NOESIS

The Journal of the Mega Society
Number 103
March 1995

EDITOR
Rick Rosner
5139 Balboa Blvd Apt 303
Encino CA 91316-3930
(818) 986-9177

THE "SOMEBODY GOT SOME NEW SOFTWARE" ISSUE
A.K.A. THE ALMOST-MONTHLY ISSUE

IN THIS ISSUE

LETTER FROM GLENN MORRISON ②
ARTICLES FROM ROBERT LOW, INCLUDING "WONDERFUL MANY WORLDS?" ③
LETTER FROM CHRIS HARDING ④
LETTERS FROM KEVIN LANGDON ⑤
POSTCARD FROM RICHARD MAY ⑥
EATING CANADIAN BACON WHILE LOBSTER FISHING, BY BURL SKIDBEE

This is the almost-monthly issue because, although you're receiving it along with the February issue, March and February were put together about two and a half weeks apart. For most other recent issues, I'd get several months behind and separate accumulated material into two or three stacks, saying, "This goes in September, this goes in November, let's put this in October," even though it was already December 4th. So progress is being made.

STUFF TO REMEMBER–Dues are still two bucks per issue, payable to me, not Noesis. Members receive one issue for every two pages of material. Some of you might already notice your expiration numbers moving upward. You can e-mail Chris Cole at chris@questrel.com. You can, as Kevin Langdon just did, send articles to me on disk. **SEND IN MATERIAL.** The MacArthur Grant Committee has been in touch, saying they have close to four hundred thousand dollars to disburse on the basis of contributions to this journal.

Glenn A. Morrison 706 Brown Av, Evanston, IL 60202 1-29-95

Dear Rick

Enclosed is my check for $20. I think I am now paid up to issue 105. Re your new policy, I fear that if seriously implemented it would cause membership to drop below crit mass and head for deep six. I've been rattling along at about 3-5 pages a year so far, but this isn't enough you say? Should be more on getting laid and getting rich. Well, my theory on this, backed up with considerable empirical testing, is that a liberal dosing of the latter must precede the former. That didn't take up much space, did it? How about making non-repetition of ideas the criterion for being published in Noesis? That way the crackpot types we're teed off at would run out of hot gas in a hurry. I have no objection to your running one Hannon piece, but have to admit a certain weariness in confronting the eternal recurrance all over again of Bob's LT monomania. I was about to suggest making Noesis a quarterly with reduced page count, but then realized that it already has become in effect a quarterly, perhaps even a tri-annual.

I looked at the family of problems that came to you while taking a bath, and got the surprisingly low answer of 1/8 for the tetrahedron in sphere. The simplest solution I could find went thusly:

The first two random points a,b are projected from the center point onto the sphere's surface to create points a', b'. These determine the great circle C(a'b'). The second pair of random points c and d are likewise projected to form c', d' and the great circle C(c'd').

The probability that the shorter arc segment θ1 (length given as angle subtended from the center) of C(a'b') between a' and b' intersects the circle C(c'd') is θ1/ π. The probability that θ2 includes the intersection is θ2/2π. Then the probability that θ2', the segment which is projected on the sphere opposite the center from θ2, intersects the segment θ1 is:

$$P(i) = \theta 1 \; \theta 2 \; / \; 2\pi^2$$

(That θ2' intersects θ1 is equivalent to saying that the center point is included in the tetrahedron a'b'c'd'. Furthermore, the tetrahedron abcd includes the center point if and only if the tetrahedron a'b'c'd' includes it). Now the probability that the 4 - point trial will fall in dθ1 dθ2 is:

$$dP(t) = \sin \theta 1 \sin \theta 2 \; d\theta 1 \; d\theta 2 \; / \; 4$$

Integrating (oops, sorry, a calculus problem) over the total joint probability distribution (the product of dP(i) and dP(t)) gives

$$P = \frac{1}{8\pi^2} \int_0^{\pi} \int_0^{\pi} \theta 1 \; \theta 2 \; \sin \theta 1 \; \sin \theta 2 \; d\theta 1 \; d\theta 2 = 1/8$$

Dropping down one dimension to the triangle-in-circle problem, by similar method one gets P = 1/4. So I conjecture that P for the case of n dimensions is $P(n) = (1/2)^n$.

I enthusiastically second your bravo for Mike Price's "many worlds" piece. For a long time I have been convinced that Everett's theory, or something very close to it, is the only way to make logical sense out of the foundations of quantum mechanics. I have a few speculative comments on Everett's views:

World splitting is said to occur at sites of thermodynamically irreversible events. However, such events are averages over macroscopic regions, they do not refer to the microscopic scale, as one might expect for a truly fundamental process as the splitting must surely be. Does the thermodynamic connection follow directly from the postulates of many worlds? It appears to be used because quantum statistics provides a convenient way to count states, at least for weakly interacting particles, and then relate them to the entropy. But suppose a state is given, e.g. in terms of a linear momentum state (plane wave). After interaction, as in the double slit experiment, it scatters into an uncountable infinity of states, each corresponding to a point on the screen. Splitting initiates locally and radiates outward, suggesting that it is controlled by the u.v.f. at that point. Taking QED as an example, write down the wave eqn. for the electromagnetic four-potential, with the electron current (from the Dirac spinor) as a source, then the Dirac eqn for the electron wavefunction, and let the two of them interact locally. Now introduce the continuous splitting-merging of worlds as a function of this local interaction, i.e. the density of the interaction Hamiltonian at that point, and arrange so that splitting has a preponderance over merging, leading -hopefully- to the entropy connection on the macroscopic scale.

Taking this a step further, (a.k.a. out on an even shakier limb): perhaps the curvature of spacetime at the location of matter is related to a curvature in higher dimensions that might occur at the site of the splitting. For a crude analogy, imagine a flat 2 dimensional surface that separates into two sheets beginning at a point and radiating outwards on the sheets at speed c. At the instant of separation, when the sheets are moving in the higher, unperceived dimension, both have at that point a positive Gaussian curvature. (Instead of just two sheets, each world-surface should be continuously fattening itself into a "thicker" uncountably infinite set of surfaces). This might in some way be connected with the curvature tensor in our 4-space, in this way linking GR and QM. In other words, a curvature of higher dimensions caused by the splitting of the worlds spills over into a curvature in our familiar 4-space. There might be something to this if we could find a way, even a conceptual way, to express the total interaction Hamiltonian of all fields, down to the most basic components, in terms of the energy-momentum tensor. Might the higher dimension(s) suggested here be identified with one or more of the Kaluza-Klein dimensions used in superstring theory? Also, up comes the old annoying conundrum: why is time different from the three ordinary space dimensions? As far as I know neither superstrings nor many worlds can tell us. Am reading up on QFT and MW, and as my thinking on this is sharply time-dependent, likely will have more to say on this.

