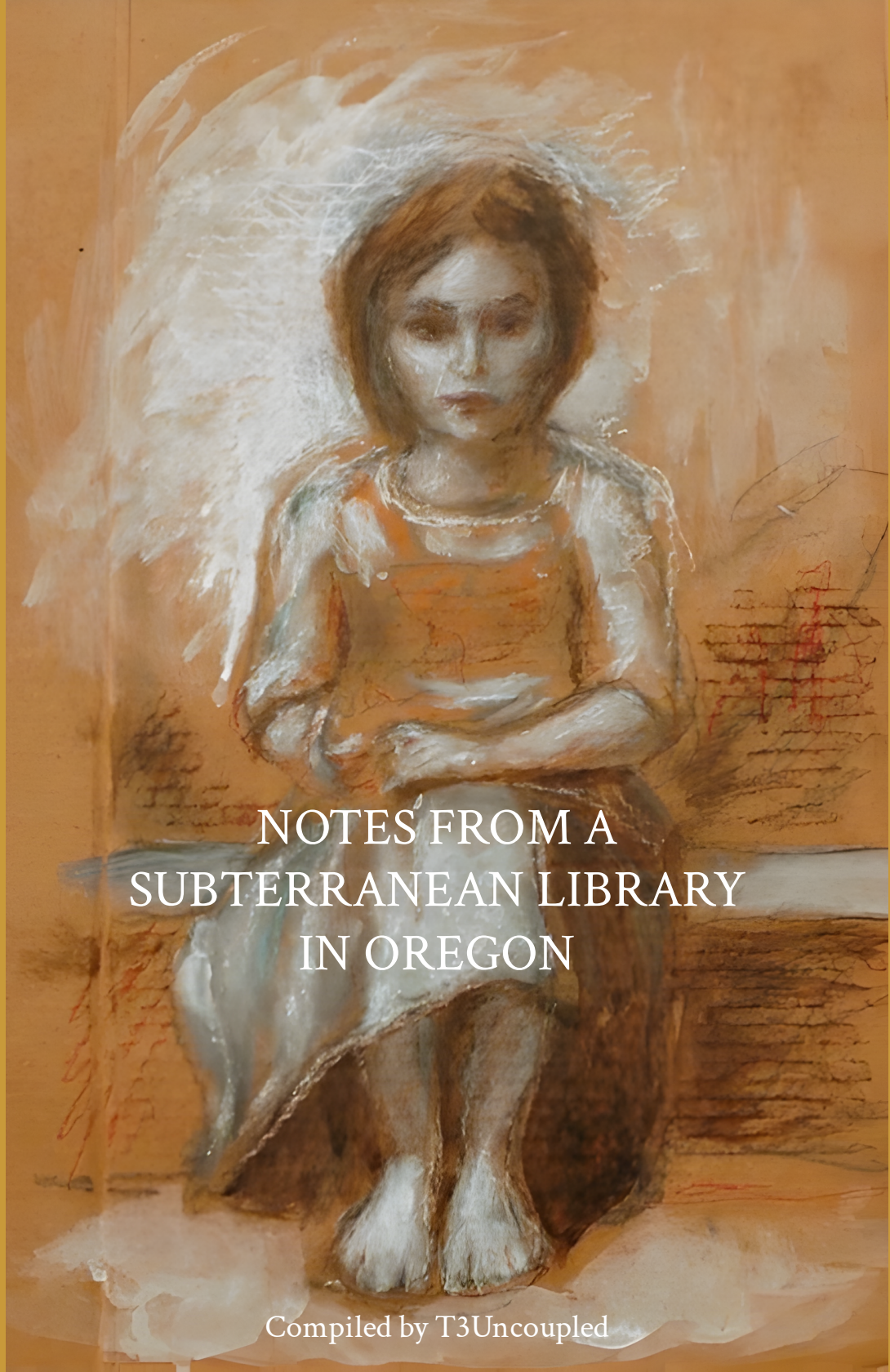
This book is a collection of the forgotten works of Raymond Peat, compiled from various newspapers, journals, archives, and yearbooks. It includes commentary on 20th century politics, nutrition, the environment, and health.

May his work and insight live on, illuminating the ever so muddy waters of our culture.

EXCERPTS AND ARTICLES BY RAY PEAT



# NOTES FROM A SUBTERRANEAN LIBRARY IN OREGON

Compiled by T3Uncoupled

# Table of Contents

**Newspaper Excerpts**

**Articles**



**Letter Correspondence**

## War's bad publicity

(1967)

Lloyd Paseman, in his article in the Sunday Emerald Empire, quotes Mr. Armstrong as saying that he has seen many atrocities committed by Americans. But not long ago I personally heard men from the U.S. State Department (who visited most of the universities in the country) say that Americans had never committed atrocities in this war. These men were assigned to their educational work by Dean Rusk himself. Does Mr. Armstrong suggest that our government lies?

Another statement in the same story is questionable. Mr. Armstrong says it was his job to photograph Viet Cong atrocities. But in the months he spent in Vietnam he claims he never saw an atrocity committed by the Viet Cong. If seeing and photographing them was his job, why didn't he see them?

Stories such as this one must contribute to the growing opposition to the war, even though Mr. Armstrong says he opposes the war for reasons other than the atrocities being committed. What else could account for the recent Gallup Poll that reported 52 percent of the people now oppose the conduct of the war? It must be the bad publicity the war is getting, because I don't think Americans would let themselves be influenced by selfish interests such as avoiding inflation and higher taxes.

## Pacification plan

(1967)

Recent estimates of the current annual cost of the Vietnam war range from $25 billion to over $30 billion.

With a Vietnamese population of 13 million, this is about $3000 per year per person, or $15,000 per year for each family of five. In three years, this would amount to about $45,000 for each family in South Vietnam.

If the United States government gave this amount to the people it would probably pacify them more effectively than the "defensive hamlets." With that amount of money (contrasted to their present income of a few dozen dollars a year, it's fabulous wealth), they could afford to be capitalists, and communism wouldn't have the slightest appeal.

It was President Kennedy's knowledge that it's cheaper to prevent revolutions than to defeat them militarily that led to the Alliance for Progress. Unfortunately that alliance hasn't progressed beyond giving a few million dollars to a few Latin American banks to distribute on their terms to farmers who had land they didn't mind mortgaging.

Maybe Nelson Rockefeller or Robert Kennedy will be able to lead the United States back to a rational foreign policy.

## Government deceit

(1967)

Not long ago, some “extremists” accused the United States government of creating false incidents to justify invasion and escalation of Vietnam.

Now Assistant Secretary of State Bundy admits that the Tonkin Gulf Resolution was drafted before the incident occurred.

Our military budget accounts for more than half of all military expenditures throughout the world. How long does our deceitful government think it can make people believe that this disproportionate expense is defensive and not aggressive?

## Art and sculpture

(1967)

*In Junction City High School, a few interested students with ability in sculpture are making models of a mixture of beeswax, turpentine and cooking oil, which they will cast in metal. This general process was used during the Renaissance, especially for small bronzes. It is widely used by professionals, but few high schools teach beeswax sculpture, said Raymond Peat, art instructor who introduced the process this year at Junction City High.

"Practically all students are going on to college, and the old conception of leather work, clay modeling and finger painting as the art course often has little to do with their future requirements. The students working in beeswax sculpture probably will turn out pieces of lasting value that they can be proud of and that will be worth displaying in their homes. If a student's project doesn't turn out, he can use it for a sinker when he goes fishing."

## Equal treatment

(1969)

I guess if the people of Texarkana don't mind living with a million rats in their town, we of Eugene shouldn't mind when our neighbors dump their garbage in our air. But I'll bet that if I dumped my garbage on the front lawn of a grass farmer or a Weyerhaeuser executive they could quickly find a law to cover the situation. I think we should insist on equal treatment, and at least be allowed to dump garbage in their yards on certain days, or to a limited degree.

## Nosey question

(1969)

Lately I have noticed that the perpetual sulphurous smell of Eugene is stronger than normal. Since Weyerhaeuser installed expensive anti-pollution equipment a couple of years ago, and since we have a state agency that prevents industrial pollution, what do you suppose could be the source of the stink?

Do you think our city might be rotting?

## Dear good times

(1970)

Mary Schooner wrote a very bad article about sugar. Milk is not addictive, and doesn't cause a sugar flush like eating candy. This is because of the very slow absorption that results from the protein and fat content. If you've ever vomited after eating a mixture of rice and milk, you've probably noticed that the rice has disappeared within a few minutes, while the milk is still present as curds. This is because polysaccharides (starch) are very quickly changed in the stomach by saliva into ordinary sugars. Lactose is unique among sugars, in that it promotes the absorption of calcium, and also supports the growth of useful bacteria, which suppress the dangerous and gas forming microorganisms.

Contrary to Mary and Michio and the AMA, a high starch diet is very bad for the health of people and fetuses. Infant mortality increases with the price of milk, because pregnant and nursing women substitute cheap and lethal starch for expensive milk. High starch diets increase the rate of mental retardation; diets with more protein and vitamins, as provided by milk, produce children with bigger brains and bodies, and much higher IQs.

