titers of the respective phages (between 10^2 and 10^4 particles per ml) when freshly isolated. Furthermore, when treated with the DNA damaging agent mitomycin C, most strains produced even higher levels of phage particles. The phages produced by these lysogens were active against *V. cholerae* O1 or O139 strains. However,

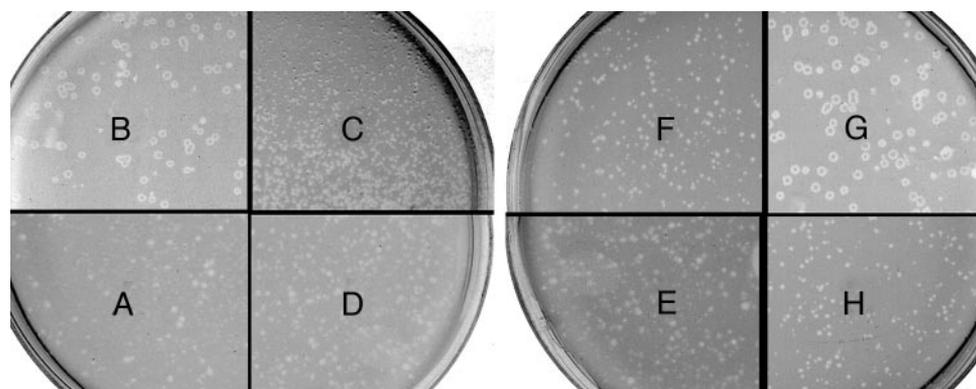


Fig. 3. Plaque morphology of different vibriophages on lawns of susceptible *V. cholerae* strains. Description of phages and host strains are as follows: JSF1 phage plated on a *V. cholerae* O1 clinical strain isolated from the recent epidemic (A), JSF2 phage isolated from water (B) and from a lysogenic non-O1/non-O139 strain (G) plated on an epidemic *V. cholerae* O1 strain, JSF3 phage plated on a *V. cholerae* O139 clinical strain (C), JSF6 phage plated on a *V. cholerae* O1 strain (F) and an environmental non-O1/non-O139 strain (H), JSF6 phage produced from an environmental non-O1/non-O139 strain and plated on a clinical *V. cholerae* O1 strain (E), and JSF4 phage plated on a *V. cholerae* O1 strain (D).

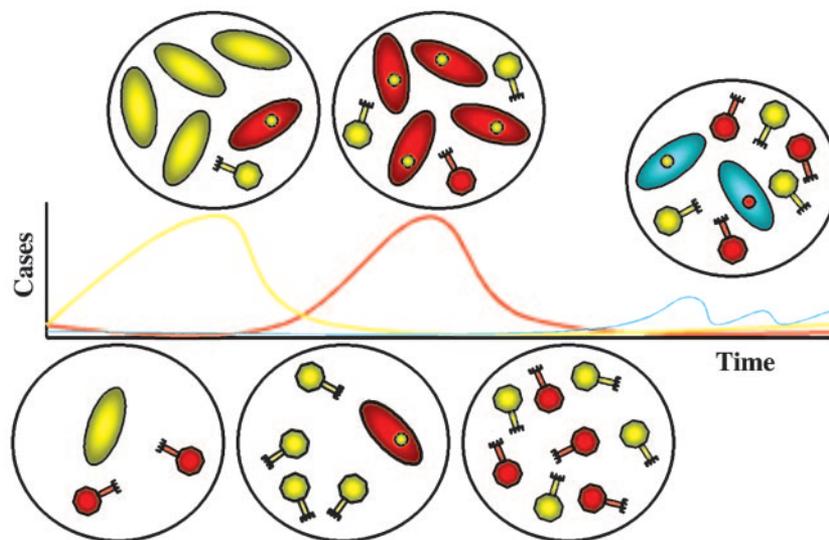


Fig. 4. Schematic model for the influence of phage on cholera seasonality and serogroup emergence. Seasonal cholera epidemics (increased cases over time) occur in waves, with different serogroups (e.g., O1 or O139) dominating. Corresponding conditions that exist in the aquatic environment are diagrammed in the circles shown. The absence of yellow phage specific for yellow oval cells provides an opportunity for that serogroup to begin the seasonal epidemic and transmit efficiently. However, yellow phages eventually amplify in the environment and attack this serogroup, ending that epidemic. A different serogroup (red oval cells) is resistant to the yellow phage. In the case shown, red cells actually carry a prophage (yellow intracellular circle) and thus shed yellow phage. A second epidemic wave due to the red serogroup follows and runs its course until red phages bloom and prevent environmental transmission of this serogroup. The interepidemic period is dominated by sporadic disease due to other serogroups (blue cells) resistant to both phages. These strains usually lack typical virulence factors but are more environmentally adapted than virulent strains. However, blue cells may harbor prophages that kill virulent serogroups and may acquire virulence determinants by horizontal gene transfer. Thus, blue cells may eventually emerge to become a new epidemic serogroup.

consistent with their lysogenic nature, the environmental strains of *V. cholerae* that produced phages after induction were resistant to superinfection by the phage they elaborated.

Territorialism and *V. cholerae* Evolution. Together, these data suggest a model for how environmental phages might influence the occurrence of epidemics, cholera seasonality, and changes in serogroup prevalence (Fig. 4). The inverse correlation between the environmental concentration of vibriophages and the presence of susceptible *V. cholerae* strains in water suggests that epidemics would most likely begin in periods of low phage concentration (after floods and the monsoon season). Predictably, this inverse correlation would not hold for *V. cholerae* strains that were either phage-resistant (due to serogroup type) or lysogenic for prevalent phages and thus immune to lysis by these phages. However, such lysogenic cells might, after exposure to DNA damaging agents such as sunlight (12), serve as a source of phages that could attack nonlysogenic cells. If both lysogenic strains and nonlysogenic strains competed for a similar environmental niche, this competition would lead to a selective pressure for strains to become phage-resistant through lysogeny while simultaneously providing the lysogenized bacterium with a “vibriocide” (i.e., phage) that could destroy nonlysogenic competing strains. Jouravleva *et al.* (13) speculated that such territorialism might be in play, given the differences in the lysogeny and sensitivity of clinical isolates to *V. cholerae* filamentous vibriophage 493. Our data showing that disease incidence tracks inversely with the prevalence of lytic phages in the environment also suggests that *V. cholerae* cells lysogenic for phages might modulate epidemics through phage-related territorialism.

Other than CTX Φ , the most common phage released by toxigenic El Tor O1 strains are κ -like (7,10). The κ -like JSF2 phage was frequently isolated from water samples in this study, together with a *V. cholerae* O1 strain that was lysogenized with this phage (Table 3). In the case of κ phage lysogens, territorialism would be a highly successful strategy if κ lysogens could

also become resistant to other O1 phages. Indeed, several non-O1 serogroups of *V. cholerae* (among them, O139 and O141) curiously carry κ prophages and produce particles that lyse only O1 strains (8, 14). It was previously hypothesized that these non-O1 strains were derived from precursor O1 strains that happened to be lysogenized by κ before their conversion to a new non-O1 serogroup. In light of the data presented in this report, we propose that these precursor O1 κ lysogens might have switched to non-O1 serogroups to escape other non- κ , O1-specific phages amplified during O1 epidemics (e.g., JSF1, JSF4, JSF5, and JSF6). This dynamic could have led to the emergence of globally distributed pathogenic strains of both the O139 and O141 serogroups as well as numerous other pathogenic non-O1/non-O139 strains that carry prophages with O1 specificity (Fig. 4). Finally, phages JSF1, JSF4, and JSF5 lysed 9 of 10 strains of the classical biotype examined. It is well known that the seventh pandemic O1 clone of the El Tor biotype globally displaced O1 strains of the classical biotype within a decade of its introduction into South Asia (1). The sensitivity of O1 classical strains to phages currently prevalent in the Bangladesh aquatic environment suggests that these phage types may have played a role in the elimination of the previously highly successful classical biotype.

Similarly, phage JSF6 grows on several non-O1/non-O139 hosts but also lyses O1 strains. It is apparent that the concentration of permissive hosts for JSF6 in the aquatic environment might lead to higher concentrations of JSF6 particles and render the water unsuitable for propagation of an O1 epidemic. Thus, environmental non-O1/non-O139 *V. cholerae* strains could influence the epidemiology of O1 and O139 strains by seeding the environment with phages that kill O1 and O139 strains (Fig. 4). The low incidence of cholera in the interepidemic period could be explained by such an ecological role for non-O1/non-O139 environmental *V. cholerae* strains as lytic or lysogenic hosts for phages that also kill O1 and O139 strains.

It has been previously reported that the abundance of other aquatically adapted bacterial genera, such as *Prochlorococcus*

and *Synechococcus*, was inversely correlated with phage abundance in open ocean waters (15). This variation of abundance of phage and host species was thought to be reflective of phage sensitivity of host cells, production of phages by lysogenic cells, and the host range of different lytic and temperate phages (15). Earlier studies have documented seasonal variation in lysogeny for *Synechococcus* (16) and shown that this variation might be influenced by nutritional stresses such as phosphate limitation (17). Thus, *Vibrio*, as an estuarine-adapted genus, might also participate in dynamic population variations based in part on phage predation and lysogeny cycles that could be influenced by physical and nutritional aquatic parameters that vary seasonally. The prevalence of pathogenic *V. cholerae* clones in aquatic environments (and thus the potential for water-borne epidemics of cholera) could, in turn, be influenced by complex seasonal cycles that affect lysogeny of nonpathogenic, environmental vibrios that serve as alternate cholera phage hosts as well as by blooms of phages driven by contamination of the environment by *V. cholerae* shed by cholera victims.

Conclusions and Implications. About one and a half centuries ago, the British physician John Snow epidemiologically linked Thames River water from the Broad Street pump to cholera cases in London (18). Since then, numerous studies have shown that *V. cholerae* belong to a group of organisms whose major habitats are aquatic ecosystems, and the role of water sources in the spread of cholera has been well documented (19–21). Interactions of aquatic microorganisms and *V. cholerae* have also been documented, leading to the suggestion that environmental

concentration of *Vibrio* species might increase in response to zooplankton or phytoplankton blooms driven by global or local aquatic conditions (2, 22, 23). Our data suggest that phages in the environment are an additional factor that causes the *V. cholerae* population in aquatic environments to wax or wane in a recurrent cycle. We propose that phages play their predominant role in ending cholera epidemics. But their removal by conditions such as severe flooding might also contribute to making water more conducive to *V. cholerae* human-to-human transfer. Thus, the absence of phages in the aquatic environment might promote cholera epidemics, particularly when *V. cholerae* is introduced for the first time. Such a concept can account for the explosive nature of cholera epidemics that occurred when this organism was recently introduced into previously cholera-free areas, such as Latin America and Africa (1). Finally, the phage cycle described here might explain much of the enigmatic seasonality of endemic cholera, as well. In countries where cholera exhibits a seasonal behavior characterized by fluctuations in incidence, environmental surveillance for vibriophages could be useful in tracking outbreaks (24), predicting epidemics, and anticipating emergence of new serogroups. Vibriophages might even be employed as biological control agents in cholera endemic areas.