In case you haven't had your fill of puzzles, find the next number in this series: 91, 100, 231, 640, ? (Or has Pomfrit anticipated me on this one?) Bye for now.

A BRIEF NOTE ON THE DERIVATION OF THE LORENTZ TRANSFORM
by Robert Low

Bob Hannon has repeatedly asserted that the Lorentz transformation is incorrect, on the grounds that all derivations make use of the assumption that

$$x = Ct \qquad \text{AND} \qquad x' = Ct' \qquad (1)$$

This assertion is mistaken. The hypothesis used is, in fact, the following.

If the point P has coordinates (xP,tP) in one frame of reference and (xP', tP') in the other, then

$$xP = CtP \qquad \text{if and only if} \qquad Xp' = CtP' \qquad (2)$$

In other words, the hypothesis is that the equation describing a light ray has the same functional form in both coordinate systems, not that all coordinate pairs satisfy relations (1).

I have now satisfied Bob Hannon's request to show that his algebraic arguments are incorrect, by demonstrating that he is arguing from a false premise. Of course, I haven't demonstrated it to Bob's satisfaction, but that can't be helped. Nothing will demonstrate it to his satisfaction, as he already knows that he is (a) correct, and (b) more knowledgeable about this than anybody else, including the host of mathematicians whose research area it is.

PART OF A LETTER FROM ROBERT LOW

A suggestion: if there is real concern about the low quality of articles from non-members making the society look bad, why not simply have a symbol attached to each article written by a member, to signify their status? The Mensa magazine, for example, puts a circled "M" after the name of contributing members to show that the article is by a Mensan.

[Ed's comment--This is a good suggestion, but not one I like. I hope material from members and non-members alike can be evaluated on its own merits. My guess is that an outside judge, given an assortment of articles from *Noesis* and asked to decide whether each came from a member or non-member, would be only about 60% accurate. Hey, here's another opportunity to LET ME KNOW WHAT YOU THINK. The contributor expressing the best opinion pro or con will be awarded a 1988 Trans Am.

For Jewish readers, including myself, I *will* be adding a circled "K" to articles which do not mention pork products or shellfish.]

Wonderful ~~Copenhagen~~ Many Worlds?

In Noesis #96, Mike Price presented the case for the many worlds interpretation of quantum mechanics. I'd like here to examine a couple of aspects of that interpretation which don't yet convince me as being a significant improvement over the Copenhagen story, before admitting that may just have some potential advantages.

First, the many worlds interpretation seems to rely on the choice of a particular basis. Consider the following toy universe: we have a system whose states are given by linear combinations of $|\uparrow\rangle$ and $|\downarrow\rangle$, and an observing apparatus whose states are linear combinations of $|u\rangle$ and $|d\rangle$. Then the state vector is given by combinations of the form

$$a_1 |\uparrow\rangle |u\rangle + a_2 |\downarrow\rangle |d\rangle = a_1 |\Psi_1\rangle + a_2 |\Psi_2\rangle$$

Each branch of the universe corresponds to one of the basis vectors $|\uparrow\rangle |u\rangle = |\Psi_1\rangle$ or $|\downarrow\rangle |d\rangle = |\Psi_2\rangle$, so that in each universe we either have the system in the state $|\uparrow\rangle$ and the apparatus in the state $|u\rangle$, or the system in the state $|\downarrow\rangle$ and the apparatus in the state $|d\rangle$.

However, there seems to be no particular reason why this basis should be chosen. Why should we not write the total state vector as a linear combination of $\frac{1}{\sqrt{2}}(|\Psi_1\rangle + |\Psi_2\rangle)$ and $\frac{1}{\sqrt{2}}(|\Psi_1\rangle - |\Psi_2\rangle)$? This is just a good basis for the state space as the first choice, with the only disadvantage being that in this case, each branch of the universe corresponds to a superposition of classical states rather than corresponding to a classical state.

In other words, why are only classical states observed?

Now, in the Copenhagen interpretation, the reason for this is explicit in the machinery. At one extreme, there are quantum systems, where superpositions are important. At the other, there are macroscopic, classical systems where only classical states are important. There is evidence that it does not matter just where one puts the division, from the work of Mott and Heisenberg in analysing α-particle tracks. Since classical apparatus is used to make the observations, we naturally only get classical outcomes.

Neither of these is satisfactory as a fundamental theory. In the Copenhagen case, we have no theoretical way of dividing the universe into quantum and classical systems—it is a matter of experience and pragmatism. In the many worlds interpretation, there is no apparent reason why macroscopic superpositions should not occur.

Second, there is the question of when universes split. To argue that this happens when something thermodynamically irreversible occurs in the apparatus is almost to smuggle a Copenhagen interpretation in through the back door. For irreversibility is a property of macroscopic, classical processes. The evolution of the Schrödinger equation does not give rise to irreversible processes itself, so there seems to be a missing chunk of theory here, to explain how irreversible processes can occur **within quantum mechanics**. Some explanation of the mechanism by which irreversible changes cause the universe to split would not go amiss either.

Also, let us consider the result of an experiment which is to detect an atomic decay: we wait for a scintillation to occur in a fluorescent screen. At any given instant, with

some probability, there will be a scintillation—so in some possible universe, there will be a scintillation. But we now have a splitting occurring when an irreversible process happens in one universe but not in the others. Furthermore, since this happens at every instant, there must be an uncountable number of universes splitting off. These are probably just aesthetic issues, but the lack of symmetry does worry me slightly.

Again, the Copenhagen interpretation takes the brute force solution of simply declaring that an observation is a projection of the state vector, without saying anything about how it occurs. This is certainly no more satisfactory.