To advise pregnant women to replace milk with a mess of miso, flour, and noodles is to help degrade the species. M.D.s who prescribe "formulas" for baby-feeding, made of water with sugar or starch and other additives are doing the same thing.

Brain size and the number of nerve cells and synapses are not strictly controlled by genes. Diet and environmental stimulation can make a difference of hundreds of grams of brain mass and billions of nerve cells and trillions of synapses. Before committing your baby to the necrobiotic diet consider the cranial size of the corn-fed rednecks you've met.

## Project sunshine

(1970)

The CODE committee claimed in an advertisement that a nuclear power plant "will help to protect the environment."

Professor Ellickson, the physicist who is co-chairman of the committee that paid for the ad, must use the same logic as the government scientists who used to claim that radioactive fallout is good for you, or at least not harmful; they called their study and public relations job "Project Sunshine."

## Humanistic therapy

(1971)

Your article, "A new look at the meaning of reality," was interesting, but uninformed. Some criticisms: These ideas are not so new, at least when compared with what you call "traditional behaviorism." You seem to be trying to give the impression that these humanistic psychologists are emotional rebels against staid, sane and scientific traditionalists like Skinner, and that a theory is just now being created for them.

Kurt Goldstein (*The Organism*) apparently coined the phrase "self actualization," which was central to Maslow's very biological but also social psychology. Whitehead and the Gestalt psychologists showed several decades ago that consciousness shouldn't be thrown out of biology and psychology. Carl Rogers (*Client-Centered Therapy*) did very coherent theoretical (as well as sound empirical) work which led to the interest in group therapy and the awareness of the social implications of therapy. Merleau-Ponty and Michael Polanyi have provided very broad critiques of the pseudo-objectivity that Laing refers to.

## Trees important

(1971)

Eugene is being degraded. Trees are again being removed for streets. Apparently people think bigger roads are more important than trees, considering the surrounding forests to be sufficient to "improve the air." If the road builders think they are improving the city, they are mistaken. Russian researchers have shown that the number of trees in a neighborhood is important for improving the air quality, regardless of the extent of surrounding forests or farms. They found that a single tree can annually remove pounds of sulphur compounds and other gasses and particles from the air, and that the effect is felt in the immediate vicinity of the tree. Even if Weyerhaeuser and traffic and other polluters don't get worse, our local pollution will increase as city trees are removed.

## Gas industry's "shortage"

(1972)

People who express confusion about the gas industry's story of short supplies and their search for new ways to increase consumption of gas, should read Robert Sherrill's "Energy Crisis! The Industry's Fright Campaign," in the June 26 NATION. He points out that in 1968 the U.S Supreme Court rejected higher profits on gas because "each year new reserves exceeded production." Then "beginning in 1968, and for the first time in history, the industry claimed that it found less gas than it sold. It has been claiming the same thing for every year since. The basis for these claims is in industry's file cabinets, secret, not available to Congress or to the public."

An interesting contrast to this situation is that in the U.S.S.R., where energy is publicly owned, there is serious scientific discussion of the possibility that natural gas might be truly inexhaustible, as a result of continuous replacement in a natural energy cycle.

There is a similar contrast in our attitudes toward the fixation of atmospheric nitrogen by higher animals: The Russians have studied it for many years, while all but a few American scientists ridiculed the notion, preferring to talk about the "world protein crisis" and population control.

## Dear Tim

(1972)

Dear Tim

I have just read GE 44, and have comments on several things in it. Immortality of the body will resolve the disputes about what constitutes survival of the personality. To achieve it, we have to know what the "intrinsic" causes of bodily deterioration are, in aging. When growth stops, most differentiation of cell function stops, and soon dedifferentiation and cell death begins. Anything that interferes with energy production promotes the process: damage leads to thickened connective tissue, which limits diffusion of oxygen, which causes more damage. In youth and health, cell water is "liquid-crystalline," or ordered, and this order causes the "cell sap" to retain potassium and exclude sodium. Anything that lowers the energy charge of the cell causes the water to "melt" or become disordered. When dedifferentiation is complete, division is all the cell can do: wasting from cell death, and cancer are the two outcomes of "aging." Progesterone and testosterone, two very similar female and male hormones, promote differentiation. Estrogen (men have about as much as women do except for a peak following ovulation) dedifferentiates, and promotes all the known processes of aging.

Experience modifies cell water (especially in nerves), and so is intimately involved in development of tissue: a stimulating environment causes brain growth in rats, even when they are mature. A large brain/body ratio correlates with a long life span. Acquired brain size happens to be inheritable, at least in rats. (These data are all American, published in the most respectable journals. The Russians for a long time have had an attitude toward matter — even in the 19th century — that makes them more respectful than the average Western person of the abilities of

matter and organisms, and better able to have richly varied perceptions about nature. The mechanistic-Cartesian western tradition of science tries to dominate "passive matter" and distains, ignores, or steals the real achievements of the Russians — whose claims to have invented just about everything turn out to be true, if you study sources rather than western review articles.)

These data (and many more) imply that "culture," in a very specific sense, reflects and limits bodily evolution, development and life-span, as well as having its more obvious effects on consciousness and behavior. Discovery and high generality of knowledge contribute to renewal of the body — bodily flexibility and sensitivity are an aspect of "high generality of knowledge." Cellular, behavioral, and intellectual complexification require participation in a richer culture. Sexuality is an important part of this evolution-for-survival: consider the idea that orgasm is always a discovery-perception of newness. The minimum immortal unit is apparently a sexual-intellectual couple. There are vitamin-mineral-hormone-manipulation technologies that delay aging, but awareness is essential to stabilize the complexification.

Instead of eugenic selection, we are left with the personally more complex and rewarding responsibility for growth.

It is probably through modifications of cell water that attitudes can change enzyme function, response to drugs, intensity of consciousness, etc. Palladin, a famous Russian enzymologist, has shown many effects of awareness on enzyme activity.

Kozyrev's ideas on time and organismic "handedness," etc., are probably closely related to the microstructure of cell water. Incidentally, the hemispheric spin effect is mostly mythical: it was only recently that someone finally managed to design a very big,

highly insulated vessel that would consistently show a hemispheric

spin; the bathtub effect depends on the shape of the tub, small currents, etc. — this was a good example of how a good theory can persist in spite of many years of non-conformation.

Dror Sadeh, while working in Washington D.C., did some experiments that confirmed Kozyrev's "wildest" suggestions. He mounted a cesium clock on a truck and compered its signal with that of a fixed clock in Washington; as he drove up and down the coast, the distant clock showed a "red shift," corresponding to distance (he went as far as Maine, about 1500 miles away). The distant clock apparently ran more slowly, or else distance altered the frequency of the radio signal; the effect began at sun-rise, and continued through the day; he observed a similar effect in star-light passing close to the sun. This spoils the red-shift argument for the expanding universe, and also changes the probable meaning of the circumnavigated cesium clock that was supposed to confirm the existence of a relativistic "twin (or clock) paradox." They support Kozyrev's contention that time is a form of energy and organization (negative entropy). There is a developing link between these ideas and those of the Russians who maintain that telepathy and PK use a kind of energy that is not electromagnetic: H.C. Dudley is working on the implications of a universal, isotropic "neutrino sea," which among other things forms a link for nuclear interaction at a distance, and serves as an "ether" for transmission of electro-magnetic energy. Nuclear decay, for example, turns out to be an equilibrium process, not a "constant," and is subject to alteration by such things as molecular order. His most recent work will appear in the physics journal NUOVO CIMENTO soon.

The Kirlian effect itself doesn't seem to involve anything but a visualization — by a high frequency alternating "corona discharge" — of conductive regions in and around the organism; an understanding of the conductive medium — electronic

resonance, or “neutrino sea,” or whatever — is a problem that has been recognized by many others. Hormones, radiation, emotions, etc., cause such changes of tissue conductivity and charge distribution, that can be detected with a Burr microvoltmeter or more common instruments.

If we can avoid a compulsive answering-too-soon, and assimilate a very great variety of experiences, high generality interpretations will eventually become possible.

## Consider facts

(1973)

I was interested to see your editorial admission ("Mixed views on Allende's fall") that you support democracy only when it works in the interest of your favored class. If you believed in democracy itself, could you say that the overthrow of a democratic and constitutional government by violence "may have been good or bad"? Will a comfortable middle class justify anything? Would you also assert that "the overthrow of the U.S. government may be good or bad, depending on whether it stops inflation or not"?

When the poor can afford to eat, food might seem relatively scarce to the middle class, who always had an abundance. But before you blame Chile's inflation entirely on Allende's "Robin Hood sort of solution," you might consider some of the facts of U.S. intervention in Chile's economy.

The CIA created a corporation in Switzerland which it used to offer nonexistent copper for sale in such huge quantities that it caused the world price of copper to fall. Since Chile depends on the sale of copper, this single plot seriously damaged the economy. Several other such conspiracies made it almost impossible for Chile to import needed materials. CIA experts were also found to be involved in training terrorists in a fascist organization, "Patria y Libertad." This organization, with a group of retired officers, had already planned to assassinate Allende and seize the presidential palace in March, 1972. One of the leaders escaped arrest at that time, and in an interview published in the Bolivian paper "Ultima Hora" announced that their plan was to establish a military government.