This work was funded by Ellison Medical Foundation Grant No. ID-T-0007-01 under a subagreement between Harvard Medical School and the International Centre for Diarrhoeal Disease Research in Dhaka, Bangladesh (ICDDR,B), and by National Institutes of Health Grant GM-068851. ICDDR,B is supported by countries and agencies that share its concern for the health problems of developing countries.

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Tea Party = 1, PCAST=0 A PCAST follow up with the White House Chief of Staff?

From: "Lloyd Etheredge" [redacted] >
Date: Tue, May 21, 2013 10:56 am
To: "Dr. John Holdren - Science Adviser to President Obama and Co-Chair, PCAST" [redacted] (ore)
Cc: "Dr. Rosina Bierbaum - PCAST" [redacted] (ore)

Dear Drs. Holdren, Lander, Savitz, and Press and Colleagues:

Concerning issues that I have brought to your attention, would you follow-up the enclosed letter to President Obama's Chief of Staff?

Thirty+ years is a very long time to suppress scientific evaluation of the Reagan/Romney claims. It is not clear that communications with PCAST about these issues have been transmitted to the President.

Reference copies of attachments to the letter are available online at www.policyscience.net at II. B.

I also draw your attention, on the Website, to the reference copy of Bromhead et al., "**Right-Wing Political Extremism in the Great Depression**" and the (Attachment C) initiative to make a better use of our research universities to accelerate economic recovery. The prediction equations are in the danger zone, notably for male youth unemployment in several Western European countries and UDCs with potentials for political instability and messianic political responses to ineffective governments.

Yours truly,
Lloyd Etheredge

Dr. Lloyd S. Etheredge - Director, Government Learning Project
Policy Sciences Center Inc.

[redacted] (email)

[The Policy Sciences Center, Inc. is a public foundation that develops and integrates knowledge and practice to advance human dignity. It was founded by Harold Lasswell, Myres McDougal, and their associates in 1948 in New Haven, CT. Further information about the Policy Sciences Center and its projects, Society, and journal is available at www.policysciences.org.]

THE POLICY SCIENCES CENTER, INC.

Project Director: DR. LLOYD ETHEREDGE

E-mail: [REDACTED]

May 20, 2013

Mr. Denis McDonough, Chief of Staff
The White House

Dear Mr. McDonough:

Concerning the issues that have arisen in the IRS/Tea Party scandal: Since the Reagan Administration, the National Science Foundation has inappropriately killed social science research that it perceives as likely to anger Republicans. The Obama Administration - specifically, Dr. Holdren and his legal counsel - has failed to correct the NSF problem.

These are serious charges: NSF is expected to make, and is widely believed to make, competitive funding decisions by an independent, peer-review Scientific Merit system. Thus I enclose a review for the Yale Corporation (Appendix A) that documents NSF's practices. Dr. Holdren, the President's Science Adviser, may have been unwittingly complicit in duplicity and a coverup: this background material discusses the case of false and misleading statements, co-signed by Dr. Holdren and President Obama's first NSF Director, published on the White House Website.¹

NSF's uncorrected partisan bias has been known in the White House (to Dr. Holdren) since the beginning of President Obama's first term. There are several alibis, but one argument is that NSF officials have claimed behind closed doors that they are protecting the wider NSF budget and (the jobs of) the entire Social, Behavioral, and Economics (SBE) Directorate that might be wiped-out by Republicans unless the Left is defunded and the independent role of our universities is neutralized. NSF supplies the majority of social science research funds to our universities and its partisan accommodations have been brutally effective, especially because they have been hidden behind the claim of a peer review, Scientific Merit decision system. NSF officials are like judges who impose the death sentence on Blacks with the justification that an angry KKK mob will hang the defendant if they give an honest verdict.

Would you apply President Obama's public standards in the Tea Party/IRS case? You can help to restore trust, needed scientific progress and the integrity of public administration in at least three areas:

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URL: <http://www.policyscience.net>

Restoring Honest Broker Fairness and Scientific Independence: Three National Benefits:

1.) **University researchers can test Republican (e.g., Ronald Reagan's and Governor Romney's) empirical claims about a dependency syndrome** affecting national modal personality, including a.) the motivation of 47% of Americans; b.) their "willingness to take responsibility for their own lives;" and c.) (allegedly) contributing to many unsolved social and economic problems. There are direct measures that can be used with national probability samples: social scientists have proposed (for 30+ years) a rapid learning system to engage these ideological disagreements and bring evidence to increasing political polarization.

2.) **Worldwide (and domestic) studies of liberation, freedom, equality and human potential.** There is exciting neuroscience evidence of a **Primate Subordination Syndrome** that may connect the dots and illuminate such important processes as recruitment to terrorism and the influence of messianic leaders; the processes of rebellion and democratization in the Arab Spring, and the domestic mystery of unsolved motivational and cognitive inhibitions in lower status populations in the US.

These breakthroughs are partly outlined in the enclosed documentation (Attachment B) for Dr. Lauer at NIH. NSF treats this transformational thinking as if it is an exploding political hand grenade: specifically, the current NSF Assistant Director has invoked an unwritten rule against NSF studies of domestic racism and its effects [e.g. cognitive inhibitions in K-12 science education in lower status populations]. NSF's suppressive behavior is an affront to the rule of law: They will not provide a written statement of who made partisan rules to block this kind of potentially transformative research and by what authority. Scientists cannot obtain independent legal advice about the rule's legitimacy and how it might be appealed.

3.) **Accelerating Economic Recovery.** Republican political hostility to social science research has caused a fearful bureaucracy to inhibit the NSF Economics program - for example, any development of new data systems and budget requests for rapid learning in the current economic crisis. Established theories and data systems have been catastrophic failures. Republicans have been granted victories without the requirement of enacting legislation.

There is a further discussion of these five years of a scientific lockdown and failure in the enclosed letter [Attachment C] to the President of the American Economic Association, asking for a renewed effort for an emergency allocation and rapid learning. [By contrast to NSF, NIH and other scientific agencies in the Administration have been succeeding brilliantly in building Big Data and rapid learning

systems.]

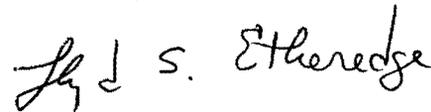
NSF's political lock-down apparently contributes to the fatalism of the Obama Administration about the delayed recovery. This fatalism will be difficult to forgive: The President should know that we can do a lot better.

If you agree that President Obama, if well-informed, would order you to correct these problems, I hope that you will brief him.

If further discussion would be useful, I can be contacted in the Washington DC area at

[REDACTED]

Yours truly,



Dr. Lloyd S. Etheredge, Director
Government Learning Project

cc: Dr. Jane Mansbridge, President, American Political Science Association
White House Counsel Kathryn Ruemmler
Press Secretary Jay Carney

Enclosures:

- Attachment A. Letter and background material for the Yale Corporation.
- Attachment B. Email to Dr. Lauer et al. at NIH reviewing the Primate Subordination Syndrome and a breakthrough potential for rapid (domestic policy) learning.
- Attachment C. Letter to AEA President re NSF lockdowns, the IMF summit, and a new rapid learning system for macro-economics

Notes

1. Correspondence with Dr. Holdren is available, from his days as AAAS President, on www.policyscience.net. An off-the-record meeting of our nation's most distinguished scientists was convened, more than a decade ago, by Dr. David Hamburg (a predecessor to Dr. Holdren as AAAS President) and the late Joshua Lederberg [under the auspices of the Carnegie Commission on Science, Technology, and Government] to advocate restoring scientific integrity and an Honest Broker political independence to NSF. Hundreds of scientists have participated in behind-closed-door meetings discussing and criticizing these partisan accommodations. There are many witnesses to the breakdowns of public integrity and the Administration's (e.g., Dr. Holdren's) failure to restore scientific integrity, trustworthiness, and the rule of law.

PCAST, Big Data and National Rapid Learning Systems: Kaiser's breakthrough for the treatment of stroke

From: "Lloyd Etheredge" <[REDACTED]>
Date: Wed, June 5, 2013 2:38 pm
To: "Dr. John Holdren - Science Adviser to President Obama and Co-Chair, PCAST" <[REDACTED]>
Cc: "Dr. Rosina Bierbaum - PCAST" <[REDACTED]>

Dear Drs. Holdren, Lander, Savitz, and Press and Colleagues:

In my proposal to create a rapid learning system for macro-economics: I cited the Big Data/rapid learning breakthroughs for cancer and precision medicine. You might be interested in the further example, on page 2 of the attached article, of a Big Data discovery that reduces the death from stroke by 1/2 for Kaiser patients.

The discovery underscores the new capabilities for scientific breakthroughs that can be created by meta-level thinking and the design of rapid learning systems along the lines of the strategic plan that I proposed. Stroke is one of 4 leading causes of death. As you will note, George Halvorson and his colleagues at Kaiser do not yet know the mechanism by which this 50% effect is achieved.

This was not a well-grounded hypothesis that anybody was trying to test with a clinical trial and it did not have to fight its way for competitive survival in lengthy, multi-round Kuhnian battles or NSF's system of bureaucracy-approved research "portfolios," competitive advantages for research conducted at Texas A&M, or the dysfunctional cultures and inflated overhead rates for academic administrators at "profit-centers" in non-profit universities.

The prescribing of statins as part of a prevention regime has been known in the medical literature: The new discovery concerns cutting death rates in half (and other unexpected benefits) when statins are administered in the hospital after a stroke has occurred.

Lloyd Etheredge

Dr. Lloyd S. Etheredge - Director, Government Learning Project
Policy Sciences Center Inc.

[REDACTED]
[REDACTED]
[REDACTED]
URL: www.policyscience.net
[REDACTED]

[The Policy Sciences Center, Inc. is a public foundation that develops and integrates knowledge and practice to advance human dignity. It was founded by Harold Lasswell, Myres McDougal, and their associates in 1948 in New Haven, CT. Further information about the Policy Sciences Center and its projects, Society, and journal is available at www.policysciences.org.]

Small Changes In Treatment Keep Stroke Patients Alive

By RON WINSLOW

Wall Street Journal. June 11, 2012, 6:17 p.m. ET

Stroke, until recently the third leading cause of death in the U.S., has dropped back to fourth place, reflecting a host of gradual improvements in preventing and treating the disease.

The change isn't a result of major advances in new medicines or devices. Instead, medical experts cite improvements in controlling people's risk factors such as high blood pressure and smoking. They also point to the increase in recent years in the number of designated stroke centers and emergency rooms that are specially equipped for stroke patients.