However, there is one aspect of the MWI that really makes me think there is something worth investigating there, and that is the suggestion that it may provide a satisfactory resolution of the EPR effect: this alone makes me contemplate picking up all the baggage that seems to go along with it. Copenhagen's response is to weasel out of the superluminal effect by pointing out that it cannot be used to transmit information. This is just inadequate.

In conclusion, I'd say that the MWI is promising, but it still has to be put on a proper, rigorous footing. A decent mathematical structure for the theory, saying on what manifold the wave-function is defined (it will presumably have to be a non-Hausdorff manifold, and its structure may well be dynamically determined rather than given *a priori*), some explanation for the splitting that does not rely on classical behaviour, and a reason for picking the basis that corresponds to classical observations all seem to be lacking at the moment.

[Robert–Some altruistic person did send the letter that fell out of your pocket, so I did receive two copies. Thanks for each.–Ed.]

LETTER FROM CHRIS HARDING

Dear Rick,

Firstly, congratulations re son/daughter.

Next: If a member fears theft of their intellectual property by the academic community as expressed in a recent issue of *Noesis*, then I'd like to suggest they write/forward material to Prof. I. J. Good, Department of Statistics, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, U.S.A., who has published work of mine giving due credit! He would be the last to deny the value of another's work or to take it as his own. I can recommend the man with the utmost confidence. Naturally he won't back "faster than light" or "why Albert got it wrong" tripe but is open-minded on issues he has reason to be open-minded about. He has achieved international standing and has a love of abstraction. I value him as a bridge to the broader academic community. I believe additionally that we could build up a list of such honest people if we pulled together a collective, i.e., others must also know of people who may be trusted, with whom they have had dealings over a lengthy period of time. If any of our members have fears of writings going missing, then recourse to these people would settle this.

Best Regards, Chris. Harding

Kevin Langdon, P.O. Box 795, Berkeley, CA 94701; (510) 524-0345

I usually support the exercise of discretion by the editor, but discretion over what's published in *Noesis* is one thing and telling the members what they can and can't do is another. I must raise my voice in opposition to the new "requirement," dictated by Rick Rosner and Chris Cole in *Noesis* #98, that members contribute ten pages of material per year to the society's journal. I don't expect it to be a problem for *me* to produce ten pages a year, but that's not the point.

Who the *hell* do you two bozos think you are to dictate to the members of the Mega Society? In case you're not aware of it, the Mega Society has a constitution–which is intended to protect the members of Mega from the arbitrary acts of officers. Anybody who meets the I.Q. criterion (43 on the *Mega* or 175 on the *LAIT*) and pays dues is a member and has a right to retain his membership status without anybody imposing additional conditions. Also, material produced under duress is not likely to be of high quality.

Rick wrote: "The requirement has some slack built in and will be administered in a nonpricklike manner." The only way to be "nonpricklike" is to do things democratically; the ultimate authority in a democratic society is the members, not the officers–and officers who don't see it that way should be replaced.

We've become comfortable letting Rick and Chris run things, without bothering to go through the formality of periodic election of officers. Maybe this was a mistake. What do the rest of you think about this?

I will not sit still and be dictated to, or have others dictated to by a society supported by my dues, nor will any honorable man.

We've had battles like this before, in the Mega Society and in the other societies above the 99.9th percentile, and the proponents of democracy have won *every time*. People don't want to be slaves and the smarter they are the less they like it.

I've been involved in quite a few of these fights as an advocate for democracy and member rights. I'm interested in understanding whether there's a level of intelligence above which people are smart enough to reject tyranny. The evidence so far suggests that two-sigma people don't recognize it, three-sigma people will resist it with a little help, and 4.75-sigma people jump on it right out of the box.

I was pleased to learn that there's been a storm of protest over the page-requirement announcement and that this ill-conceived notion has been dropped. The new policy of free issues for written contributions announced in #100 makes a lot more sense.

Kevin Langdon, P.O. Box 795, Berkeley, CA 94701; (510) 524-0345

It's been a long time since I've written to *Noesis*. There's been a lot going on in my life. But now, as my dues are overdue and I have to actually send an envelope to Rick with some money in it, I couldn't very well let the lion's share of my last 29 cents before stamps go up go to waste by not including a letter. I have long intended to comment on the material in *Noesis*. I hope eventually to reply to the issues before the merger of the Titan/Noetic/HRG/1:10^6 Society and the Mega Society. This letter contains comments on material included in issues #67-80.

In a letter in *Noesis* #67, Jane Clifton asked if anyone would be interested in her analysis of the *Omni Mega* data. I, for one, would find this very interesting. There are independent norming estimates for the *Mega Test* by Keith Raniere, Grady Towers, and others; I find the comparative study of norming approaches very instructive.

Jane may be right that the reluctance of men to associate with women who outclass them intellectually is a limiting factor in the membership of the higher-I.Q. societies. Eighty-five percent of the slightly more than 25,000 people who attempted the *LAIT* were men, as were ninety percent of 3200 *Mega* testees as of January 1986.

In #68, Rick Rosner solicited opinions on three subjects. The subjects and my responses follow:

Abortion law: I think abortion is wrong, an interference with something sacred, but I do not believe it should be illegal. Prohibition of something this popular is unworkable. It would endanger the lives of those who feel compelled to seek out underground (and therefore unregulated) medical facilities. All sides of the abortion debate should be heard. Picketing should be permitted; violence should be punished.

The death penalty: Some people become so corrupt and destructive that the value of preserving their lives is not as great as the value of making an example of putting them to death–thereby preventing the needless death and suffering of further innocent parties. (I don't buy the arguments of those who say that the death penalty is not a deterrent; a small probability of being put to death many years in the future is one thing, but swift and sure execution would be a far more effective deterrent.) I share Rick's reservations about putting the power of life and death in the hands of the clowns in charge of the "justice" system.

Do you get more conservative as you age?: I'm 51. I tended to be conservative when I was a kid (my parents were Republicans), then became a radical in my teens, got conservative again in my late 20's and 30's, in a kind of libertarian way, then turned left again in my 40's, though I still can't stand left-wing politicians. I've learned not to take politicians of either the left or the right seriously.