Even relying on AP and UPI for your information, you could draw more reasonable conclusions about Chile's fall.

## Fluoride pollution

(1973)

With fluoride pollution of our food steadily increasing, why do the legislators want to spend our money to put additional fluoride into our drinking water? Do they even know how much fluoride is in our food? Do they know that in some regions the fluoride concentration in food is 10 times higher than in the water?

## Basis for shortage

(1973)

About 20 years ago the corrupt Eisenhower-Nixon-McKay government began creating the foundation for the present energy crisis by giving away public power resources to the private monopolies: offshore oil, hydroelectric capacity and nuclear power were among the resources given to private interests. Senator Morse warned at that time that future power shortages would result from such policies.

More recently, the big news in the financial world has been that power monopolies were attempting to unify their control over the entire fuel industry. As this monopoly has grown, fuel and power prices have risen sharply, but investments in new productive capacity have been small. All prices are being inflated by this profiteering in energy.

Many of the same people who have created the energy shortage — including Nixon and the monopolies — are now trying to rush us into nuclear power generation without proper regard for safety. Recently some U.S. physicists inspected nuclear power systems in the USSR. As reported in an American science magazine, some of them couldn't understand how the Russians could afford to have so many safety features in their reactors, because such safety wouldn't be "profitable" in the United States.

"Professionals" of that sort, who balance profits against public safety, shouldn't be surprised when the public doubts their objectivity.

An oil company is developing a new kind of reactor which is supposed to be very safe, with the fissionable fuel enclosed in tiny capsules. However, even the professional physicists directly involved in that project have been ignorant of new data which suggests that unique dangers may be inherent in this design, as a

result of the “safety” feature itself, the high ratio of surface to mass of fuel.

It’s time that more “amateurs” get involved in the politics of power and safety.

## Not generous

(1973)

The aspect of Mailer that you condemn is what's best in him.

You apparently have evidence that "good fucks" don't "make good babies," since you saved your wildest insults for that "pseudo-biological hypothesis" of Mailer's. Before you can convincingly reject this and other sexual-political ideas of Mailer's, you should be able to dispose of the following observations, which have reported in recent years in medical, biological, and psychological journals:

Circulatory patterns are not the same in women who have a capacity for pleasure and orgasms, and those who don't.

Schizophrenia has autonomic and circulatory correlates.

Women who are schizophrenic at the time of conception abort male embryos much more often than female embryos, and if their symptoms appear later, male babies are more likely to have defects: male embryos are known to be more sensitive to a variety of unhealthy uterine conditions.

Bad uterine conditions can cause defective babies, including small brains and mental retardation, depending on when the trouble occurs, what it is, etc.

Improved uterine conditions — presumably the circulation — can improve the percentage of healthy and precocious babies.

The literature that may be relevant to this question is surprisingly large and varied — surprising, because our culture is ruled by an anti-biological dogma that denies any connection between physiology, emotion, and politics.

Your commitment to an abstract, anti-biological form of existentialism is fine for a bourgeois literary critic, but to imply

that such a philosophy is the best hope for women is not very generous.

## Gossip unfounded

(1975)

I was asked by the assistant director of the SEARCH program to help with the organization and teaching of a class in nutrition. The student who was helping to get a department's approval encountered the explanation from a department source that I would not be allowed to teach it because I advocated "Adelle Davis' ideas." He said that they "know where" I "get my information." As far as I know, I have never talked to anyone from that department, so they could have no proper basis for knowing where my information "comes from." (Much of my information does come from an underground source, the subterranean science library at the U of O.)

The fact is that I have never "taught Adelle Davis' ideas," and have rarely mentioned her books in a class, because I disagree with some of her emphasis, and feel that her books are not organized in a way that would make them easy to use in a class. However, I consider her to have been infinitely more respectable than the envious nutritionists who have called her a quack.

This kind of unfounded gossip may be normal academic ethics at the University of Oregon, but I have no reason to tolerate the dissemination of misinformation about myself (or about Adelle Davis or Linus Pauling or Roger Williams), so I am requesting that those statements either be retracted or defended in a public forum.

Since I was accused of teaching things that were "not true," I think the accuser has the obligation of meeting me in a public debate on those issues, or of admitting his error.

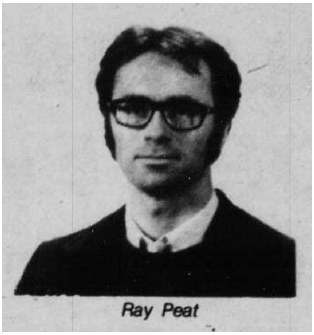
## Psychedelic

(1975)

Tim Leary stands up for human rights and human desires. He's in prison, and may not get out in the 20th century.

Richard Alpert, of the New Haven Railroad family, is free to travel anywhere in the capitalist world, spreading the old ruling-class lie that desire is bad for you, that simple, thoughtless, passive labor is a proper human role.

Alpert is the opiate of the hippies. By comparison, Tim Leary is psychedelic.



Ray Peat

## Remember Chile

(1975)

U.S. policy in Vietnam has been hard on the children of that country, as reported by the news media. Intervention in Chile by the U.S. and by the CIA (which reputedly has some ties with the U.S.) has also brought suffering and danger to most of the children of that country. The fascist dictatorship (which was welcomed by many U.S. newspapers as well as by Kissinger) has announced plans to subject 600,000 children to "rehabilitation" in rural camps or in other special "correction" centers. Many of these children are described as coming from families "in conflict with the established social order," that is, their parents were supporters of the previous Popular Unity government. Support for that government was retroactively declared to be treasonous, with the result that many of these children are now orphans.

If Kissinger and Ford are really concerned about the well-being of children orphaned as a result of their policies, they could express it by withdrawing their diplomatic recognition of the fascist rulers of Chile, and by demanding the closing of their concentration camps.

## Almost anyone

(1976)

Pro-nuclear scientists, especially when their income depends on it, can behave oddly. In the 1950s, the program that measured bomb fallout was named “Project Sunshine”, and some government scientists even claimed that fallout was good for us, “because radiation produced evolution.” At least, they assured us, a little radiation wasn’t harmful. Some “experts” still claim that the Hiroshima bomb didn’t cause measurable genetic harm, but to reach this conclusion, people who were upwind from the explosion have to be averaged in.

The experts in nuclear energy often find it profitable to disregard the public’s safety. More than 60,000 drums of radioactive waste were dumped in the ocean near the U.S. coasts, and after years of such disposal, divers investigated and found the barrels had been crushed by pressure, allowing the radioactive material to escape. Could this be considered “accidental” pollution? According to “Industrial Research”, nuclear accidents have been increasing recently; however, much pollution is “permissible,” rather than accidental. One government plant measures its daily emissions in terms of pounds of uranium.

Establishment physicists claim that their knowledge is complete enough to prevent miscalculations, but a State Department official has pointed out that nuclear test blasts have been unpredictable in size. Anderson and Spangler have presented evidence which contradicts the basic assumption on which nuclear reaction rates are calculated.

Everyone in the world is going to be involved in the outcome of our nuclear energy decisions, and the way many physicists are acting, almost anyone's opinion seems more reliable.

## Find the facts

(1977)

If fluoridation proponents have such a high regard for the public that they will prescribe and administer mass medication for them, and such a high estimation of the public intelligence that they believe medical and dental issues should be resolved by a public vote, then it would seem that they should have enough respect for the public intelligence to participate in some form of a public debate or at least a presentation of the actual facts in support of their position.

Since it seems that no proponent is willing to come right out and cite the particular scientific publications which support their position, and since it seems that there is no dentist or physician in this area who is willing to defend fluoridation in a public debate, and since *Eugene* magazine has already published enough information to make many people question the scientific competence of the fluoridation proponents, isn't it the responsibility of the Register-Guard to present a detailed discussion of the evidence which is claimed to demonstrate the efficacy and the safety of fluoridation?

If the proponents resort to the argument that our small (public) minds couldn't understand and evaluate such scientific issues, then they are asking the public to accept their "professional authority." It might take some work to find and analyze the facts in support of fluoridation, the facts which are vaguely referred to by the advocates of fluoridation, but I think the public deserves a chance to see, in the Register-Guard, the facts on which the health professionals are basing their "authoritative" judgments.

## Ban lead

(1977)

Lead pollution can cause mental retardation, hyperkinetic behavior disorders, anemia, bone disease, and accelerated aging and degeneration of various tissues. Children are most vulnerable to lead poisoning. Leaded gasoline is the main source of lead pollution.

Some cities have banned the use of lead in gasoline. Why hasn't Eugene?

## Missed point

(1978)

Your editorial on Robert Wright seems to have missed the point he has repeatedly made in his letters; the bar, even more than other professions, is established, in the same sense that religion used to be established.