A recent study underlines the incremental progress being made. Researchers in California found that treating stroke patients with cholesterol-lowering drugs called statins throughout a hospital stay substantially improved survival rates and increased the chances of patients being discharged to their home instead of to a nursing home.

"In the country as a whole, there has been a dramatic reduction in stroke-related mortality in the last few years," said Larry Goldstein, director of the Duke Stroke Center at Duke University Medical Center, Durham, N.C. "We're learning more and more about preventing stroke."

In the 10 years ending in 2008, the latest data available, the death rate from stroke, as a percentage of the population, fell 35% while the actual number of deaths per year declined nearly 20%, according to the American Heart Association.

Still, the toll from stroke is daunting. Nearly 800,000 people in the U.S. suffer a stroke each year, according to the American Heart Association. Only cardiovascular disease, cancer and respiratory infections such as pneumonia kill more people. About seven million Americans are currently living after suffering a stroke, which is one of the main causes of disability. About half of these patients have weakness on one side of their bodies; 30% are unable to walk without assistance; and 26% are in nursing homes, according to data from the Framingham Heart Study. Treatment costs for stroke total nearly \$20 billion a year.

The failure to recognize or act quickly on stroke symptoms is one of the biggest barriers to

improved care. The only approved drug to treat acute stroke is the clot-buster known as tPA, which has to be given within three hours of the onset of symptoms, though guidelines allow up to 4½ hours in some cases. Only about 5% of stroke patients arrive at the hospital in time to get tPA, experts estimate.

Designated stroke centers, which are certified by the Joint Commission, a hospital regulatory body, typically have systems for emergency-room doctors to notify an established stroke team of a possible patient and to streamline the path to imaging tests that can confirm if a stroke has taken place. The systems also maintain communication with ambulance crews to speed a patient's time to treatment, said Ralph Sacco, head of neurology at University of Miami Miller School of Medicine.

Statin drugs—known mostly for their ability to lower LDL, or bad cholesterol, to reduce risk of heart attack—are also an important weapon for preventing and treating stroke. Current guidelines, for instance, call for patients hospitalized for stroke to be discharged with a prescription for a statin. But the guidelines say little about whether to use the medicines while a patient is hospitalized for stroke.

👉 In two recent studies, researchers at Kaiser Permanente, the big Oakland, Calif.-based health plan, combed the electronic medical records of 12,689 stroke patients in the plan's database. They found that giving statins to the patients while they were still in the hospital reduced the death rate after one year by nearly half—to 6%—compared with 11% among patients who began taking the drugs after their hospital stay.

For patients already on statins, the improvements were even more dramatic. The one-year death rate for stroke patients who were taking statins when they were admitted to hospital and continued taking them through the stay was 5%, the researchers found. But when statins for patients already taking the drugs were stopped during the hospital stay, even for a brief time, the one-year death rate jumped to 23%.

Hospitalized patients may not get statins because a stroke affects their ability to swallow, doctors say, or because they can't take them because of side effects such as muscle pain. Some physicians prefer to wait till the acute event subsides before prescribing the drugs.

Patients on statins "need to know that if they have a stroke and stop taking them, they have

a 1-in-4 chance of dying.... And if they keep taking them, they have a 1-in-20 chance of dying," George Halvorson, Kaiser Permanente's chief executive, said in a recent email to the health plan's staff that highlighted the research. He suggested that a patient's family should advise doctors of the statin use.

A second study found that stroke patients given statins in the hospital were 20% more likely to be sent home after their stay rather than to a nursing home.

"We don't know what the mechanism is" for statins to have such an effect, said Alexander Flint, a researcher in Kaiser Permanente's neuroscience group in Redwood City, Calif., who led both studies. "But what we're seeing is that being on a statin early during the hospitalization improves several different outcomes" for patients.

The study has limitations. It is an observational study, not randomized, meaning that differences in individual patients that might confound the results couldn't be accounted for.

But researchers applied special statistical techniques they said were designed to minimize any such distortion.

Patients in the study were treated at any of 17 Kaiser Permanente facilities and half were treated with statins while in the hospital. Now, nearly all will get them: The health plan has made statin therapy in the hospital standard practice for stroke patients.

**Fwd: GET ATTENTION TO MAKING THE SUN
OUR SOLE ENERGY SOURCE**

From: [REDACTED]
Date: Wed, June 12, 2013 2:26 am
To: [REDACTED] ([more](#))
Cc: [REDACTED] > ([more](#))

Sent from my iPad

Begin forwarded message: Mr. President: For our children, yours, mine and everybody's to survive beyond 2050 we have to MAKE THE SUN OUR SOLE ENERGY SOURCE!!!!
I have detailed how to do this in e-mails to Secs. at DOD, DOE and OSTP for several years. The biggest action for USA and the world to take to get to clean energy is in the report in Science, the mag. of AAAS, on Dec. 7, 2012, pgs 1321-4 on getting hydrogen by splitting water using a catalyst and SUN LIGHT. Sec. Moniz ought to be very aware of this and be able to explain how we can enter the CLEAN ENERGY HYDROGEN AGE. Also the Chair of OSTP should be able to explain how we can also curb much of our unneeded GHG emissions by using pyrolysis on our biowaste messes including the solids, mostly cellulose, separable from our sewage. We dump those biowaste messes to allow escapes of germs, toxics and drugs as well as having them get biodegraded reemitting CO2 needlessly. EPA 3 years ago put limits on several synthetic female hormone drugs showing up in some drinking water. WHAT DO EPA & DOHHW DO IF THOSE LIMITS GET EXCEEDED??????????
Will our children be finding their sexuality altered???? Will our children been poisoned or burned off earth??????? By using pyrolysis on our biowaste messes, we can make them the KEY SUSTAINABILITY RESOURCE DERIVED FROM THE SUN!!!!!!!!!!!!!!
I hope that you will check with your various appointees about getting to HYDROGEN AND MAKE BIOWASTES INTO OUR SUSTAINABILITY RESOURCE and stop all dependence on foreign oil and dangerous nuclear energy. Comments from anyone getting this will be appreciated.
Dr. James Singmaster, III, Ph.D. [REDACTED]

From: [REDACTED]
Date: June 10, 2013 11:20:15 AM PDT
To: [REDACTED]
Cc: [REDACTED]
Subject: Fwd: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

Begin forwarded message: Sec. Moniz: Forwarding you this, and I wonder if getting Chinese officials alerted on how to curb the pollution from burning coal might increase cooperation between China and USA. Also isn't fusion or fission energy going to be releasing trapped energy to worsen CC/GW??????????
Again I call your attention to MAKING THE SUN OUR SOLE ENERGY SOURCE.
Dr. J. Singmaster

From: [REDACTED]
Date: June 9, 2013 11:35:42 PM PDT
To: [REDACTED]
Subject: Fwd: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

Begin forwarded message: Mr President: Forwarding you this to go with direct e-mail just to White House website. The future for your children and mine is going to depend on the world MAKING THE SUN OUR SOLE ENERGY SOURCE. Worrying about cybersecurity will mean nothing if we let our kids' futures be burned up by CC/GW. If you were to get Chinese officials alerted, they might join in MAKING THE SUN OUR SOLE ENERGY SOURCE TO CURB CHINA'S HORRENDOUS SMOG-SOOT PROBLEMS FROM BURNING COAL. Dr. J. Singmaster

From: [REDACTED]
Date: June 7, 2013 8:08:31 AM PDT

To: [REDACTED]
Cc: [REDACTED]

Subject: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

Begin forwarded message: UCS; In report in SFChron, June 7 concerning Obama's political visit in Palo Alto, a last note in report indicates that Pew Research Center had a poll in Mar. showing 2/3s responding were in favor of the XL pipeline. That is occurring because a better, cleaner alternative of MAKING THE SUN OUR SOLE ENERGY SOURCE is not getting attention by environmental action groups. I urge UCS and other groups getting this to step forward and call for that ACTION. Just can't canting with no better options being explained allows bad actions to get continued!!!!

I challenge UCS to step up and call for MAKING THE SUN OUR SOLE ENERGY SOURCE TO GIVE OUR CHILDREN THE FUTURE FREE OF PRESENT ENERGY-POLLUTION MESSAGES.

If you can fault what I have stated, let me hear it. If you can't, then get that action going.

I see UCS has a global security commitment. I urge commitment to GLOBAL AND HUMAN SURVIVAL BY MAKING THE SUN OUR SOLE ENERGY SOURCE!!!!!!!!!!!!!!

James Singmaster, III, Ph.D.

From: [REDACTED]
Date: June 7, 2013 2:30:39 AM PDT
To: [REDACTED]

Subject: Fwd: MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

Begin forwarded message: UCS Staff concerned with energy: Forwarding you this to go with previous e-mails sent to Mr. Meyer and others and I state again that the only viable action for saving our children's futures is MAKING THE SUN OUR SOLE ENERGY SOURCE. Join in sending that message to DOE Sec. Moniz. unless you can fault the idea. Your children's futures can be trampled if we don't MAKE THE SUN OUR SOLE ENERGY SOURCE FOR CLEAN NON-POLLUTING ENERGY. GET UCS out in front for your children's sake by CALLING FOR MAKING THE SUN OUR SOLE ENERGY SOURCE. Dr.J Singmaster

From: [REDACTED]
Date: June 4, 2013 12:04:17 PM PDT

To:
Cc:

Subject: MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad DOE Sec. Moniz: Science had big article, May 24, 2013 on DOE research with little viable action being described. Hubs generally spin but have little direction.

THE ONLY VIABLE ACTION FOR HUMAN SURVIVAL IS MAKING THE SUN OUR SOLE ENERGY SOURCE. Everything else keeps adding to our biosphere extra energy and CO2 to be worsening CC/GW. Just adding more slowly will not reverse worsening. As I have stated in various e-mails to Sec. at DOE, we have to **MAKE THE SUN OUR SOLE ENERGY SOURCE** by the 3 steps that I have outlined.

Is there any sense to fusion energy if it adds extra energy to the overloaded biosphere???????

Is there any sense to waste energy in sewage treatment that decompose biowastes to be releasing trapped energy and CO2 needlessly???????????

I call on you to redirect DOE research to **MAKING THE SUN OUR SOLE ENERGY SOURCE!!!**

Can you indicate any better way to get energy with basically no pollution???????

Dr. James Singmaster

**Fwd: GET ATTENTION TO MAKING THE SUN
OUR SOLE ENERGY SOURCE**

From: [REDACTED]

Date: Fri, June 14, 2013 3:23 am

To: [REDACTED]

Cc: [REDACTED]

Sent from my iPad

Begin forwarded message:Mr. Brand: Due to your SFChron writeup June 13, I forward you this to say fission or fusion energy are fatally flawed because they release trapped energy to be warming the biosphere to end up boiling humans off. Our earth has an energy balance depending solely on the sun, and we have to stop trying to push trapped-away energy out into the biosphere. There is no escape valve for that energy getting overloaded into our biosphere. IT STAYS TRAPPED IN OUR BIOSPHERE TO WORSEN CC/GW.