For example, during the '92 campaign Bill Clinton talked about environmentalism, personal freedom, and the importance of science and knowledge, but since he became President he hasn't done much for the environment, to protect the people against large institutions, or to promote science and technology. These are my main political priorities and the areas in which I misplaced what hope I could muster that Clinton would actually *do* what his campaign promises *said* he'd do.

Common-sense thinking about public policy issues, independently of the right-left axis, is what's needed to find workable solutions for those real problems government can

do something about–but there are lots of other areas where government interference just makes things worse; on that point, I agree with the libertarians.

In a letter in #68, Chris Harding criticized the leadership of the ISPE for their heavy-handed and oppressive treatment of anyone who expresses disagreement with the party line. He wrote: "The original object of the board of governors was to lend stability to THE AIMS of the organization." The problem is right there. A benign organization exists to further *its members'* aims; when it develops aims of its own, particularly if they're handed down to the rank-and-file by the leadership, it begins to be dangerous.

In a letter in #69, Robert Dick wrote:

> Supposedly we have to cut the population to Save the Earth. Baloney! The world is not over-populated, it is underwealthy. Under capitalism (a wealth-producing engine of tremendous power) and democracy it can sustain far more population than it has now, and with most of the population highly wealthy by contemporary standards.

It probably *is* possible to increase crop yields and organize the economy more efficiently and to provide more people with basic necessities of life, though there are natural limits to resources like water (renewable, if it's not polluted, but with limited capacity per unit of time) and petroleum (nonrenewable).

But this is only one consideration. We've already upset the equilibrium of the physicochemical environment and the biosphere. A few days ago, I read that NASA has confirmed what many of us suspected all along: that the precipitous decline of the ozone layer is due to human activity. Today I read the details in a news report in the January 1995 issue of *Scientific American*, entitled "Holes in Ozone Science." The worldwide degradation of the ozone layer results in more hard-UV radiation getting through the atmosphere to fry us. Between 1978 and 1993, ozone levels above North America declined by 7.5%, and we are currently losing about .5% per year. Skin cancer rates are expected to rise sharply.

Toxic products of human activity have killed and injured untold trillions of living things, including billions of human beings, and have rendered large areas uninhabitable (and not just in the former Soviet Union), while industry continues to produce products containing exotic, untested chemicals. Waste-disposal issues remain unresolved in every jurisdiction in the world.

The world's rain forests, marshes, and other repositories of biomass and biodiversity, the biosphere's organs for cleaning the soil, water, and atmosphere, continue to be destroyed at such a rapid rate that they will be gone within the lifetime of many people living today, if things continue in the direction they're going.

Most scientists studying the earth and its waters and atmosphere now believe that global warming is a real phenomenon which threatens to drastically alter the earth's climate within a few decades or centuries, inundating coastal cities and making the growth of many staple crops impossible.

The overcrowding caused by unrestrained population growth makes people crazy. This effect is seen in all higher animals. In an experiment reported in *Scientific American* at least twenty years ago, mice or rats were confined in a small space and allowed to breed until they were very crowded (relative to typical conditions for laboratory animals). The rodents displayed a number of patterns similar to those of residents of high-density, low-

income areas in the large central cities of our major metropolitan areas: random and senseless violence, violence toward and abandonment of offspring, inability to cooperate with others, sexually anomalous behavior, and cessation of grooming behavior.

The rise of deadly diseases like AIDS is a predictable consequence of overpopulation. Five and a half billion highly interconnected modern humans provide a huge laboratory filled with microorganisms which evolutionary forces can use to whip up some really horrendous plagues. AIDS is just the tip of the iceberg–and the next deadly bug may be transmitted much more easily than the AIDS virus.

The list goes on and on. There are too many people for humanity to live in harmony with nature. Wherever people live, the environment is degraded. Our species needs to get it that there is a population crisis and begin limiting its own numbers before nature does the job for us, in a way we'll like much less.

Don't take my word for it, Robert. Do some research into the areas I've indicated above, using the scientific literature (including popular science magazines, like *Scientific American*, *Science News*, and *Discover*, which often include useful summaries of technical developments), and draw your own conclusions.

Rick Rosner's remarks in #70 about his "continuous contemplation of crap" touch a nerve. One of the aspects of modern man's predicament is the continual revolution in his mind of junk associations. He is on the edge of distraction from moment to moment and constantly forgets both his immediate, practical interests and his most serious questions about the nature of reality.

I like Rick's suggestions for contributors to *Noesis* in #71, which boil down to: be positive; be simple; be clear.

In his long essay, "The Mathematical and Metaphysical Bases of Choice, Purpose, and Free Will: a CTMU Critique of Noesis 67, 68, and 69" (in #71), Chris Langan once again treated us to intricate discussions of abstract matters heavily laced with CTMU neologism after undigested neologism–at least I haven't been able to digest it; does *anybody* follow this stuff?)

Thus it would not surprise me if some of you did not read the following paragraph from the ninth page of Chris' essay:

> Regarding the focus on original research, the last things any research-oriented group needs are rules, mandating the knee-jerk expulsion of members due to *what they say*. Such rules, unless implemented democratically within logical boundaries, constitute potentially fatal restrictions on research. The problem with Ron's stipulation, with which I happen to sympathize *as a goal*, is this: one natural topic of Mega Society research would be the nature and measurability of human intelligence. If we were to find that human intelligence is not practically measurable at the mega level, then we could not logically maintain this criterion *even as a goal*. The mega level could then be relativized to performance on a given test, or the members could *discuss* whether or not to change their name. But what works for kings and popes will not work here. With due respect to Ron's psychometric artistry, his tests are far more expendable than freedom of (CTMU-logically consistent) thought.

I agree very strongly with the point of view expressed above. It is utterly absurd to select people for intelligence then expect them to meekly knuckle under to intellectual tyranny, no matter by whom it is imposed.

I had the same reaction to Ron's dire pronouncements about the question of admission standards, but I'd already been pretty hard on Ron so I chose to let the matter drop. Besides, I think the point is moot. The psychometric instruments we're using now are not ideal but we can live with some uncertainty as to where we're really discriminating. We should be able to increase the accuracy with which we can establish where the mega level occurs on our tests.