You say that "he hasn't passed the test that proves" he is well trained in law. Since you say that the courts have "properly limited his activities," "unless and until he does" pass the test, you seem to be saying that he has a right to take the test. Are you willing to say that openly? If not, I think you are deliberately trying to confuse any reader who may not know that a person has to be "qualified" to take the test by having a law degree. (Since you refer to Wright as "self-trained" I assume he doesn't have a law degree.)

Professional schools are places of socialization and indoctrination. How many communists graduated from professional schools during the McCarthy era? How many disestablishmentarians, such as Wright, are allowed to enter Oregon's schools of law? Professions have value systems and ideologies built into them. Tests can in fact measure mere competency, but they are not very good at selecting individuals who have the proper values.

If tests "prove" the quality of training, as your editorial indicates, then Wright should be allowed to take the test, and to enter the bar if he passes it. Do you disagree?

## Paid-off press

(1979)

Your editorial, "Did the press miss the boat in Iran?" hesitantly admits the plausibility of Dorman's and Omeed's interpretation of the performance of the U.S. press in reporting events in Iran.

As I read the daily falsehoods in the AP reports about the shah's opponents, I tried to imagine how and where such views might originate. One theory that has been proposed is that Christian reporters were blinded by religious prejudice. Another theory is that they were just lazy, and got their news only from the shah.

Several weeks ago, a long and apparently honest interview with Khomeini was broadcast by our public television network, but the false reports continued to be printed in U.S. papers. Khomeini said the U.S. was forcing Iran to spend its money on American weapons, preventing real economic development in Iran. This was interesting and important news, but as far as I can tell, it never became "news" in the U.S.

It was at that point that a third hypothesis occurred to me: Maybe the AP people in Iran are working for the CIA or the USIA. As you undoubtedly know, the CIA has in the past used reporters and editors, both at home and abroad, to plant "news" stories. (Wasn't it the president of the American Society of Newspaper Editors who said that CIA payoffs had brought shame onto the press?). According to a University of California professor, the shah has continually "paid off" large segments of the American media (with checks, copies of which were published). The CIA could find less embarrassing ways to administer the funds. To protect many billions in oil sales to the U.S., and weapons sales to Iran, suppose

$1 billion was diverted to the media: a thousand payoffs of $1 million each. Much less would do, I suppose...

## Editor

(1979)

Mr. Walkenbach's review of MIND AND TISSUE contains few misstatements and misrepresentations. I suspect that Walkenbach's own ideology, consciously or not, caused him to misread the book (or to fail to read all of it). He disguises an attack on basic Soviet research perspectives as an attack on a book about them. The book itself is easy to criticize — but the main ideas it presents certainly are representative of Soviet work. The basic ideas are those of Ukhtomskii, Pavlov, Anokhin, Nasonov, Chernigovsky, Luriya, Bekhtereva, and a few other (several dozen "complete references" direct the reader to a variety of theoretical and experimental works, to illustrate these perspectives). From Walkenbach's comments, a reader might suppose that the book was written by a "Humanistic Psychologist" who simply didn't care for "the" scientific method. One point which Walkenbach chose to ignore was that the book emphasizes the contempt many great Soviet researchers have expressed for the uncritical and idealistic approach of many Western scientists.

If I am mistaken, as Walkenbach writes, regarding the identity of the most influential Soviet researchers, I think it is his duty to make up a list of the truly influential scientists in these fields. If I am mistaken in my choice of basic concepts in Soviet psychological and physiological research, Walkenbach should present his own list.

The main peculiarity of my book, I think, is that 1 tried to make it impossible to misinterpret materialistic Soviet conceptions (including "the dominant," "the action acceptor," and "sensory analyzers") in the way that Pavlov's work has been misinterpreted, especially by American psychologists. Other recent books on

Soviet psychology are still mistranslating, misunderstanding or ignoring some of these basic concepts and philosophical orientations. However, Walkenbach takes the surprising approach of saying that these ideas don't count even in the Soviet Union, and then, in a series of supposed paraphrases, attributes to me (Peat...feels, ... delineates,... overlooks, ...views, ...proposes, etc.) views that I don't hold, and which I don't think can be honestly derived from my book.

For example, I distinguished various theoretical trends in the West, yet Walkenbach says I delineate "the two general approaches to science in the West and in the Soviet Union...." His quotation takes the last sentence of a paragraph that discusses Gestalt theories of perception, joins it without a break to the first sentence of another paragraph, and then concludes that I have overlooked an idea which "isn't new to American psychology," apparently referring to Gestalt and humanistic trends. Maybe he read only those two sentences, and thought they would make an interesting paragraph, but I had to refer to the book to make any sense of them. Context is an essential part of any statement, and it is not proper for a reviewer to change punctuation or paragraphing.

Walkenbach feels that I "identified" myself as a Humanist. I'm not sure what he means, or why he says it, but what I intended to say was that the book was directed toward American humanistic psychologists. That group, I think, hasn't experienced such difficulty in seeing the humanistic orientation of Soviet behavioral research.

Although I devote much more space to the Western and Soviet ideas of inhibition on the cellular level, than on the organismic level, Walkenbach says I seem to "believe that, to Western psychologists, inhibition is a term with meaning only in Freudian circles."

Did I say anything about observing consciousness via

introspection? Does Walkenbach want to say that Pavlov and Anokhin were introspectionists because they discussed awareness?

The "science Peat proposes" is not, as Valkenbach says, one of ideological speculation based on "hard" research; it is one which does not hide its ideological orientation in phrases such as "the scientific method," "standard scientific ideas," or "such an elusive concept is beyond our grasp," or in the creation of straw men. Our institutions, I wrote, "have actively suppressed the idea that our science and psychology could be tainted by hidden political or financial motives." I agree with the Soviet view that idealism permeates much of Western science, taking many forms, including mechanistic materialism, positivism, and Neo-Kantism. What did I say that could give Walkenbach the idea that I "proposed" such a ridiculous "science" as "one of ideological speculation...?" Reviewers, like scientists, should deal with the data, and not just with their hypotheses about the data.

## Heredity's hot debate

(1980)

Revolutions in science aren't made by convincing those who are committed to old paradigms. Thomas Gregg's letter on your article "Heredity: Genes or Experience" is typical of the geneticists' reaction to evidence of the inheritance of acquired traits: Previously unknown genes, they say, are caused to be "expressed" by an appropriate environment (and somehow continue to be expressed generations after that environment has stopped acting). We should ask them whether there is any imaginable case of vertical transmission which couldn't be explained by that "20th century dogma." What kind of a scientific theory is it that can never be falsified, even in imagination? Isn't such an absolute theory more metaphysical and philosophically objectionable than pure Lamarckism?

Incidentally, "blood born" or "simply physiological" influences as agents of inheritance would not contradict classical Lamarckism. Lamarck wasn't concerned with "genes." Lamarck was a gradualist who, unfortunately, lived in an era of Christian catastrophism, and whose reputation was dirtied by crooked opponents.

## Other factors

(1980)

Your editorial on declining scores on the Scholastic Aptitude Tests considered only educational and social factors as possible causes. At a recent conference of military psychologists concerned about the mental quality of their recruits, I learned that some of them believe that the actual biological intelligence of Americans is deteriorating because of factors such as malnutrition, food additives, and effects of the estrogen in birth control pills.

Estrogen excess in pregnancy, like a thyroid deficiency, has been known to damage the growing brain.

A study of nutrition in San Diego showed that 10 percent or more of the people born in that area are below the nutritional level at which brain damage is to be expected.

Shanklin and Hodin (*Maternal Nutrition and Child Health*) have documented that medical practices which became widespread in the 1950s damage the brains of large numbers of babies.

Last year the government advised against the use of soy oil in baby "formulas," shortly after it was discovered that such vegetable oils can cause brain damage.

Because of the political and financial implications of these facts, many people are reluctant to discuss them publicly. I hope your next editorial on declining SAT scores will include among the possible causes "iatrogenic and dietary brain damage during pregnancy and infancy."

## More on vitamin C

(1980)

Sirs: I want to express my appreciation for your article on Dr. Szent-Gyorgyi's work. Also, I want to comment on two of the letters in the May/June, 1980 issue.

Dr. R. J. Williams says he isn't impressed with the Szent-Gyorgyi work, because ascorbic acid is not needed by "single celled organisms in general." Actually, this might be one of the more impressive aspects of this theory of the function of ascorbic acid, since Szent-Gyorgyi has repeatedly pointed out that a major difference between single-celled and more complex organisms is that single-celled organisms have no need for a restraint, a "brake," on cell division. The availability of food is what limits their multiplication. It is the loss of a specifically evolved brake on cell division in multicellular organisms which characterizes cancer. Otto Warburg was the other great proponent of this view.

Audrey Trainer brings up some other interesting aspects of Szent Gyorgyi's work, especially the possibility that biological pigments have some "bioelectronic" functions. Szent-Gyorgyi has emphasized the importance of the resonant interaction of donor-acceptor charge-transfer pairs in biology, and these resonant pairs are typically deeply colored. He mentioned, for example, that the deep color of liver disappears when the proteins are denatured. I have seen an apparent charge-transfer resonance between ubiquinone and vitamin E, forming a nearly black compound which was easily separated into the original components. These weak resonant bonds, Szent-Gyorgyi suggested, help to maintain the physical integrity of the cell. Certain solvents, such as DMSO and dimethylformamide, seem to resemble the living system in the way they activate electrons.