I outline briefly below how we can take the SUN's energy to remove CO2 and heat energy from the overload causing Superstorm Sandy and probably worsening weather problems. If you can, explain what happens to the trapped energy that will get released by N-power. We have to realize that earth worked fine with just SUN POWER until we got carried away with dirty energy. We can get all the energy we need CLEANLY by using the sun. We are entering the HYDROGEN AGE with all fuel and power being generated by the sun. James Singmaster, III, Ph.D.

From: [REDACTED]

Date: June 13, 2013 11:14:34 PM PDT

To: [REDACTED]

Cc: [REDACTED]

Subject: [REDACTED]

Al G [REDACTED]

Subject: Fwd: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

Begin forwarded message:ICLEI Staff; Forwarding you this for getting action to control more than just CC/GW as our biowaste messes may be what wipes out the future for our children. No one seems to realize that they are the KEY SUSTAINABILITY RESOURCE. BUT THE BASIC SUSTAINABILITY ACTION IS MAKING THE SUN OUR SOLE ENERGY SOURCE

That means no coal mining messes to scar the country side, no nuclear plant melt downs and problems with nuclear wastes, no oil spills messing up the environment, no GHG emissions worsening weather to SuperSuperStorms, etc., etc., etc..

I urge your group to join in calling for MAKING THE SUN OUR SOLE ENERGY SOURCE!!!!!!

Any comments, pro or con, will be appreciated.

James Singmaster, III, Ph.D. UC Davis 75, Environmental Chemist, Ret., Fremont, CA

From: [REDACTED]

Date: June 12, 2013 12:20:40 PM PDT

To: [REDACTED]

Subject: Fwd: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

Begin forwarded message: Andy: In case you are concerned about your children surviving beyond 2050, you could

join in calling attention to MAKING THE SUN OUR SOLE ENERGY SOURCE and stop writing about minor issues. Think of your children having to face CC/GW burning out crops and/or possibly being poisoned or buried by our ever mounting biowaste messes.

We have so much can't canting by 350 group and others with none of them proposing clean energy alternatives. Step forward by calling to MAKE THE SUN OUR SOLE ENERGY SOURCE -----FOR YOUR CHILDREN'S SAKE. Check with all those scientists that you have written up about their views on CC/GW to see if they can refute what I have stated.

FACE UP TO WHAT YOUR CHILDREN WILL FACE WITH PRESENT DIRTY ENERGY PROGRAMS CONTINUING UNCHECKED!!!!!! Jim Singmaster

From: [REDACTED]
Date: June 11, 2013 11:26:25 PM PDT
To: [REDACTED]
Cc: [REDACTED]

Subject: Fwd: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

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Dr. James Singmaster, III, Ph.D. UC Davis [REDACTED]

From: [REDACTED]
Date: June 10, 2013 11:20:15 AM PDT
To: [REDACTED]
Cc: [REDACTED]

Subject: Fwd: GET ATTENTION TO MAKING THE SUN OUR SOLE ENERGY SOURCE

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Dr. J. Singmaster

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Date: June 7, 2013 2:30:39 AM PDT
To: [REDACTED]

Subject: Fwd: MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad

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Can you indicate any better way to get energy with basically no pollution??????

Dr. James Singmaster, [REDACTED]

PCAST and the UK's exciting national commitment for cancer treatment and rapid scientific learning

From: "Lloyd Etheredge" <[REDACTED]>
Date: Fri, June 14, 2013 1:29 pm
To: "Dr. John Holdren - Science Adviser to President Obama and Co-Chair, PCAST" <[REDACTED]> ([more](#))
Cc: "Dr. Rosina Bierbaum - PCAST" <[REDACTED]>

Dear Dr. Holdren, Lander, Savitz, and Press:

I enclose a copy of the UK's exciting announcement of their national commitment to rapid learning for cancer treatment, and state-of-the-art precision treatment for all UK citizens.

I appreciate PCAST's earlier engagement with EHR and related (preliminary) issues: Isn't it time for a bold scientific recommendation by PCAST and an equivalent functionality for all Americans?

Yes, America has a fragmented health system: NCI does research, most of Medicare and our state Medicaid programs think of themselves as bill payers. Hospitals and individual plans or physicians may not see benefits at their level from EHR systems and any recording of genomic data from their individual patients. Thus: we do need additional vision and leadership, informed by PCAST's assessment of what is possible, and how quickly we can and should move for cancer and all other diseases.

Logistics of a national system aside, at a minimum shouldn't the USGOV provide options for the new UK-standard of quality for cancer treatment and rapid learning to federal employees and their families, military and VA recipients, Medicaid populations that depend upon the US government standards, and others with direct federal responsibility for their healthcare?

with best regards,
Lloyd Etheredge

Dr. Lloyd S. Etheredge - Director
Policy Sciences Center Inc.

[REDACTED]

[The Policy Sciences Center, Inc. is a public foundation that develops and integrates knowledge and practice to advance human dignity. It was founded by Harold Lasswell, Myres McDougal, and their associates in 1948 in New Haven, CT. Further information about the Policy Sciences Center and its projects, Society, and journal is available at www.policysciences.org.]

12 June 2013 Last updated at 07:06 ET

Public Health England to launch largest cancer database

By James Gallagher

Health and science reporter, BBC News

The world's largest database of cancer patients is being set up in England in an attempt to revolutionise care, Public Health England has announced.

It will collate all the available data on each of the 350,000 new tumours detected in the country each year.

The aim is to use the register to help usher in an era of "personalised medicine" that will see treatments matched to the exact type of cancer a patient has.

Experts said it was "great news".

The old definitions of cancer - breast, prostate, lung - are crumbling.

Cancer starts with a mutation that turns a normal cell into one that divides uncontrollably and becomes a tumour. However, huge numbers of mutations can result in cancer and different mutations need different treatments.

Research into the genetics of breast cancer means it is now thought of as at least 10 completely separate diseases, each with a different life expectancy and needing a different treatment.

The national register will use data from patients at every acute NHS trust as well 11 million historical records.

It will eventually track how each sub-type of cancer responds to treatment, which will inform treatment for future patients.

'Fundamental change'

Jem Rashbass, national director of disease registration at Public Health England, said: "Cancer-registry modernisation in England is about to deliver the most comprehensive, detailed and rich clinical dataset on cancer patients anywhere in the world."

He told the BBC: "This will fundamentally change the way we diagnose and treat cancer.

"In five years we'll be sequencing cancers and using therapies targeted to it."

The service will also exchange information with Wales, Scotland and Northern Ireland, which have their own registers.

The Department of Health has already committed £100m to sequence the entire genetic code of 100,000 patients with cancer and rare diseases in order to accelerate progress in personalised medicine.

Emma Greenwood, Cancer Research UK's head of policy development, said: "It's great news that this national database has been set up.

"It means we have all the UK's cancer information in one place, making us well equipped to provide the highest quality care for every cancer patient.

"It'll be easier and quicker to further cancer research, and will speed up work to deliver personalised cancer medicine to patients in the future."

[More Health stories](#)



[E-cigarettes face UK clampdown \[/news/health-22870301\]](#)

Electronic cigarettes will be licensed as a medicine in the UK from 2016, under new restrictions recommended by the medicines regulator.

[Short walks 'may cut diabetes risk' \[/news/health-22853314\]](#)

[Double-transplant patient loses legs \[/news/health-22855670\]](#)



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climate strategy

From: "L Barlow" [REDACTED]
Date: Thu, June 20, 2013 11:53 pm
To: pcast@ostp.gov
Options: [View Full Header](#) | [View Printable Version](#) | [Download this as a file](#) | [Add to Address Book](#)

The hubris of this statement blows my mind:

A primary goal of a national climate strategy should be to help the Nation prepare for impacts from climate change in ways that decrease the damage from extreme weather and other climate-related phenomena (i.e., increase robustness) and ways that speed recovery from damage that nonetheless occurs (i.e., increase resilience). Recent disasters involving extreme weather events (including Hurricane Sandy, extreme drought, and rampant wildfires) have underscored the Nation's vulnerability and the urgent need for preparedness.

Climate change can only be "managed" by severely reducing the carbon emissions produced by human habitation. Science policy must be focused on dealing directly with this issue, not trying to "duck" the immediate impacts of 400ppm CO2 and rising.

We cannot continue to exist on a planet that can only support the less complex life forms of 20,000 years ago because of the CO2 in the atmosphere, which impacts the oceans and the arctic
http://blog.syracuse.com/opinion/2013/05/climate_change_400_ppm_carbon.html

Please understand that this requires drastic reductions in emissions across the globe.

Here's the scenario
<http://greenswardcivitas.blogspot.com/2012/08/scenarios.html>

Here's a response
http://www.garnautreview.org.au/pdf/Garnaut_Chapter9.pdf

Contraction and Convergence is a strategy put forth by Aubrey Meyer in the climate agreement negotiations, and his latest interactive C-BAT charts are here.

They show how the accelerated feedback of carbon triggers an arctic methane release which is a runaway climate change scenario

<http://www.gci.org.uk/CBAT/cbat-domains/Domains.swf>

http://www.gci.org.uk/EAC_Graphics.html

--

:: design :: collaboration :: innovation

Laurie Barlow, AIA
[REDACTED]

Nuclear power is WHAT WE WILL GET BY MAKING THE SUN OUR SOLE ENERGY SOURCE

From: [REDACTED]

Date: Fri, June 21, 2013 2:09 am

To: [REDACTED]

Cc: [REDACTED]

Sent from my iPad

Begin forwarded message: We don't need the Pandora's Box of nuclear energy plants on earth. We need to make use of the nuclear energy generated by the SUN. Below is an outline on how to get all our energy from the SUN enabling us to reverse CC/GW. Part of the problem that no one recognizes is what our mounting biowastes messes are becoming as they may be what buries our descendants' futures. And we waste billions of dollars in sewage operations that just reemit trapped CO₂ and energy to the biosphere. And the operations involved many spread trapped toxics, germs and drugs to the biosphere.

EPA in 2010 put limits on several synthetic female hormone drugs showing up in some drinking water supplies.

WHAT DOES EPA DO IF LIMITS GET EXCEEDED??????? I should have mentioned this developing problem below that can be controlled by using pyrolysis on separated sewage solids. The filtering to get the solids will collect most of those hazards that will be destroyed by pyrolysis.

The comment in SFChron article, June 13 about getting to zero carbon is misleading as we can get to negative carbon and get CC/GW reversed. But energy companies with huge amounts of money tied up in land, options and equipment don't want to hear of SUN ENERGY that can replace their whole operations!!!!