The *LAIT* doesn't have enough ceiling; it just barely reaches the mega level. It also is no longer being scored, though there are thousands of people who have valid *LAIT* scores. If an official score report has been issued, and there is no qualifying language regarding submission after the scoring deadline, that score report provides a reasonably accurate (plus or minus about five points) estimate of fluid *g*.

The *Mega Test* isn't a pure measure of fluid *g*. It was designed to give equal weight to fluid and crystallized intelligence. Some people may not mind this, but I would prefer to see us base admissions on strongly *g*-loaded tests. The *Mega Test* also has limitations of ceiling; the mega level is too close to the top for maximum accuracy.

Polymath Systems' new *Stratospheric Test of Attention in Reasoning* (*STAR*), release of which has been delayed, should have more ceiling than the *LAIT*. The *Hyper Test* Ron has written about, which will contain his best spatial problems, will be much less strongly loaded on crystallized intelligence and will have a higher ceiling than the *Mega Test*. And we may eventually be able to make use of other high-quality, high-range tests, e.g., the *EIT* (when norms are available for it). For the time being, we must resign ourselves to the imperfection of our selection tests.

But it isn't up to Ron whether we use his tests for admission purposes. Once a score report is issued, the testee can do whatever he damn well pleases with it, and the Mega Society is free to use whatever tests it wants for admission purposes, regardless of the wishes of the test authors. ETS has objected for years to any suggestion that what its tests measure is equivalent to I.Q., but that hasn't stopped a number of high-I.Q. societies from using them for admission purposes, nor should it.

I disagree with Ron Hoeflin's estimate of the ceiling of the *SAT* in a letter in *Noesis* #72. Ron places the ceiling of the test (1600) at the mega level. I place the ceiling closer to 3.75 sigma than to 4.75–and my estimate is far closer than Ron's to the consensus among psychometricians.

I think that Ron tries to extract more information than is really there from frequencies of the very highest scores. The comparative rarity of perfect scores on any test reflects subtle defects in the test and the fact that even people with very superior intellects make careless errors.

Except when the overwhelming bulk of usable previous score data is on a single test, it makes no sense to me to throw away most of the data and norm a test by reference to just one other test, as Ron attempts to do using his *SAT-Mega* data set.

In another letter in the same issue, Ron addressed the question of racial differences in intelligence. I agree with the main lines of his analysis of the subject from an evolutionary perspective. In a recent phone call, Rick Rosner asked me my opinion of *The*

Bell Curve. Along with this letter, I have sent Rick a review of this book, which addresses the race question in more detail.

In *Noesis* #73, Rick reprinted an essay of mine, "Reply to Jerry Bails on Understanding Ourselves," originally published in *In-Genius*, the journal of the Top One Percent Society, and Ron Hoeflin's editorial reply, in which Ron quoted from John Dewey's *Art As Experience*. The first paragraph quoted is reproduced below:

> The senses are the organs through which the live creature participates directly in the ongoings of the world about him. In this participation the varied wonder and splendor of this world are made actual for him in the qualities he experiences. This material cannot be opposed to action, for motor apparatus and "will" itself are the means by which this participation is carried on and directed.

Although Dewey makes a number of interesting points, he's in the same boat with Huey and Louie. He accepts the way the psyche appears to itself, and the idea of *will* in particular, uncritically.

Dewey is right in seeking to bring sensation and "voluntary" muscular action into his examination of our experience of ourselves in the world, but "voluntary" action involving complex discriminative adaptation can be as mechanical as simple reflexes, operating with an infinitesimal amount of attention. Until he notices that his thought, emotion, bodily sensation, and muscular movement are all made up of poorly-coordinated fragments of psyche on automatic pilot, with delusions of agency, a man cannot assess his situation objectively.

Ron wrote:

> Kevin Langdon seems to be taking a...strained and absurd view when he says...that "man does not have will over his sensations, actions, emotions, or even his thoughts." We clearly do have will of some sort. To claim that will does not exist because we are part of causal chains leaves unexplained why we are endowed with thick crania to protect our brains. It seems to me that a photon would be a better model of a messenger than a cranium-protected brain. It seems clear to me that the brain's business is to receive messages, *do* something with them (i.e., process them in some way), and then respond to the environment in some way. "Stimulus-response" ignores the important intermediate processing that goes on *between* stimulus and response, a processing that is protected by a thick cranium.

Ron's second sentence shows that he's taking will on faith. People generally do this without realizing it. What they need to get through their thick crania is that it is possible to undertake an empirical investigation of the question of will. Much of the model of self which is the result of conditioning by the surrounding culture can be falsified by a few months of diligent self-observation according to the methods taught in schools belonging to the various authentic spiritual traditions.

Biologists have been able to make considerable progress in understanding stimulus-response linkages which account for most of the observed behavior of frogs. Would Ron say that a frog has will because it has a brain protected by a cranium? And what about a computer, which does lots of "intermediate processing" between input and output?

On the next page, Ron wrote:

> My feeling is that the concept of "attention" is too simple to do a good job, at least for me. I feel that it arbitrarily cuts off and truncates a very important facet of my own experiences, namely, the fact that I do things and that I have to make decisions before doing them. I can't just wait and let the universe act through my being, for that would be to act like an animal does, purely on instinct. To pause and reflect is to be attentive, but the pause and reflection has an outcome, namely an action. When I say that we have a "will," all I mean is that our acts of attention or reflection have an outcome in action.

As Ron pointed out, "to pause and relect" is one phase of a cycle. The complementary phase is "to act and reflect," but people don't reflect deeply enough, either when they act or when they pause, because their attention is caught by superficial daydreams, and the reality of their lives escapes them.

...and on the next page, Ron wrote:

> I suspect that words like "will" or "free will" are like straw men that proponents of certain extreme positions define in such extravagant ways that they have no chance of making sense. We have to constantly go back to our ordinary experiences in order to get clear what we mean by such terms. We won't throw out such terminology unless we can replace it with a new system of markedly superior terminology. But I do not think that Kevin Langdon has revealed to us such a superior system of thought. The concepts that he asks us to regard as adequate substitutes for "will"–"stimulus" and "response"–are reminiscent of the more general concepts of "cause" and "effect." The great British empiricist philosopher, David Hume, argued that the notion of cause-and-effect is vacuous.