Melanin, occurring in the eggs of amphibia, had no known function until it was noticed that it is a "progesterone receptor," that is, it binds and concentrates progesterone. Since progesterone was known as a regulator of cell division, this observation gave melanin at least an indirect role in regulating cell division.

Nearly ten years ago, someone reported that they had been able to cause melanoma cells to differentiate into normal melanocytes *in vitro*, and as I remember it, testosterone and ATP were used.

There are more aspects to Szent-Gyorgyi's work than the article revealed (including the structure of cell water, the amount of ATP present, and the modulating effects of hormones), but I think the magazine did a great service with that article and illustration.

## Nuclear blackmail

(1981)

The interior secretary's vision of our natural resources being consumed by the big corporations before Armageddon, and the Pentagon's increasing preparations for nuclear war, on the surface might suggest that this is a terminal administration, really preparing to wind things up forever. While it is true that some of our leaders lack common sense, I think their advisers and promoters have more "realistic" plans for the future.

The neutron bomb is not popular in Mexico. Many people realize that it would be a handy weapon to be used by a neighbor intent on invading and occupying their oil fields. If affairs don't go well for the U.S. in the Middle East, I think our policy makers will apply all necessary pressure to get as much oil as needed at a favorable price from Mexico. While the weapon could easily trigger nuclear war if used in Europe or Iran, I believe some policy makers would feel that it could be used in this hemisphere without threat of nuclear retaliation. For some Mexicans, deployment of that weapon in the U.S. constitutes nuclear blackmail and terrorism.

It is not in our interest to allow the neutron bomb to become another tool of the oil corporations.

## Poor leadership

(1981)

When half the people are functionally illiterate, traditional and simplistic opinions have a natural tendency to flourish.

A self-interested politician will know how to take advantage of the public's cultural backwardness.

When a state superintendent of schools acts like a common politician, our culture is sure to be degraded.

When Verne Duncan says that he would prefer leaving to local school districts the issue of equal time for creationism in the science curriculum, I feel he is providing retrograde leadership. If a state superintendent of schools can't inform himself and take appropriate action on a matter of curriculum, what is his function?

## Humanities stifled

(1982)

Fred Crafts' article, "Bringing revival to the humanities" reports that the Committee on Arts and Humanities intends to establish better relations between campus and city and to improve their promotion and marketing of the humanities.

The boring sameness of viewpoint which we find in the academic humanities is not because the subjects have some intrinsic lack of "momentum," as suggested in the article. The humanities are potentially so important, so exciting, so disruptive, that they have been deliberately stifled.

If the "humanities" are to be revived, it will not be by giving lectures to Rotary clubs. It will be because the "humanists" begin to take positions of human significance. Opposition to plans for nuclear war, opposition to militarism itself, opposition to oppressive legislation such as SB 1630, opposition to policies which impoverish millions of people, opposition to policies which make higher education impossible for a large part of the population, opposition to academic policies which allow tens of millions of people to become so gullible that they can be victimized by economic theories that were already discredited more than 50 years ago — these are positions which should grow naturally out of the humanities. If the universities take credit for intellectual achievement, they have to take blame for the production of a gullible generation. If the "humanists" start acting like human beings who are imbued with the great values of humanity, and begin criticizing, thinking, and imagining, instead of conforming, then the humanities can be revived.

## German connection

(1982)

Allan Winkler's article on Truman's use of the atomic bomb against Japan devotes some space to the question of whether U.S. policy toward the Soviet Union significantly influenced Truman's decision to incinerate several hundred thousand civilians. Before drawing his conclusion, I think he should have mentioned that Truman was known to be so anti-Soviet that he advocated supporting Hitler in his attempt to destroy the Soviet Union, and that the big-city Democratic party bosses, who were instrumental in getting Truman the 1944 nomination, and the presidency, also favored Hitler. Roosevelt and Vice President Wallace were working to insure good post-war relations between the U.S. and the Soviet Union, and this was known to be a major reason for dumping Wallace and choosing Truman. The maneuvering was so obvious that Stalin believed Roosevelt was assassinated to implement the new policy at a crucial time.

With the recent revelations of the secret importation of large numbers of fascist war criminals into this country, and the German connections of people who became prominent in our Cold War government (such as the Dulles brothers), Winkler's presentation of the context for the first use of the atomic bomb really seems inadequate.

## Under U.S. control

(1983)

Is it possible that our President has confused Central America with "Middle America," with Iowa? This could explain his statements about "our front yard." But it wouldn't explain his fabrication of stories about "outside aggression."

What we are seeing now in Central America is not an "East-West" competition, but rather the consequence of a radical shift in U.S. policy which occurred in the spring of 1945.

Roosevelt's Good Neighbor Policy was moral and made economic sense for capitalist America. Roosevelt's administration saw both the Soviet Union and Latin America as "vast markets" to be developed.

With Roosevelt's death, his dream of world peace based on trade and on justice as he understood it was replaced by a different ideology. The new policy was shaped largely by John Foster Dulles, who described himself as a "sadist" who "thirsts for confrontation" with the Soviets and with independence movements in Latin America.

In 1945, the phrase "under U.S control" was reserved for private government memos. The present economic crisis is bringing that kind of thinking into the open.

A few historians (and eventually journalists) were instrumental in educating the U.S. public about the meaning and origin of the Indo-China war. Similar work must now be done regarding Latin America.

## Which revolution?

(1983)

Anthony Lewis commented recently on the "astonishing" and "cold-blooded" way in which the Reagan administration disregards laws. He mentions environmental law, the right to travel, and peacetime censorship as examples. I had been thinking more in terms of his unconstitutionally fighting undeclared wars and violating treaties, but I appreciated Lewis' comments anyway; there are so many examples, one column or one letter isn't sufficient even to name them.

Another journalist recently said it would be nice if Congress would "speak out." That was a good idea, too, but in fact some congressmen did speak out not long ago, and threatened to stop the illegal war in Nicaragua. But the President told them to go ahead, pass "irresponsible" laws if they wanted, but the fighting would go on.

A member of his Cabinet gave a speech which was described as a "call for revolution" against our government because it is controlled by "the religious left." On this point, I'm not clear — has the revolution against a constitutional government already taken place, or is it in progress? Is there more defiance of the Constitution and of Congress and of treaties still to come?

After speaking with Reagan recently, Helen Caldicott wonders "if we can make it for the next year and a half until the 1984 elections without a nuclear war." Maybe that's why no one in Congress is talking about impeachment; maybe they are just holding their breath, not wanting to rile the President. Maybe we should all hold our breath until January 1985.

## Racism and ideology

(1983)

Martin Luther King gave increasing attention to opposing the Vietnam War in the months before his death. He was teaching the public that militarism, racism and poverty are interrelated. Many conservatives hated him for makıng such connections, and asserted that he was takıng a "communist" position. Hundreds of editorial writers advised him to stick to the issue of race, arguing that to tie it to the then-popular war would hurt his cause.

Racism is an ideological issue. Your editorial writer says, "He wasn't fighting political ideologies, he was fighting racism." Reducing racism to a personal, non-political question is to obscure the truth that racism has been, and continues to be, used as an ideological weapon to keep people divided, poor, and helpless.

When King was killed, he was supporting a garbage workers' strike. He urged unity in the struggle against poverty and the war. The issue of unity is so important that people like Senator Helms, Governor Thomson, and Reagan try to cover it up. I hope the Register-Guard writer simply forgot the historical facts, and isn't deliberately contributing to the effort to counteract King's work.

## Stop the fanatics

(1984)

In the 1950s, many high officials openly advocated a first-strike "preventive" war against the Soviet Union. Government documents made public in 1983 reveal that such a war was scheduled to begin in 1949, and was postponed when the Russians demonstrated that they too had nuclear weapons. Rescheduled for 1957, the plan was again changed when the Soviets produced the hydrogen bomb sooner than expected, and were not in the desired weak position.

Officials such as Dulles and Goldwater wanted the atomic bomb to be used even in Vietnam.

When he speaks seriously to religious groups, and when he jokes with his staff, our President reveals murderous and paranoid thoughts.

Seen in their historical context, those statements shock humanity. Seen against a background of increasingly militaristic anti-Soviet television programming, they appear to be part of a campaign to prepare the public for further "anti-communist" adventures against small nations, probably in Latin America.

When high officials can claim that Mexico is the center of subversion in this hemisphere, it is clear that our government is moving toward bigger things than just the invasion and permanent occupation of Grenada.

A landslide victory for Mondale might come in time to stop the fanatics.

## Policy, or myth?

(1984)

While I was visiting friends recently, their 11-year-old son told me he favored Reagan's re-election, because of his "realism" in spending more on the military, and less on social services.