Any comments, pro or con, will be appreciated. Dr. J. Singmaster, III,

From: [REDACTED]

Date: June 20, 2013 12:49:16 AM PDT

To: [REDACTED]

Subject: Nuclear power is WHAT WE WILL GET BY MAKING THE SUN OUR SOLE ENERGY SOURCE

Sent from my iPad Various persons and groups calling for nuclear power seem unaware that we have the sun providing us with all the nuclear and/or atomic power that we need forever. Unfortunately, we have various persons and groups calling for nuclear power plants claiming that such plants can be developed without environmental problems. Those plants have one insurmountable problem--they release trapped energy stored away in atoms. Once released the energy will add to the extra energy already added over the past two centuries to worsen warming even more.

No one seems to recognize that our sun is a nuclear power plant going forever that we are not using very effectively. A nuclear power plant with no waste problems and no melt down problems. We need to be recognizing that we have to enter the SUN-HYDROGEN ERA for HUMAN SURVIVAL ON EARTH!!!!!!! Three basic actions need to be activated to MAKE THE SUN OUR SOLE ENERGY SOURCE!!!!!!

The first action is to develop hydrogen, the clean fuel, to replace fossil and nuclear fuels, and this can be done by using sunlight to split water. A recent Science, the AAAS magazine, has a published paper, Dec. 7, 2012, pg 1321-4, on very effective catalyst to do this, but not very many environmental groups have realized that that report means no need to be wasting time fighting fracking and pipelines. Instead they and others need to be calling on Obama to get rapid action going to make hydrogen the fuel of the future. A second part of this action is to get much more use of solar panels for using more of the sun's energy, and this action should be getting much more attention from environmental groups. And

solar mirrors to concentrate the energy to distill salt or brackish water to get fresh would have none of the problems with other desalination processes. The conc. salt solution remaining can be used to disinfect cleaned sewage water that gets discharged directly to oceans. This would stop much use of chlorine for treating sewage water that leads to forming various haloforms causing ozone depletion. When we get to hydrogen as our sole fuel, we eliminate all the problems with fossil and nuclear power.

The second basic action is reviving the CCC program of Roosevelt as that is making use of the SUN's energy to be reducing the CO2 overload already in our biosphere. If we do not reduce CO2 levels some, we will not get CC/GW reversed and end up just slowing the worsening as the extra CO2 will keep more converting sunlight into heat. Adding to the need for this CCC program is the killing of much of the pine forests in the Pacific NW as dead trees do not take up CO2 but get biodecomposed to give off CO2. The CCC program would cut down the dead and dying trees and plant new seedlings of trees not attacked by the destructive bark beetle. Additional problem develops with the dead trees as their dead root systems will no longer be playing a role in keeping soil from eroding. So this is a key action needed for keeping the Pacific NW from becoming an eroded wasteland. The cut out dead trees have a viable role for helping get to clean fuel as they still have energy trapped that can be recovered as outlined below in using pyrolysis for our biowaste messes.

The third action is to make our biowaste messes including separable sewage solids--almost all biowaste is cellulose--into the KEY RESOURCE FOR SUSTAINABILITY!!!!!!!!!!!!!! We are presently in the process of burying our children's futures with our mishandling of biowastes costing possibly over a trillion \$\$\$\$\$\$s a year with results of adding more CO2 and heat to further CC'GW. Does it make any sense to take sewage and run it through plants to have it biodecomposed to give off trapped CO2???????? AND ENERGY AS WELL!!!!!!!!!!!!!! AND COSTING MEGA \$\$\$\$\$\$\$\$ TO DO IT!!!!!!!!!!!!!!

This huge wasting can be reversed to make money as pyrolysis process will convert about 50% of the carbon in biowastes to charcoal, THAT'S STOPPING UNNEEDED CO2 REEMITTING. That charcoal depending on source has some use to be described later. The other 50% or so of the carbon gets expelled from the closed oxygen free pyrolysis chamber as a mix of organic chemicals, and they can be collected and refined to serve as a fuel or more importantly a source of chemicals to make drugs, detergents etc. replacing oil chemicals. We may not need the mix for fuel as hydrogen ought to become the bulk energy fuel in the future, although various oil and coal cos. will try to keep that from happening.

Two types of charcoal are obtained as that from cleaning out dead-dying trees from forests will be quite clean and have use in treating drinking water to remove several contaminants and may then be used to smelt iron ore. We need to curtail the use of soft coal in smelting as that use is the major source of mercury pollution in the biosphere. The charcoal made from our biowaste messes will contain some plant nutrients and can serve as a soil amendment and that will provide a way to slowly reduce CO2 levels in the biosphere as charcoal dumped in soil will not get converted back to CO2.

We have to MAKE THE SUN OUR SOLE ENERGY SOURCE FOR OUR CHILDREN TO SURVIVE ON EARTH. We need to point to the problems unrecognized by proponents of any form of atomic-nuclear energy. The main one being that energy trapped in atoms would be released into the biosphere already overloaded with energy. And those claiming a way to clean coal have no idea how much energy would be getting released at great cost from doing the cleaning. SO LET'S GET THE CLEAN ENERGY FROM THE SUN TO REPLACE THOSE DIRTY ENERGIES!!!!!!!!!!!!!!

James Singmaster, III, Ph.D. 

Attention PCAST

Dear Ms. **Danielle Carnival**

Senior Policy Advisor

I learned you will be speaking

Town Hall next week entitled "Federal and State Resources to Support STEM Schools" to be held on

Tuesday, July 9th at 5PM - 6PM ET

Please excuse this intrusion into your cyber-space but then I think you (*your staff*) may have an interest in the following.

I keep on hearing, reading about how poorly American students are performing, and the shortages of STEM professionals.'

I'm trying trying trying to publicize our Chicagoland S.T. **E**.M. programs..

I'm looking for a *STEM solution* ... *how it get the media to report on the following.*

Maybe you I can interest you in the following ??????????????????

It has really been hard to get the main-stream to publicize these positive, good news stories.

Lacking news of this ST **E**M programs I have found too **TOO TOO** many schools, teachers are unaware of these efforts. ?? **WHAT DO WE HAVE TO DO ..TAKE OUT AS FULL PAGE ADVERTIZEMENT IN THE CHICAGO NEWS PAPERS TO PUBLICIZE THESE PROGRAMS ??**

I've been reading, seeing hearing efforts to improve **ST E**M education in Chicago Public Schools

STEM Tops Education Agenda in Chicago

By Tanya Roscorla, Center for Digital Education

<http://people.uis.edu/rschr1/et/?p=6319>

and several other articles

ref:

http://www.cityofchicago.org/city/en/depts/mayor/press_room/press_releases/2013/march_2013/mayor_emanuel_launchesfirstmayorsofficetechnologyfellowshipprogr.html

Nice efforts but **Here's my question?**

Where is the reporting on the following?????

Engineers are trying to put the "E" into S.T. **E**.M. education

<http://www.todayseengineer.org/2010/Oct/STEM.asp>

All too often the **"E"** is left out in k-12 education

Engineering — The Silent "E" in K-12 Education

<http://www.todayseengineer.org/2009/oct/stem-education.asp>

Engineers are trying to transform education in Chicago and around the country

In case you weren't aware of it, several S.T. **E**.M. programs took place in and around the Chicago area in January-February.

You can view pictures here:

Future City Regional Finals-Chicago (www.futurecity.org/Illinois-Chicago)

<http://www.flickr.com/photos/10752828@N05/sets/72157632712897656/>

and while the stereotype is girls avoiding tech careers you should see many girls participating in this competition!

<http://www.flickr.com/photos/10752828@N05/8452941419/in/set-72157632712897656>

and we'd like to see more more minorities too

and check this out

http://www.mwrdr.org/pv_obj_cache/pv_obj_id_ED5D9CB01000E86BE3A5591A46AA1628F83B0B00/filename/13_02_14_Future_Cities.pdf

<http://blip.tv/avila-media-nfp/st-paul-of-the-cross-resolution-6557957>

VIDEO: <http://www.youtube.com/watch?v=GsvCruSswgI>

We've already begun to look for teams for the next competition.

ref: <http://futurecity.org/region/press-release>

and the topic for the **Essay Portion** of the competition has just been announced:

Tomorrow's Transit:

Design a way to move people in and around your city.

and these events

Illinois LEGO League State Tournament (www.insciteillinois.org)

<http://www.flickr.com/photos/10752828@N05/sets/72157632715456817/>

CAF 'Engineering' Day (<http://www.architecture.org/e-week>)

<http://www.flickr.com/photos/10752828@N05/sets/72157632997424746/>

We had upwards of 500 people attend this program where children, students and even parents learned about the engineering of Chicago's famed skyline.

Here's a demonstration to show how the John Hancock Center stands tall!

<http://www.flickr.com/photos/10752828@N05/8557121129/in/set-72157632997424746>

and take a look-see at these building projects:

<http://www.flickr.com/photos/cafphotographs/sets/72157632801360246/>

IIT/DuPage EWeek Expo (www.dupageeweek.iit.edu)

<http://www.flickr.com/photos/10752828@N05/sets/72157632997277196/>

Do you know we had **1900+++** attend this event?

<http://www.iit.edu/news/iittoday/?p=12605>

<http://www.chicagolandeweek.org/activities.asp>

and then this big event

Chicago E-Week Banquet (*Dozens of exceptional STEM students honored*)

<http://www.flickr.com/photos/10752828@N05/sets/72157632997129800/>

Washington Award presented to Kristina Johnson

www.chicagolandeweek.org

and **We garnered the attendance of Congressman Dan Lipinski**

Here's Congressman Lipinski from one of the *Future City* teams

<http://www.flickr.com/photos/10752828@N05/8558088144/in/set-72157632997129800>

and with one of the Robotics teams

<http://www.flickr.com/photos/10752828@N05/8558089264/in/set-72157632997129800>

and the above are just some events there were others!

?? And what do all these events share in common. *Let me go on with this rant.* With Politicians railing on the need to improve education especially

STEM education and the mainstream media reporting of various studies on the poor performance of American students..... *Guess what??* I attended all of the above events. There where few [*very few*] elected officials at these events.

Suggested reading:

"Politicians should play this game"

<http://www.dailykos.com/story/2013/03/04/1179160/-SimCity-Politicians-should-play-this-game>

There was also little (*very little*) media coverage of these programs which could show that some American students are performing quite well. So

much for supporting , reporting on S.T.E.M.

Were you aware of these programs?

as always

Bob Johnson, SE

m.SEOI www.seoi.org [REDACTED]

f.ASCE www.isasce.org

Volunteer to several engineering outreach programs

www.futurecity.org/Illinois-Chicago

<http://www.ispechicago.com/s-t-e-m-activities/s-t-e-m-announcements>

<http://www.seoi.org/Volunteer.html>

<http://www.chicagolandeweek.org/activities.asp>
www.architecture.org/e-week

and then there's the big event that recently took place !