It's all very well to dispute the utility of a metaphysical idea like cause and effect, but "stimulus" and "response" are from the vocabulary of science and have very precise meanings. The scientific question isn't whether *any* of human behavior can be explained on a stimulus-response basis but *how much of it* can be accounted for in this way.

...and a little farther down:

> When we climb a flight of stairs, for example, we do in fact experience the causal connection as the muscular strain in our legs as we lift them one after the other. Hume may have missed this direct experience of a causal connection because he may have been thinking of billiard balls striking one another, which is a causal connection in which we are less intimately involved. Perhaps Kevin would argue that muscular strain is simply something that we pay "attention" to, but I think it would be more normal to say that muscular strain is something we actively *do*, not merely passively experience as if we were passengers in someone else's body–someone who is making all the choices for us.

While the experience of muscular action is a very real thing, people are usually unconscious of it. A voluntary struggle to keep one's attention on the real, inside and

outside oneself, instead of letting it get lost in fantasy and daydreaming, has a strong effect on the quality of action produced, but this effect is *indirect*.

An excerpt from *Maximum Brain Power* [without an indication of who the author of this book is] in #73 refers to "I.Q. inflation." It is true that mean scores on certain tests have risen markedly over a period of a few decades. The tests this is true of are generally tests of crystallized intelligence, reflecting the fact that people are dealing with more sophisticated systems of information than they used to, due to the rise of technology and the mass media.

In a letter in #74, Chris Harding wrote:

> In view of comments about those with journal subscriber status only it seems to me that those who have simply received the journal and who show a history of zero input to it are perhaps no more than intellectual tourists or culture vultures or even voyeurs in some cases whose presence is hardly desirable and even off-putting to extraordinary minds and whom we can do without. I don't like the idea of providing a peep show for these people as if this were something expected of us as some sort of atonement for our crime of being clever! I would hope we might leave the idiocy of the lower order behind us for good and become ourselves for a change.

I am ashamed that a member of our society would stoop to such elitist garbage, labeling people whose only offense is that they purchased paid subscriptions to *Noesis*–offered to the public by the Mega Society–as "voyeurs," exhibiting "the idiocy of the lower order." I feel like a kid who brought his friend home only to have his brother spit in his friend's face. I would like to offer my personal apology for Chris' rudeness to our subscriber-guests. Hopefully, Chris will see the justice of this criticism and offer his own apology as well.

In a letter in #74, Chris Langan wrote:

> When you imply that superior minds can always reach each other by means of rational discourse, you are idealizing. It has now been empirically established that rationality is unrecognizable and irrelevant to Mega Society political dynamics. The reasons are clear enough. When some member of a group is intellectually dominant, having some kind of ability or information that others lack, he threatens to become *politically* dominant. But this may not please those currently in power.

My reading of *Noesis* has convinced me that Chris has a very highly developed intellect, exceptional even in this company, but this is not necessarily the same thing as impartial global rationality; people generally have blind spots. Chris has a way of arguing from inside his castle walls instead of providing digestible models of how the castle looks from outside so that others can find their way in without a prohibitive investment of time in something that is, for them, unproven.

Chris' claim of dominance has been pretty much undisputed until now, but he has not won many converts. I usually don't bother to dispute anti-relativity diatribes and theological absurdities; not being answered is hardly proof of the truth or importance of one's remarks.

I haven't noticed anybody exercising "power" lately in the Mega Society (unless you count Rick Rosner's and Chris Cole's crazy idea of requiring ten pages of material per

year from each member of Mega–which would hardly inconvenience Chris) and there certainly is no censorship of the pages of *Noesis*, as Chris well knows, having made liberal use of the availability of large amounts of space in our journal. Political dominance hinges on the ability to forge consensus and Chris has no track record in this department, despite the fact that he is usually right about disputed details.

On the next page, Chris wrote:

> At no point do I resort to undefined "jargon" (purposeful neologisms) unless the definition is either obvious or implied in the neighborhood of the term. I apologize for excluding glossaries; I'm painfully aware that *Noesis* contains little room for them. I usually say as much as possible as tersely as possible. Any effort to understand the CTMU is ultimately its own reward.

Neologisms sparingly interlineated into otherwise clear language indeed offer the advantages of conciseness, precision of expression, instructiveness, and extensionality. But when there are too many unknowns there is no solid context to attach them to. A lot of Chris' writing reads like *Finnegans Wake*. Effort to understand the CTMU may well be rewarding, but it's hardly evidence that that is the case that its author recommends it.

In a letter in #76, Chris wrote:

> It might be objected that the CTMU, being based by definition on the human cognitive syntax, already resides in each of our minds and thus represents no informational gain. But this syntax is not so easily formulated within itself, and equating metaphysical reality to it is neither obvious nor simple. As explained above, a net informational gain comes from freeing information once "locked up" (artificially isolated) within U*-pseudotautologies and the scientific and mathematical theories implicitly based on them.

Compare this passage from my *Analytical Tracking*, Part One, Section 3.2, "A Natural Psychological Language":

> A genius is capable of original thought because he is able to retain the intuitions which everyone glimpses past the distractions of the ordinary habits of thought which normally cause one to forget one's real thoughts at every moment, to discover new attention pathways through the labyrinth of associations surrounding every unique psychological object.
>
> Knowledge of the analytical tracking model language is an aid to the minimization work necessary to keep the language circuits from obscuring the questions which define the real boundaries of one's situation.
>
> The model is formulated in terms which are very close to the language of the internal coding system which focuses awareness to keep housekeeping cycles in operation and interlinked. Levels of awareness communicate and establish priorities and sequencing protocols almost instantaneously using the housekeeping language, with minimal intellectual noise, permitting the change of reference frame necessary for maintaining a thread through analysis/tracking turnabouts.
>
> When the underlying point of view is grasped, the formulations of the model are seen to define a standard of reference which permits a more precise awareness of the interconnections between the mental constructs with which thought orients itself to the world.

Recognition of the interchangeability of frames of reference creates the possibility of expressing ideas in an extensional form which connects the immediate context with the larger systems of which it is a part. The analytical tracking material incorporates and systematizes many of the symbolic tricks and rules of inference used by the mental apparatus.