I asked why that was "realistic," and the child and his parents answered that the Soviets would invade us if we didn't have a strong military. I asked why they thought that, and they said, in unison, "That's their stated policy."

Since then, I have heard that idea repeatedly: "It's their stated policy," to invade us, etc.

I have tried to find when such a policy was stated, but haven't found anything in the history of Soviet foreign policy except statements in favor of peaceful coexistence and universal disarmament.

If there is, or has been, such a policy, it is of interest that people like me are unable to find it. If there has been no such policy, then it is of great interest, socially and politically, that so many people believe in a myth.

It seems that we have two types of people: those who feel desperately threatened by the Soviet Union, and those who don't. I think this indicates that the mass media aren't doing a good job in presenting background information on current topics, such as the arms limitation talks. If U.S. foreign policy is based on a paranoid myth, even newspaper publishers ought to be worried.

## A la Carnegie

(1984)

The Election Day announcement that the U.S. government is considering an invasion of Nicaragua was reported in the Wednesday Register-Guard, which also editorially advised readers that "American compassion cannot prevent death through starvation… in famine-ridden countries…" yet pointed out that they could relieve their consciences by supporting soup-kitchen charities at home and abroad.

After your endorsement of Reagan, I suppose you feel the way Andrew Carnegie did when he said, "To continue much longer with most of my thoughts wholly upon the way to make more money in the shortest time, must degrade me beyond hope of permanent recovery."

Your editorial reaction is classical. Harming people who are attempting to feed themselves, and then publicly advocating "charity."

Two hundred years ago, such deceit was understood by honest people. Willam Blake wrote, "Pity would be no more if we did not make somebody poor."

The charitable Carnegie Foundation was a pioneer in attempts to eliminate poverty by eliminating the poor. Their theory was that poverty was genetic. What is your theory of poverty? And why do you believe American compassion couldn't eliminate starvation? If compassion consisted of withdrawing military support from brutal dictatorships around the world, people could begin to feed themselves.

It is no threat to me that Nicaraguans are learning to read and to cooperate with each other in overcoming poverty. Unfortunately, it seems to threaten Reagan and his supporters.

## Money or morality?

(1985)

People working on the "Riverfront Park" project realize that military research might be done there, but claim that this is not an appropriate area for political or moral concerns. Richard Hersh, former university vice president for research, said that it was an "oversight" that the project's directors were selected without a public announcement, and that "it never entered" his mind that the board is politically biased; but he admitted believing that Democrats are not "successful in business in this town."

According to The Register-Guard (7/19), university administrators oppose extending the ban on classified research to the Riverfront Research Park: They are "reluctant to impose morals on a commercial enterprise." The vice president for research, John Moseley, says "there would not be a Riverfront Park" without classified research.

Forty years ago, many of the people who worked on the Manhattan Project realized that weapons-related science has a moral aspect. Hans Bethe, for example, now actively opposes the Strategic Defense Initiative, which is designed to give the illusion that the bombs can be used without fear of retaliation. The moral and political questions involved in secret weapons or "defense" research are now clearer than they were when work was begun to produce the first nuclear bomb.

Our universities have always found it easier to work in the interests of big corporations than to support the interests of workers and ordinary people, because even state funds are influenced by business people. But when it openly becomes a choice between money and morality, President Olum should boldly take a stand against prostitution of the university.

## Power misplaced

(1985)

It's hard to understand how Congress, which was constitutionally given the responsibility for deciding when to declare war, can allow one man to have the power to decide when to launch the missiles which could end the world. Especially when the man with this power is one who plans to honor dead Nazi soldiers while ignoring their genocide, and who has forgotten even which World War he is talking about: According to columnist Ellen Goodman, he said, "I felt since the German people have very few alive that remember even the war and certainly none of them who were adults and participating in any way…"

I doubt that such a mentality would even be allowed to renew his driver's license in Oregon, but in the White House he is allowed access to the Doomsday button.

## Bad partnership

(1985)

Your article of March 15, discussing a conspiracy to promote the use of poison sprays, illuminates a more general problem. There is a trend toward a kind of partnership between some big universities and corporations which use new technologies; the people involved assure us that this trend will benefit the public — the consumers — but there is good reason to doubt their objectivity and their correctness.

A Central California farmer who changed from chemical to organic methods, and now sells most of his products competitively to the ordinary supermarkets, has pointed out that the state universities which have spent so much public money to promote the agricultural methods favored by the chemical industry had absolutely no information to offer him to help in his conversion to completely natural methods. By eliminating the use of expensive chemicals, he saved enough to compete effectively in the market, in spite of the large research establishment which works closely with his competitors.

How much more cheaply could he produce food if he could have the advantage of research financed largely by the public?

If the state universities act as agents of the chemical industry, should they receive public money? Public finance should function as a counter-balance to the private money which buys the research it wants. Entire institutions can be swayed by the financial leverage of their "patrons."

When professors, who are agents of the state, accept any research funds from private industry, and then participate in any government decision which affects the profits of that industry, it certainly doesn't look good.

## Dangerous therapy

(1985)

I hope that the kind of information Sarah Stewart provides in her long reply to Mr. Frank's letter is not the kind of information that doctors give to patients in obtaining their "informed consent."

In such drastic and permanent "therapies" as electroconvulsive and "leukotomy" or "psychosurgery," practically no properly controlled studies have been done. In one controlled study, the electrodes were applied to the patients' legs, instead of the head, and the beneficial effects were just as good — and the risk of brain damage was obviously less. Physicians are careful to warn the public of the need for controlled studies before therapies using natural substances can be accepted; shouldn't removal of part of the brain have an equivalent scientific evaluation? The judgment of the person who administers the treatment is often accepted in evaluating "psychosurgery."

The machines for administering electroshock were required by law to be evaluated by the FDA. It placed them in the highest risk category, based on health risks including brain damage. By law, devices in that category were to be removed from the market if investigation didn't establish their safety. They remain in that category, but the FDA has not acted, as the law would seem to require.

The regulatory agencies are now acting flagrantly for the benefit of the big economic interests, and against the interests of the consumers. It would be nice if we could return to the rule of law.

## SAT misconceptions

(1986)

The decline in SAT scores, and the tests themselves, are of less importance than the ideological conflicts they reveal. Your recent editorial publicized only one side of the argument.

To explain the changes in terms of a new type of student in the high schools, and the response of the schools to this new population, threatens to be used as an argument for elitist educational programs, and for a lower class education for the "poor class of students."

Accounting for the change in scores on the basis of increased numbers of poor students taking the tests doesn't account for the fact that the sharpest decline occurred among the highest scorers. Several studies have looked for extrinsic causes — cultural or biological — to account for the changes. Related studies were done for the U.S. Navy, to account for the learning problems of their recruits. Some of these studies are pretty convincing scientifically, but they have not been well publicized, because they place the blame on various powerful institutions in our society, rather than on the poor segments of society — who, as the numbers show, are not where the biggest change has occurred.

## War unpopular

(1986)

A few years ago, when Argentina was ruled by brutal mass murderers, they were active supporters of the Reagan-Contra war against Nicaragua. Now that democracy has returned to Argentina, that country agrees with every other democracy in Latin America, and with practically every democracy in the world, that the United States should not expand the war in Central America by sending additional support to the Contras. Even dictatorships such as the Pinochet government of Chile are surprisingly reluctant to openly support Reagan's plan for a major war.

According to polls, most Americans ignore or reject the false information they are receiving from Reagan's propagandists regarding events in Central America, and also oppose enlarging the war.

Unfortunately, our U.S. Congress is humiliating itself, by allowing itself to be so evenly divided on the issue of interfering in Central America; allowing itself to be so easily manipulated by the pseudo-patriotic rhetoric coming from the White House and the State Department.

## Impact unknown

(1988)

According to your recent article, the chief of the U.S. Forest Service says he doesn't know what ancient trees are. Many people would acknowledge that we really don't know very much about the ancient trees and how they relate to the world around them, but almost any educated person would believe it is not proper to destroy something which you don't understand. Foresters are not educated to serve the interests of humanity in general, or to work for the good of the biosphere, or even for the U.S. national interest; rather, they are trained to serve the interests of the corporations which use trees. The true environmental impact of cutting ancient trees is not fully known, and can't be known until better research is done. It would be reasonable to have a moratorium on cutting ancient forests, while research continues.

Forests of ancient trees are the greatest concentration of biomass anywhere on earth. An ancient forest often has 100 times more biomass than a "young and productive" forest. The forest biomass is not inert, like a coal deposit, but contains a large quantity of exchangeable water, which allows a forest of giant trees to stabilize humidity, temperature and even precipitation and climate in general. In areas which have long recorded history, it is clear that deforestation has greatly increased the frequency of droughts. Oregon and California are now beginning to experience what has happened earlier in other areas, including Africa, India, and Russia. The same destabilization which produces droughts can also increase the frequency and intensity of flooding.

Taking short-term profits at the expense of long-range viability should no longer be an option. We need new public institutions with a broader view of the stewardship of resources.