April 5, 6 2013 F.I.R.S.T Robotics Midwest Regional Tournament

<http://www.ilfirst.org/frc.html>

I've watched high school students robots throw Frisbees!

2013 FIRST Robotics

<http://www.flickr.com/photos/10752828@N05/sets/72157633926067247/>

Last year the robots shot basketballs!

2012 Rebound Rumble (**Robots shoot baskets!**)

<http://www.flickr.com/photos/10752828@N05/sets/72157632356583915>

• *and then this*

and April 27, 2013 the **INTERNATIONAL BRIDGE BUILDING COMPETITION** @ IIT

<http://bridgecontest.phys.iit.edu/public/chicago/index>

<http://bridgecontest.phys.iit.edu/public/international/index>

2013 INTL Bridge Building Contest

<http://www.flickr.com/photos/10752828@N05/sets/72157633926149585/>

IIT 2013 Regional Bridge Competition Pictures posted!

<http://www.flickr.com/photos/10752828@N05/sets/72157634070105118/>

?? Will some of these students go on to repair our failing infrastructure??

and then this program (June 1st) :

Spring Into Science program hosted by MSI

<http://www.flickr.com/photos/10752828@N05/sets/72157634130506564/>

Keep in touch and I'll send you more

Bob Johnson

volunteer to www.futurecity.org/Illinois-Chicago

and into the Future

Let's plan a..... head so you might attend the following engineering programs:

Des Plaines Public Library

SCIENCE DAY

September 28, 2013

[Getting students interested in engineering | abc7chicago.com](http://abc7chicago.com)

<http://abclocal.go.com/wls/story?section=resources&id=7717824>

LEGO League State Tournament

January 17, 18, 2014 Tentative

Future City- Chicago Regional Finals

January 25, 2014 Tentative

[.www.futurecity.org/Illinois-Chicago](http://www.futurecity.org/Illinois-Chicago)

Come see a vision of the future as offered by 6th, 7th, 8th grade students !

[CAFamily](http://www.architecture.org/e-week) "Engineering" Day

Sunday, February 16, 2014

www.architecture.org/e-week

CHILDREN ENGINEERS

(CAFamily Engineer Day -February 19, 2012)

WLS-TV ABC-7 news Segment

<http://abclocal.go.com/wls/story?section=resources&id=8549187>

IIT –Rice Campus Dupage Area eWEEK Expo

30th Anniversary - Saturday, February 22, 2014

<http://www.dupageeweek.iit.edu/>

2013 Pictures:

<http://www.flickr.com/photos/10752828@N05/sets/72157632997277196/>

Can we get you to attend some of these programs ???

I strongly believe the future of America rests NOT with those athletic superstars or entertainment celebrities garnering headlines and idolized by today's youth but with those scientists, technologists and engineers charting the new information age. The future of America is not found on the basketball courts, football grid irons or baseball diamonds but in preparation of the next generation of scientists and engineers.

I look forward to further communication and interest in our efforts.

Bob Johnson

additionally

For many many many years I've tried to get the local [Chicago] news media to cover the outreach programs of engineers to children, students.

Seems to me the media just is not interested in coverage of positive (Good News) stories about the

S.T. **E**.M. programs

I finally achieve this success as Water Reclamation District Commissioner Frank Avila interviewed me in a 30 minute program.

The video can be viewed at:

<http://blip.tv/avila-media-nfp/robert-b-johnson-educating-children-about-engineering-5271390>

ENGINEERS

Putting the "**E**" in STEM!

**ENDORISING MY NEW PRO GOD THEORY ON
GEOCENTRISM AND REJECT THE PRO SATANIC
THEORY ON HELIOCENTRISM BY THE
U.S.PRESIDENT.**

From: "S.RAJASEKHAFRAN NAIR" [REDACTED]
Date: Tue, July 9, 2013 11:54 am
To: pcast@ostp.gov

Dear Executive Director Sree Majority Blumenthal Thank you for your kind response to me.

At here I am anxiously awaiting for your kind reply, action and the endorsement for my new pro god discovery on Geocentrism at the earliest. Because at present all the present belief about our universe are false ,and misleading us .According to me the Big bang ,Heliocentrism, and Darwinism are Himalayan blunders .All these false beliefs must be wipe out from the world is necessary and inevitable. My application before the U.S. President is for the approval of the U.S. President through his executive order or proclamation. But till date I do not get it .So I request to you for your help and assistance.

My questions are given below.

- 1,On what basis NASA did asked me taking out U.S. patent?
- 2,When will I get the promised but denied grant?
- 3,Why not give a reply to me as according to the email reply of the U.S. President to me on 19October 2011?
- 4,When and where the U.S government and I are entering in the contract or an agreement?

Thanking you once again.

S.Rajasekharan Nair

Find Recharge Economy

From: "Makoto Yanase" [REDACTED] >
Date: Thu, July 11, 2013 4:42 am
To: pcast@ostp.gov

USA never become position NO.2 every categories. Economy, Military, Technology, Science.....everything. Only 224 years, USA always NO.1. World peace Depends on USA. World Economy Depends on USA. But now, balance of the world become decline. Especially, Asia some country become monster. Especially military. That's why, it's so risky reduce National budget. For my opinion, money able to buy technology, innovation. Even weapon, even science. So money is the base on everything. Find sure **CAPITAL**. That's National Security. Most important for future.

Science, maybe able to save our EARTH. Climate Change(Hurricane, Tornado), Earth Temperature up, Sea level up. Our EARTH is sick now. Which country are able to save? Peoples live in the EARTH, Sick of EARTH become heavy. Because, develop, gas, chemicals.....etc.

Science, maybe able to innovation new energy. Some of Middle East OIL producer country oil stocks bottom already. Probably, hard to save that country. Maybe, become war? Someday every producer countries will be empty stocks. How to survive future of Energy? USA is NO.1 OIL consumer country in the world. Probably, new technology(science) will be save. Innovation save future. Use budget for future of all of the world. **GET CAPITAL.** **This is proposal find CAPITAL for future of our EARTH, also Recharge US economic engine.** I produce US government for gain US budget(science, innovation, Recharge Economy, also strong Defense).

(1)Target.....Find Most valuable materials in the world.(I'm specialist for find value commodities also special Locator developer). I detect only GOLD BARS(WW2). Those are hide materials, then only Philippines in the world. Those are hard to find this time. Every countries needs long-run economic growth and strong Defense.

(2)Attach(1)-(3)files

(1) Attach1(3pages).....Find Sure CAPITAL(for Recharge economic growth USA, etc)

(1)Deal my technique(know-how) for Detect commodities.

(2)Operation my existing site(final stage now)....**Under US government**

(2) Attach2(3pages).....Functions of gadget(Developed my gadget)

(1)Detect size of commodities(locator head, cutting GOLD BARS form)

(2)Detect size of box, line up(volumes)

(3)Detect many kinds of magnetic fields, then destroy many irregular fields.

(4)Pointing exact location of deposit. etc.

(3) Attach3(3pages).....Existing operation

(1)Area.....Rizal province(border of Metro Manila, Philippines)

(2)Conditions.....**120 ft(40 m)** deep final stage(confidential operation)

(3)Volumes.....**5000 to 10000 tons**(minimum, exactly more)

(4)Value.....**250-500 BUS\$/area(more)** (minimum)

(April10,2013.....1575 US\$/troy ounce)

(5)Verify.....Any time able to inspection. There are several area listed already. Need to discussion about that. **Only US government.**

I'm Japanese man from Philippines. This offer will be long-run growth US economy also saving for future. I want to deal partnership with US government. This is science, technical skill and abilities. I want to use my potentials and experiences. This country is Philippines. But, origin those commodities are not this country own. Story from WW2. But definitely those value are huge. Surely help long-run economy growth any country. Most important is use for good way. How can clean EARTH except budget?

I trained almost 17 years and find all of know-how of mechanism. I want to joint Democratic leader country. So I contact USA. Then I believe US government use for good way. I hate Communist country also Muslim country in person. Because situation of world now. How about China, North Korea, Middle East. National Budget always increase, hard to reduce. Any countries needs budget. It's so hard to maintain clean EARTH for future. Get huge

CAPITAL, then use for future.

My situation is not easy now. So please move quickly. Please help advice or assist to me. Today, I send with attached. Please check attached ones. Please response to my e-mail, immediately.

Makoto

Attach1- (1)

RECHARGE ECONOMIC NEW ENGINE

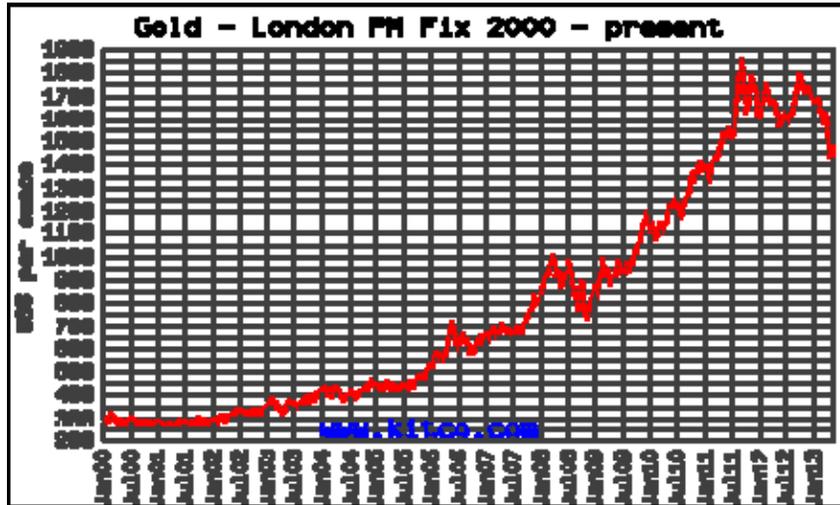
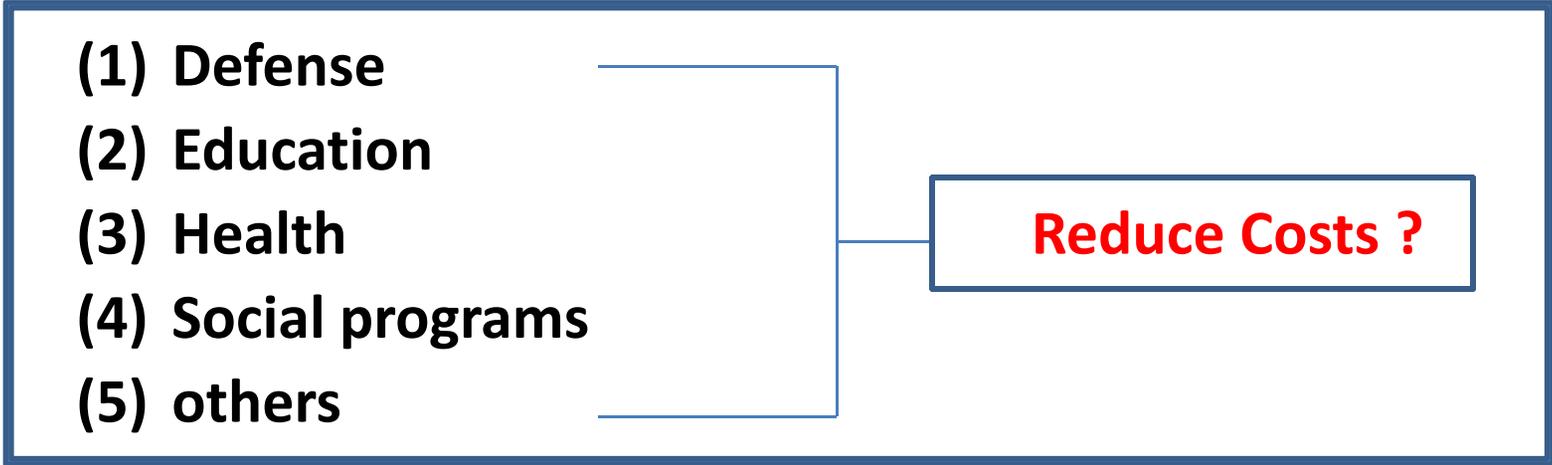
- (1) Innovation business..... No final, continue searching.
(performance cost , kinds of risk)
- (2) Defense..... Reduce cost
(risk for USA, also relation countries)
- (3) National Security, etc....
 - (1)Terrorism
 - (2)Energy
 - (3)Climate Change
 - (4)Costs
 - (1)Medical
 - (2)Nature(Hurricane, Tornado, etc)
 - (3)Emergency , etc.
- (4) Education
- (5) **Infrastructure Development**
- (6) **Investments, Manufacturing**