As one gains an understanding of how complex critical thought patterns are constructed from elementary propositions of the basic language, it becomes possible to deduce the sources of the symbols of psychic life, extracting information content from the valuative contexts in which it occurs, and to increase the return of data from memory inquiry cycles through the representation of how the data must appear in this language.

Analytical Tracking, Part One (29p.) is available for $10 postpaid from Polymath Systems at the above address.

I was interested in the idea of weighting correctly answered test items by their proximity in degree of difficulty to other correct items in Glenn Arthur Morrison's letter in #77. High-range testing is a new field; interesting experiments and concepts appear from time to time, based on different approaches to the measurement of intelligence and more or less thought through and well-constructed. Those concerned with admissions policy for the higher-I.Q. societies need guidelines on the meaning of exceptional scores on psychometric instruments; this kind of dialogue is highly useful for that purpose.

The various societies have organized psychometrics committees which generally put in place a list of qualifying scores for a group and then become inactive. Some qualifying scores have turned out to be wrong. For example, the Triple Nine Society recently lowered its *SAT* cutoff from 1550 to 1470. New tests and new data on old ones appear. Tests are changed or retired. Generally, the societies are slow to adjust their requirements, because no one's minding the store. It seems important that there should be an ongoing dialogue somewhere on high-range testing.

To address this problem, I proposed that a refereed journal be established, the *Journal of Right Tail Psychometrics*, devoted to the measurement of extremely high levels of intelligence. I intended to edit the journal myself, then Ron Hoeflin was going to do it, then Cyd Bergdorf and I were going to collaborate on it, but none of these plans materialized. I mentioned this project in my comments on *Noesis* ##65-66 (published in #80).

The place where more material on high-range psychometrics is published than anywhere else is here, in *Noesis*, and much of it, like Morrison's letter, is interesting and thought-provoking. Most of the authors of what Ed Van Vleck calls the "home-brew" tests–high-level, untimed, take-at-home I.Q. tests developed by amateur psychometricians since the 1970's–are members of Mega. I think that we should take responsibility for carrying on the needed debate on right-tail psychometrics issues through our journal, for our own benefit and in cooperation with our sister societies. I am only suggesting recognition and systematization of something we are already doing. In this sense and because of its position as the highest-cutoff society devoted to unspecialized high-level intellectual exchange, the Mega Society functions as the metasociety.

In his essay, "On Free Will," in *Noesis* #77, Robert Dick wrote:

First of all, we read that man has no free will, he is (just) a machine. According to this reasoning there is no such thing as a mind, there are only

brains. This reasoning agrees with Mary Baker Eddy that "there is no life, truth, intelligence...in matter." and it says matter is all there is. All is mechanism. Backing this up is Kevin Langdon writing about mental "forces," as though minds are mechanisms. I.e. he begs the question.

This equating of free will with the supramaterial doesn't follow at all. It is logically possible that there is a supramaterial realm conjoined to the material world sufficiently for some portion of a man to dwell in it and that both the material world and this supramaterial realm exist in a clockwork universe where there is no freedom at all. It's not a question of material vs. immaterial, but one of understanding where the possibility of freedom lies.

Far from begging any questions, I am presenting ideas which lend themselves easily to verification. I urge you to verify them for yourself. Try to sense your left arm every time you pass through a doorway. Can you do it? How consistently? Can you do it when you've got something "important" on your mind? Take these questions not as something to draw conclusions about mentally but as something to actually verify by performing the experiment for a period of time (try one day).

In a letter in #78, Chris Langan put the following words into the mouth of his alter ego, Jojo Einstein:

> See, you're just a genius. Ricky's a *showman*. He knows what kind of audience he's got: a bunch of dweebs and poindexters who've been through the whole IQ society gambit of cranks, quacks, crackpots, sophists, know-it-alls, and tinhorn WGA's. To get over on *them*, all he's got to do is indulge in a little self-parody, adopt some humble affectations, put on a few self-effacing airs, and sit back while the sycophantic fan letters pour in. *You're* the guy who "puts 'em to sleep" with world-class insight. But *he's* the guy who [sic] they praise as a bracingly cool breeze of honesty, originality and fresh air!

Chris doesn't like not being taken seriously, but Rick doesn't take *anybody* seriously, including himself–except that every once in a while he blows his cover and it becomes apparent that he thinks seriously about things. Rick doesn't want to claim more knowledge than he actually has and is often willing to expose his own stupidity; it's no wonder people find him refreshing. The possession of high intelligence does not preclude the possession of stupidity–and is even especially hospitable to it, as Chris and Jojo have noticed–but most members of these societies won't cop to it.

Chris, what's a WGA?

At the end of a letter in #78 dealing mostly with psychometric technicalities, G. Arthur Morrison posed an interesting question: are "facility" and "power" distinct subfactors of *g*? This is clearly a different distinction than that between "fluid" and "crystallized" intelligence.

In Chapter 5 of *Bias in Mental Testing*, Arthur Jensen devotes a section to "Speed and Power." The following passages are excerpted from that section:

> Investigations have shown that, when the items are evenly graded in difficulty and have plenty of "top" (i.e., very difficult items), and the test is not too long for the time available (i.e., the fast students can finish although they reach their difficulty ceiling before the end of the test), giving subjects

additional time beyond the prescribed time limit adds very little to the score and has little effect on the rank order of subjects' scores. Studies of the Otis IQ test illustrate this nicely [L.J. Cronbach, *Essentials of Psychological Testing* (2nd ed.), 1960, p. 222]. The Otis Verbal IQ test has a time limit of 30 minutes. When subjects are allowed an extra 15 minutes (i.e., 50 percent more time), they increase their total score an average of 1.5 percent. The Otis Non-Verbal IQ test allows 20 minutes; when subjects are given an extra 30 minutes (i.e., 150 percent more time), they increase their scores an average of 1.7 percent. The Henmon-Nelson IQ test has a time limit of 30 minutes; giving subjects an extra 20 minutes (i.e., 67 percent more time) increases their scores an average of 6.3 percent.

. . . . . .