## Voters face test

(1988)

America's journalists and teachers will soon have a chance to see how well they have informed the public, how well they have taught them to value democracy. There will be a sort of national quiz on November 8 to see whether the public can remember which candidate for president is the one who:

1) Said he would find a way to evade a Supreme Court ruling. 2) Denounced Medicare as "socialism." 3) Conspired to deceive a president-elect with distorted intelligence reports. 4) Had many opportunities to receive information on criminal activities and treason in connection with his office, yet claims ignorance. 5) Advocates a presidency which is above the system of checks and balances. 6) Counts on the overwhelming support of extremist Orange County to win California and the presidency. 7) Doesn't talk about the national deficit, because he and his buddies are the creditors. 8) Praised Poland's union members, said Detroit could use Eastern European workers' skills, but despises America's unions. 9) Claims competence in intelligence, yet allowed fascists and anti-Semites to hold high positions in his campaign organization. 10) Called himself a Goldwater Republican and openly advocated use of atomic bombs in the Vietnam War.

Most of these items were casually reported in The Register-Guard, others in the Los Angeles Times and other major publications.

## Ill-informed statement

(1991)

I hope someone at Pope & Talbot Inc. is embarrassed when they realize that the statement on dioxins they authorized Dr. Robert Loomis to make on their behalf is not only impolite and misleading (which might have been their intention) but also so ill-informed that he is probably going to feel obliged to retract parts of it.

If a student of mine had submitted that composition to me, I would have returned it ungraded for reconsideration and revision. If I were associated with the Pacific Hospital Association, I would want to check Loomis' background in chemistry, epidemiology and toxicology. I suspect that many high school students are going to be submitting their detailed refutations of the physician's statements.

## A Holistic Physiology of Memory

(1975)

When we think of memory, it is customary to use concepts such as "storage," "reservoir," and "trace," and to look for ways in which the "trace" might be integrated with "sensory input" and "motor output." I want to suggest that these concepts are derived from a particular philosophical approach which is deeply embedded in "western civilization," but which is probably not able to deal appropriately with questions such as consciousness, memory, and organism.

Abundant experimental evidence has shown that perception is an active process. Yet nearly everyone seems satisfied to diagram "sensory input" and "motor output." Where is the sensory output in the typical diagram of a functioning organism? It is forgotten, generally, because the passive reservoir of memory can do nothing but receive sensations and store them until they are drawn upon for motor activity. But what could sensory output consist of? How could consciousness go out? This odd question is normally avoided by avoiding the discussion of consciousness — it is said to be beyond the scope of science, etc., while "input, storage, output" are simple, manageable concepts. Those concepts are useful in the analysis of a typewriter, but a typewriter doesn't have a fundamental selectivity of the messages it receives. Since perception is an active process, it is necessary to consider sensory output, or how consciousness "goes out." This is not mere muscular orientation, and it involves many distinguishable levels: thresholds are adjusted, patterns are sensitized, and the whole perceived world-space is finely adjusted to the flow of perceptions.

There have been various demonstrations of structured, meaningful antidromic impulses on the optic nerve. This is an output through a sensory channel, and it powerfully determines

perception. Passive movement of the eyeball creates the illusion that the visual field is moving, while an intentional movement of the eye or head involves a coordinated movement of the perceived model of space. This perceived model of space, and its ability to jump in synchrony with expected changes of perception, is another aspect of the active consciousness. It is this active model of the world which Anokhin called the "acceptor of action." Once we recognize this active perceptual model, we commit ourselves to Anokhin's "completion of the reflex arc," the feedback principle in which motor activity is inseparable from "image," "sense," intention, and consciousness.

At first, the imbalance between many sensory nerves to the brain and few motor nerves from it suggests that we sense more than we can do, but there is normally not any problem with refining muscular activity to suit the situation. It is the sensory "output" system which provides the means of orientation and control. This is equivalent to the view of Pavlov's followers that the cortex is a "sensory" system, even when it is regulating the musculature.

It has been suggested that the position of the eyeball is perceived largely by an awareness of the impulses that are being directed to the eye muscles. If this is true, it is only a "simplified" case of what Anokhin presents as the general nature of organismic control. The two elements, active perception and perception (feedback) of movement, constitute a picture of the active consciousness of the active organism. The imaging cortex fits the organism to the environment, both perceptually and motorically.

At the Seventh World Congress of Cardiology (Buenos Aires, September, 1974), there were about a dozen reports by Western scientists relating to the role of nerves in heart disease, but previously this factor was considered important only by the Russian Pavlovians. Pavlov developed the concept of cortical

control of trophic processes in all tissues, although the study of nerve trophism was already established in Russia in the mid-nineteenth century. Bykov (1957), Palladin (1959), and Filatov (1957) are among those who have studied the influence of the cerebral cortex on tissue biochemistry. Nerves also have trophic influences on other nerves. Nerve trophic influences are coming to be accepted by Western physiologists (e.g. Brown, 1974). There is probably no consciousness without a body component, a feeling tone, an orientation, a trophic influence. In this context, it is interesting to remember the old physiological demonstration of the mammalian "nerve net," in which the anal sphincter of an anesthetized cat is attached to a recorder — students are invited to think of a stimulus, such as tickling the ear, to show that every stimulation will modify the tone of the muscle.

Our perceptions are modified by the tone and balance of our autonomic nervous system. Certain gestures and postures modify our perceptions and recollections. Lying down goes with a certain style of thinking, standing, with another style. Some personality types move their eyes to the left while thinking, others to the right; blinking and rolling the eyes seems to facilitate another kind of mental process. Blinking is commonly used to "erase" eidetic images. These physiological events are closely related to our "getting a perspective."

Wilder Penfield found that electrical stimulation could promote recall. The memories could be repeatedly recalled with repeated stimulation of the same point. Pavlov spoke of a focus of learning, and the Russian concept of a dominant is also thought of as a centering in the brain. The holographic idea of brain function also implies the importance of "perspective." I think we can work

from the organismic nature of this perspective, or "field," or orientation, down to the cellular and chemical level, but it would

be very hard to go in the opposite direction.

When we talk about perspectives, we aren't making a distinction between perceiving and remembering. Similarly, learning and perceiving can both be thought of as active, constructive processes. Of course, perceiving something familiar is not the same as perceiving something new, which requires learning or discovery. The difference can be seen in terms of the idea of development, in the biological sense. Growth, differentiation, and integration are included in this concept. There is also an implication of evolution and generalization. The idea of "storage" can be fully replaced by this more phenomenological, experiential, empirical idea.

A common implication of the idea of "storage" is that memories must be inert while in storage; the organismic approach suggests that various degrees of integration can exist. Some of the organism's developmental processes may reach dead ends, become isolated, irrelevant and inert. But if the organism is making use of most of its experiences, there will be fewer dead ends. Once entering this complex world of interlocking meanings, we can't leave it without undergoing something like a developmental regression. And to the extent that it is present, the question of "recall" disappears or at least changes its form.

If we consider some of the recent historical reasons for requiring the ideas of recall, storage, and retrieval, it might give us some suggestions for studying the holistic aspect of memory.

A few years ago, it was common for psychologists to claim that there was a tremendous "information reduction" in visual perception, because, for example, only about six simultaneously presented points seemed to be the maximum that could be

recognized instantaneously. The existence of eidetic imagery has always made this a foolish position, but it was only recently that

many behaviorists were made to recognize this by studies of people with eidetic imagery, using computer generated images composed of millions of random dots. Holding as they did, the dogma of "tiny input, tiny output," they were forced by the fact that many people know many things, to conclude that the tiny stream of input was stored in a fairly large black box.

Now we just can't avoid knowing that the channel of visual perception is very large: ordinary people can, for example, recognize at a glance which photographs in a series of 2000 are repeated. We also have to grant that perception is active: the perceiver brings himself and his world to bear on the thing perceived. The "very large input channel," therefore, is made even larger by the activity which recognizes, which "intends," which gives meaning. In a normal continuing situation, this amplification by recognition is momentary and continuous; in a typical, sporadic experimental arrangement it may almost disappear, or appear later so that it appears to be something separate. When we see that perception is rich and active, and constitutes the phenomenological or empirical being of the organism, we aren't forced to ask where something is "stored" when it isn't explicitly present. That question, "where is memory stored?", is somewhat like the question, "where is the organism stored when it is quick-frozen?" In fact, at that time, the organism exists only potentially, since its future functioning depends on the circumstance of successful thawing, which is a reconstruction of the physiology. Another example: when an organism is eating, where is its mating behavior? Is it in storage? Only in the sense that the organism developed its sexual organs, its nervous system, etc. at some earlier time — and eating is, in fact, a necessary preparation for mating

and other behavior. Recognizing the full nature of the organism, we can say that one behavior is explicit, while others are implicit.

A child develops its sexuality, its style of movement, its language, its visceral peculiarities, its skills, its image habits, and other ways of dealing with the world. If it is idle to talk about our "sexual reservoir" which "stores mating" while we read or eat, then it is idle to talk about a reservoir of words or images.