FIND CAPITAL
Natural Resources(Best thing)

Attach1- (2)

Economy vs Costs



Top military spenders

China's military spending (US\$ billion)



World's top military spenders, 2011 (US\$ billion)



*Based on budgeted figures. **Based on projected figures.
 Source: Stockholm International Peace Research Institute, Global Security

Attach1- (3)

Find Most Valuable Materials

(1)GOLD value increase every year

(1) 2003 January	356.86	US\$ ounce
(2) 2008 January	889.60	US\$ ounce
(3) 2013 January	1670.95	US\$ ounce

(2)GOLD is based on Economy always.

(3)GOLD is the best materials in the world

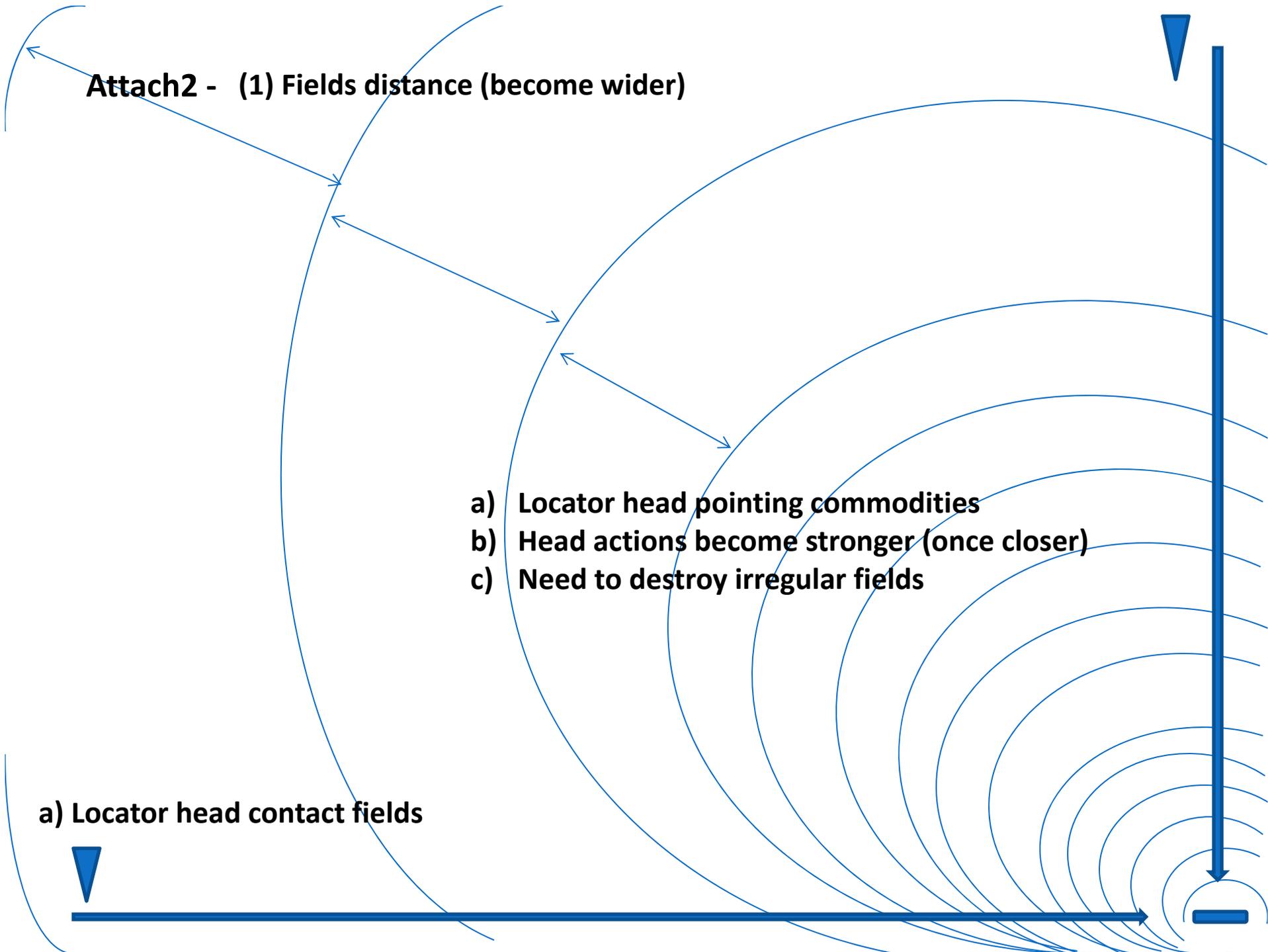


(Proceed innovation)

OIL, Low cost → **CAPITAL** ← **GOLD**



GOLD is the most Powerful Recharge New Engine

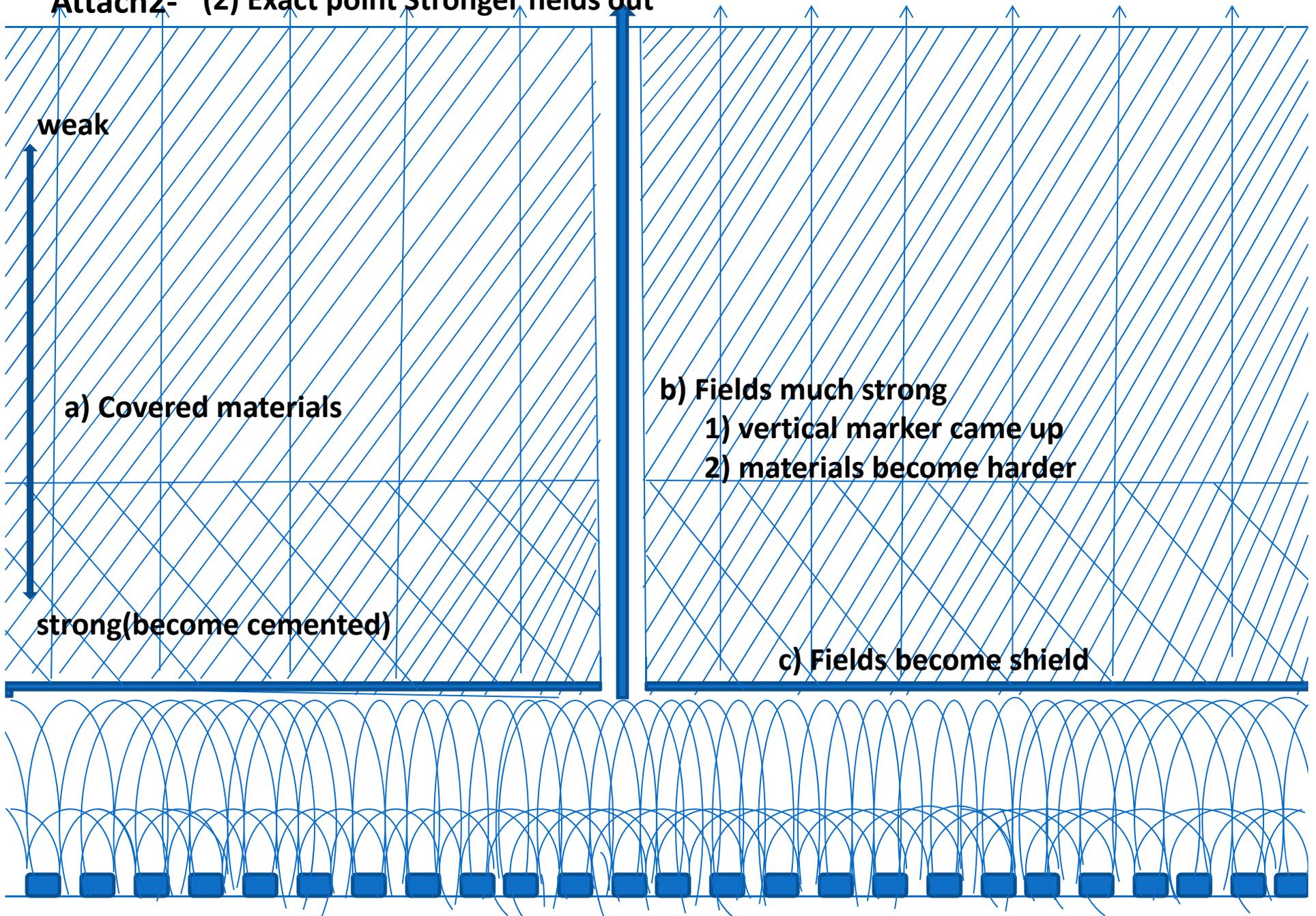


Attach2 - (1) Fields distance (become wider)