One can measure a speed factor in almost pure form only by divesting the timed task as completely as possible of any cognitive difficulty whatsoever. The Making X's Test is such a device. Subjects are asked to make X's in rows of "boxes," 300 "boxes" in all, with a time limit of 3 minutes. The subject's score is the number of X's he makes in this time. These are highly reliable individual differences. It was found in large samples of children 9 to 12 years of age that scores on this speed test had low but significant correlations (averaging about .20) with a general intelligence factor determined from timed tests [Jensen, "Do Schools Cheat Minority Children?", *Educational Research*, 1971, 14, 3-28]. The factor common to both the speed test (Making X's) and the timed intelligence tests may be motivation, as it is generally believed that motivation affects speed but not power. Speeded tests composed of many easy items have been shown to reflect motivation much more than untimed or liberally timed "power" tests. As [J.P.] Guilford notes in reviewing this evidence [*Psychometric Methods*, 1954, p. 369], "Thus, speed conditions where items are not very easy open the door to many uncontrolled determiners of individual differences in scores."

"Power" is fluid *g*; "facility" is a secondary factor.

That's the simple answer, but there's more to it. It clearly requires at least a modicum of local facility in some workspace for power to operate. When facility in one thing exists alongside clumsiness in another, there is generally a force opposing native facility; something is resisting the impartial representation of reality as it is and that something always turns out to be identification with some level of ego.

We are not living in a society which allows people to grow up without psychological scars. Intelligent people's intellects function along with their blind spots and neurotic behavioral patterns. Our attempts at measurement get us tangled in this difficulty. Great care is needed in the creation of test items to minimize the effects of both cultural and personal biases.

According to the "investment theory" of fluid and crystallized *g*, the investment of fluid intelligence in specific subject matter creates crystallized intelligence of a culturally-specific type. The amount of fluid *g* possessed and the amount invested in similar external environments may be imperfectly correlated because of biasing factors affecting individuals differentially.

I was interested to see Chris Cole's "The Quest Test and the Sieve of Knowledge," in *Noesis* #79. I was among those who submitted analyses of Daryl Inman's

Quest Test which were published in a number of issues of *In-Genius*, the journal of Ron Hoeflin's Top One Percent Society, in 1993.

We found many of the same problems Chris wrote about in this article, and a number of others. I'll reproduce just two examples, from my analysis of the *Quest Test* items in *In-Genius* #82, to illustrate how tricky this business can be:

> 15. Surface:Figure::Mobius:Klein
> The imprecision of this item makes it impossible to answer correctly. The surface of the Mobius strip and the surface of the Klein bottle can be considered analogous (the first is given a twist in the third spatial dimension and the second in a fourth spatial dimension [not in time]), but the word "Figure" does not fit as an analogy to "Surface," nor does it connote three-dimensionality, as Inman apparently believes.
>
> 31. Pathogen:Thermometer::Lethal Wave:Dosimeter
> Anyone with a grasp of basic physics regards radiation as either waves (plural) or particles (depending on context), but a lethal wave (singular) would be a tidal wave, or tsunami. The instrument used to measure tidal waves is called a "Tidal Gauge."

These flaws are trivial, however, compared with the absence of an explanation by Inman or his statistical collaborator, Chris Harding, of the procedure used to norm the test. It seems highly unlikely that in a sample of almost 1000 *Omni* readers, the highest I.Q. would be 160, as the scores issued would indicate.

On the last page of his essay, "Some Miscellaneous Implications of CTMU Structure," in #79, Chris Langan wrote:

> And Kevin, may I comment on your clever critique of free will? You cite an example–a man with a neurological disorder–whose conscious "will" is "tricked" into fabricating a reason for an artificially stimulated act. The same kind of subliminal stimulus could (so they say) be used on a healthy subject. But either way, all we can say is that the natural order of things, in which conscious volition operates as usual, has been short-circuited.

The example I quoted was from an article on an experiment performed by Michael Gazzaniga, an eminent brain researcher, in which split-brain patients (people whose corpus callosum had been severed or in whom it was nonfunctional) were given a command in such a way that only the right side of their brains could receive it, then asked what they were doing when they began to carry out the command. The left brain generally concocted reasonable but false explanations. Something very similar is a well-known feature of the psychology of normal subjects who have been given post-hypnotic suggestions.

The exercise of conscious volition *is* the natural province of man, but "man" in the society we live in is not man. He is an automaton, or rather a collection of automata, sleepwalking through life and dreaming that he is in control of himself and his faculties.

In "Why I'm Interested in Intelligence Testing" (*Noesis* #80), Chris Cole wrote:

> Earlier in this issue, Kevin Langdon argues that we should submit our proposed (and supposed) intelligence tests to the peer-reviewed publication process, and proposes that we start a journal that will include academic psychometricians on the mailing list. This is an interesting *non sequitur*,

although I think we all understand why Kevin makes it. The truth is that no reputable psychometrics journal would publish an analysis of any of our tests.

It always pisses me off when somebody speculates about my motives, smugly announces his conclusions without consulting me, and gets it dead wrong. The *truth* is that academic journals have already published analyses of tests by Ron Hoeflin and Chris Harding. (I have a copy of an interesting, though somewhat short-sighted, published review of the *Mega Test* by Roger D. Carlson, Ph.D., which does not indicate which journal it's from; Ron, is this the review from *Test Critiques* that you mentioned in #67?) Raymond Cattell and Arthur Jensen have expressed interest in my work in intelligence testing.

I'm interested in seeing a high-range psychometrics journal established somewhere, for a number of reasons, including intellectual interest in the field, the need for a forum where my tests and other similar instruments can be evaluated, and the need of the high-I.Q. societies with cutoffs above the 99.9th percentile for refinement of their admission standards. It doesn't make sense to me to sit around and wait for somebody else to initiate this needed project.

POSTCARD FROM RICHARD MAY

Dear Rick,

I think it may be unrealistic to think that *Noesis* is likely to impress Nobel laureates, no matter who is the editor of the journal, no matter even if they ought to be impressed, a probably unlikely ought. Your informal style at least does not inhibit submissions as some might. Perhaps we need to discuss our visions of what *Noesis* should be and who we think we are (and our various subpersonalities which swell the roster). At very least you have published the journal for a long interval and have a predictable performance level. What would we compare this with?

Best, Richard