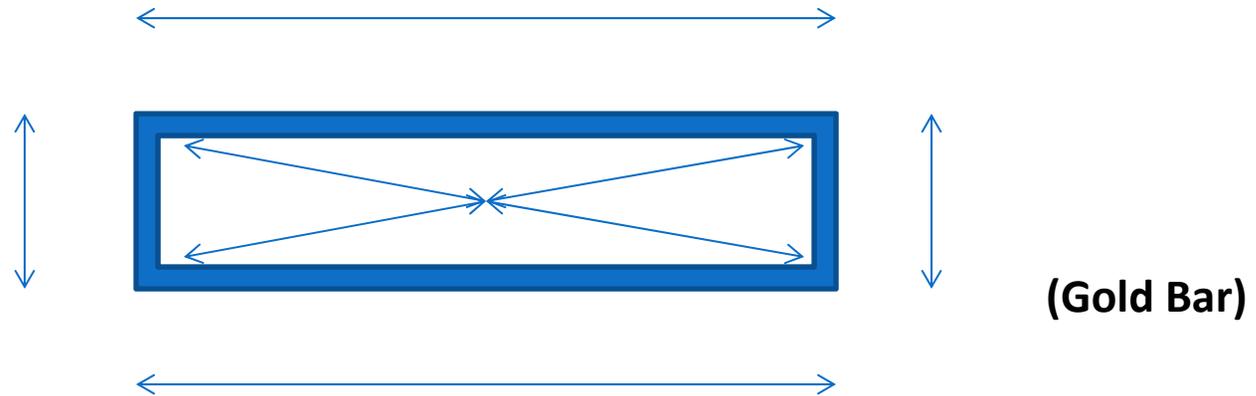
- a) Locator head pointing commodities**
- b) Head actions become stronger (once closer)**
- c) Need to destroy irregular fields**

a) Locator head contact fields

Attach2- (2) Exact point Stronger fields out

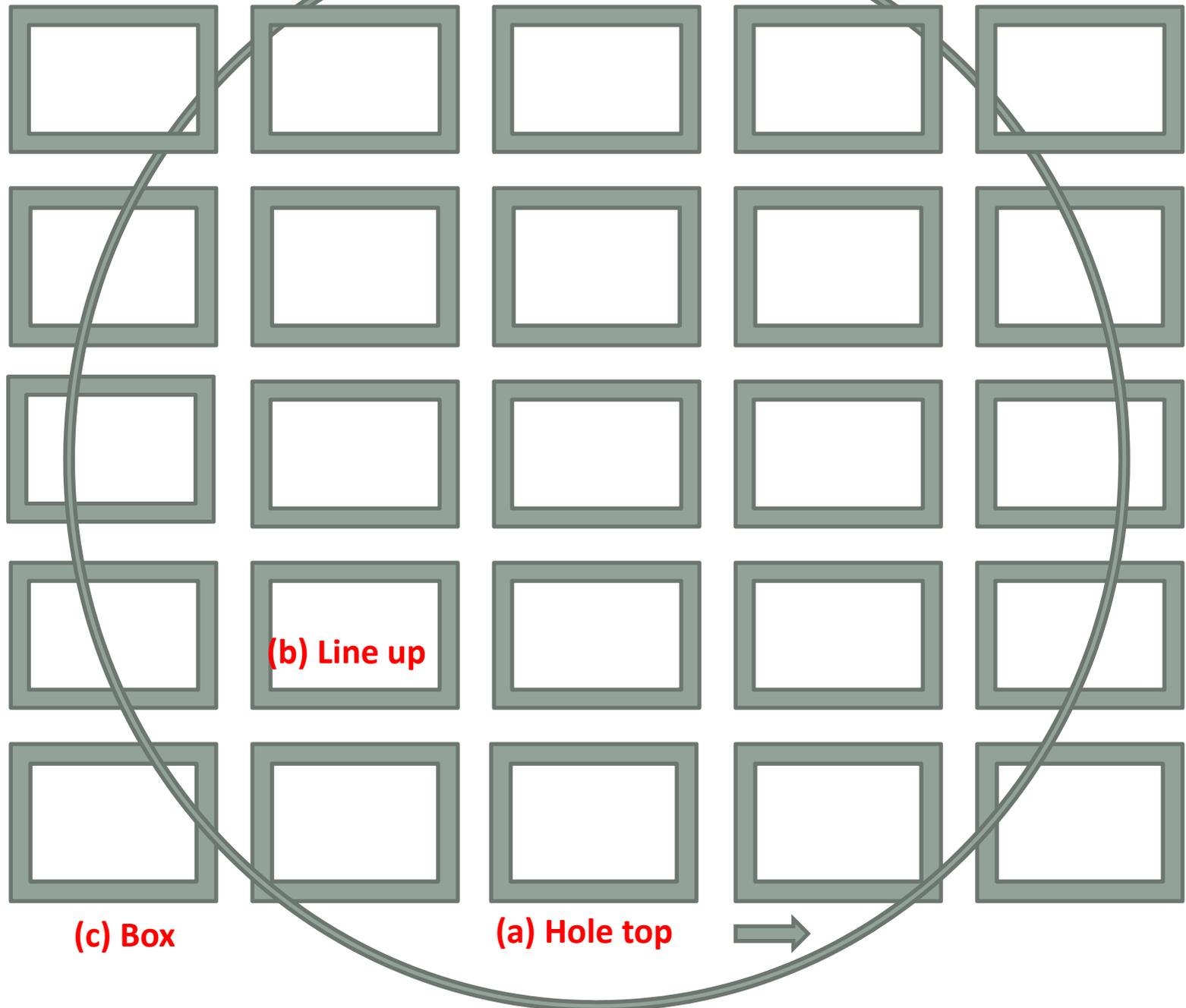


Attach2 - (3) Locator Action

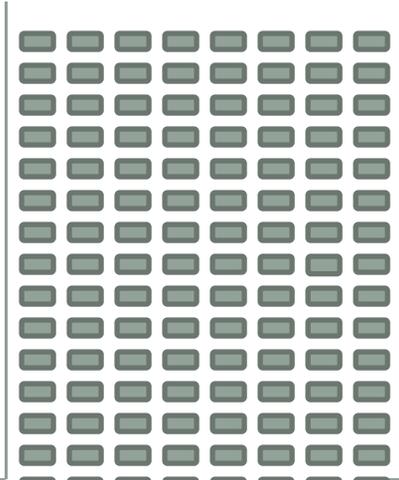


- a) Head cutting size
- b) Head stop corner and center.
- c) Head actions become changing
- d) Head cutting box also line up
- e) Etc.

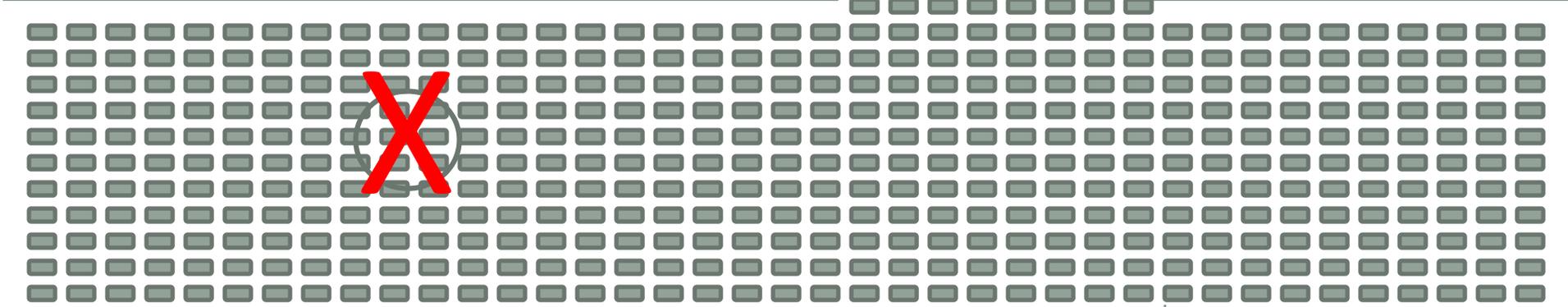
Attach3- (1) SITE VIEW (Operation Hole)



Attach3 - (2) LOCATION (SITE)



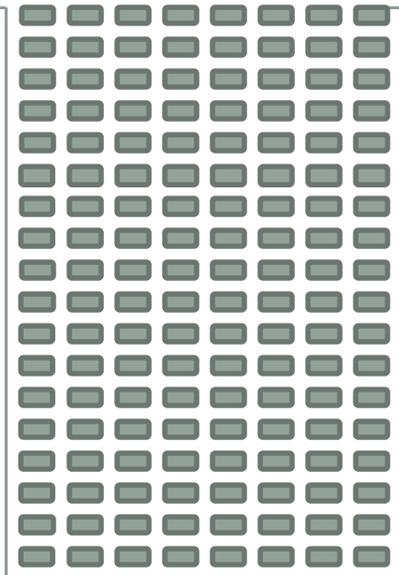
(a)Line up boxes



(b)Operation hole(existing hole)

(1)120ft(40m)deep

(2)Final stage now



Attach3 - (3)LOCATION SITE(PICTURES)

(1)Operation house



(2)Operation hole



Inventions

From: "Chairman: MIF, India." [REDACTED]
Date: Fri, July 12, 2013 10:11 am
To: pcast@ostp.gov

Dear US Government,

I know that, it might be hard for you to believe in the contents of this E-Mail but I want to make you sure that, this is only the mail which can fulfill the Dream of US of being Supreme in the World.

I have two most pioneer inventions with me which can made US to rule the World in terms of intellectual basis, these are:

1. The Formula to Construct a **COMPUTER WHICH CAN NEVER BE TRACED** (find out) throughout the Network or in other words an invisible Computer in the Network.
2. The Formula to achieve hundred percent (100%) accuracy in Human calculations to design the **SUCCESSFUL HUMAN CLONE (REPRODUCTIVE CLONING)**.

Broadly speaking,

For the first point, you might be already knowing that all present electronic devices (including mobiles, computers, satellites, etc.) works on Binary Codes i.e. 0 and 1 and for all such devices Division by Zero i.e. $0 \div 0$ and $1 \div 0$ is an error command, But I had a formula which made it possible for a computer to work on these two commands only and thus make it impossible for any other device to know its actual processing.

For second point, I know that the successful human cloning is not possible just because of the problem of accuracy, our all present machines are approximate but I had developed a formula which made it possible for a computer to be 100% accurate by transforming all the present non-terminating divisions such as $10 \div 3$ or $10 \div 7$ to terminating divisions.

I had also presented my both these Formulas to Indian Government, and the thing of great misfortune is that, rather than using the same for developing its implementations, they are only felicitating me with rewards and press releases.

Therefore, I hereby wants US government that if you are understanding the things that I am saying to you please provide me with the facilities so that I can not only made these two above said things for you but can also made all other things possible for you which will definitely made the US to be supreme in the World.

You can check more about my two inventions here in these links:

1. www.mifindia.co.in/mifsep0220111.html
2. www.mifindia.co.in/mifjun0620131.html

My contact details are:

AnkuR Yogbharti Tiwari,



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