Many geneticists are talking about manipulating, transferring, and storing DNA, and the assertion is commonly made that the DNA contains "all the information in the organism." It has been known for decades that cleavage patterns, which determine important biological traits such as which phylum the organism belongs to, are governed by the cytoplasm independently of the transplanted nucleus. Many other experiments show inheritance of structural properties of the cytoplasm, without involvement of "genes." So it is false to assert that DNA contains all the information needed to make an organism. Unfortunately, this mistaken genetic thinking is taken as a paradigm by many of the people who are thinking about memory molecules and information storage. The "reservoir" tends to be equated with molecules which are known to transfer learned behavior. There are probably many factors which could transfer learned behavior. The quick decay of the transferred learning suggests that the transferred molecules are not all that is necessary to establish or integrate that behavior. But even if a perfect chemical transfer method is achieved, it won't be an argument for the existence of a storage system distinct from the input system. To use an analogy, we could imagine that technicians could eventually restructure the cytoplasm of a flatworm egg into the cytoplasm of a snail egg, by transferring essential parts of the snail egg and placing them appropriately. In this case, we see that being and functioning are equivalent, and nothing is gained by talking about storage of the snail egg's function.

I think that by criticizing some of the empty and misleading formalisms in this way, we can clear the way for a better understanding of the real physiology of memory, of memory transfer, and of brain function in general.

## A Revolution in Physics

(1975)

Nikola Tesla was aware that the earth has a high negative electric charge; he felt that going to high mountains, where the charge tends to be more concentrated, stimulated him mentally. It is now generally believed that the sun, too, has an excess of electrons. (H. C. Dudley demonstrated that the earth's charge could be used to make small rockets reach much higher altitudes.)

In spite of experimental evidence, this "electronic background" was conceptually hard to accept—some people still prefer to think that the observable charge gradient results from a source of positivity in the high atmosphere.

Electrons are relatively easy things to grasp, in a technical sense and in an intellectual sense—they have a high charge in relation to mass, and so flow easily, and are very useful. Nevertheless, the idea of a charged earth was hard to accept.

If there were uncharged electrons, they could be even more abundant, yet harder to detect. It has been proposed (Dudley, 1963, 1972) that there are several types of uncharged particles, including "neutral electrons," forming a "neutrino sea." The neutrino was not notoriously hard to detect, even when it was necessary to assume its existence to account for the recoil energy of a decaying atom.

In this century, two major ideas have been ruled out as general interpretive frameworks in physics: mechanistic or deterministic causality, an ether which serves as a medium for propagation of electromagnetic radiation.

DeBroglie (1959), Bohm (1959), and Dudley (1971) are among those who have more recently proposed a need for a "sub-quantic" medium. Dudley has elaborated the assumption that the medium is a "neutrino sea," with great success

He was able to use it to account for the Fitzgerald-Lorents contraction. It is interesting that the Fitzgerald-Lorentz idea was first introduced to justify keeping the ether theory.

He predicted (Sep., 1972) results like Anderson's discovery of anomalous nuclear decay rates (Nov., 1972) when he postulated that populations of nuclei which are now considered to exhibit spontaneous decay at a constant logarithmic rate, consist of units each of which is a linear resonant system. Parametric excitation of such a unit by an energy input at some critical level or rate may cause the system to react... ...with such a model there would be no necessity of assuming acausality in describing the "decay" of nuclei or particles.

Dudley has warned that these new ideas regarding nuclear stability, if true, will invalidate the present AEC beliefs about reactor safety, etc.

My involvement in this subject relates mainly to my view that biological processes are largely governed by crystal-like states of tissue water. Because of my familiarity with Polanyi's book, Personal Knowledge, I considered the applicability of his adsorption isotherm (1914) to biological ordering processes. Among other ideas I was considering as a possible guide to ordering processes was N. A. Kozyrev's proposal (about 1965) that time, which he had been viewing as a cosmic source of meg-entropy (lunar vulcanism, 1959; planetary asymmetry, 1964) might in some way be utilized by organismic forms. It was only recently that I read Polanyi's later (1920-25) scientific work on crystals and chemical reaction energy, and realized that his scientific work had been guided by a holistic principle, just as his

more recent philosophical thinking is. As I presently understand it, his "mechanism for holism" was very similar to the "energy source and sink" that Dudley understands to be a neutrino sea.

A 1971 newspaper report about Anderson's experiments with monomolecular layers of radioactive chemicals aroused my interest in the likelihood of "new" kinds of surface, crystalling, and adsorptive forces or processes.

In Personal Knowledge, Polanyi had told the story of conflicting interpretations of the Michelson-Morley experiment. When Dror Sadeh's experiments were reported, showing, for example, a "red-shift" between locations on the east coast of the U.S., it seemed pretty obvious that either "time" (cesium clocks) or radiation (radio waves and light from stars) behaved in ways not acceptable to conventional theories.

When I heard of Dudley's objection to the Rafele-Keating experiment (which was claimed to verify the clock paradox of relativity), and to other current dogmas, I asked him about the possible relation of crystals to the neutrino sea, and he indicated that he had predicted their interaction with phonons and rotons in crystals. This is where a "physical" theory becomes obviously relevant to organisms and their highly ordered water structures.

Dror Sadeh's clock seemed to slow down following sunrise and moonrise. Frank Brown had earlier found that hermetically sealed potatoes and oysters showed metabolic changes at sunrise and moonrise. Several Soviet biologists have argued that some kind of "radiation" other than electromagnetic is necessary to explain such biological sensitivity. A "sub-quantic medium," influenced by events in the solar system, would be a conceivable explanation.

Bandyopadhyay and Chaudhuri have shown how the neutrino sea can account for gravitational attraction:

A body falls toward the earth because the charged particles of which the body is composed tend to move into a region where the dielectric constant is greater. Thus an electromagnetic interpretation of gravitation is obtained (1971).

Bandyopadhyay and Chaudhuri also observe that the variation of the neutrino energy density can be related with the evolution of the universe, though such variation is not an essential feature of their (1971) theory. They cite Dicke's (1957) observation that the red-shift (that is conventionally interpreted as a Doppler shift connected with the speed of receding stars) can be interpreted in a different way: if neutrino density changes with time, the dielectric constant of space changes, and atomic diameters and frequencies change.

Kozyrev's basic assumption is that time is a source of neg-entropy. He claims that "events," causal sequences, set through "time" to modify other events is the vicinity (1968). His language, and his observations, seem easier to understand if we imagine time as being at least partly a a tendency to increase (by consumption of gamma rays and neutrons, and production of hydrogen and neutrinos?), and the ability to act as an "energy source and sink" for a great diversity of physical processes, but with a single directionality or bias.

Thus, Kozyrev's suggestion about time influencing organisms, and his cosmology both overlap with the idea of an ether constituted by a sea of neutrinos. Another similarity is their rejection of the basic assumption of randomness. It was Einstein's similar desire for a world without a "God who plays dice" that eventually isolated him from most contemporary physicists.

The idea of a sub-quantic medium not only offers a very coherent set of physical explanations, but it provides a very different kind of intellectual world and, more important, it restores objectivity to science, against the neo-Kantian view of orthodox physicists (such as Max Born), and of establishment intellectuals in biology (Monod), linguistics (Chomsky), sociology and anthropology (the structuralists).

The assumption of randomness wherever possible

(electrons, nuclear decay, gene mutations, etc.), and the positivistic denial of causality, require a "mathematized" view of reality, which substitutes a very neat and clean knowing for a hopelessly messy and really unknowable material reality. Omitting those very gross assumptions, in favor of a neutrino medium, gives us a material reality which is completely knowable and lawful. Einstein considered the objectivity of reality to be of fundamental importance, but his attempts to achieve a theoretical description of such lawfulness were always within the formalistic tradition, and he considered progress in physical theory to be step by step removing attributes from the "ether."

Neo-Kantianism was flourishing in Germany at the beginning of this century (e.g., Hermann Cohen and Ernst Cassirer). Undoubtedly, this formalistic milieu encouraged the development of physics along similar lines.

By the 1930's, this style of thinking was being explicitly offered as a popular refutation of Marxism. In sociology these ideas have become strong defenses of the status quo: change has been defined as dysfunction. A biologist, Gunther Stent, has recently (1972) tried to give canonical knowledge (narrowmindedness) a biological justification. Many neo-Kantians offer the abstract, non-objective nature of modern physics as support for their view, and the physicists reciprocate by accepting their theory of knowledge in evaluating physical theories.

I view the revolution in physics that is under way as part of a broader cultural liberation.

In biology, it will be a basis for a new beginning.

Many high technologies may result from this new way of thinking. For example, if it turns out that crystals or other states of matter can be used to coordinate or "pump" neutrinos—and this does seem likely from Dudley's and Anderson's work—it might be possible to achieve nuclear fusion at very low temperatures. (One

of the disproofs of Miller's positive results with his refined Michelson-Morley experimental set-up was a device that used helium gas for the light pathway. This particular "null" result, if Miller's 1000s of experiments are to be accepted as evidence for an ether drift, might have resulted from an ability of helium—a light and symmetrical atom—to resonate with the neutrino sea in a way that would locally adjust the drift to zero velocity.)

Normal science prefers heavy regularities to a tenuous completeness. It is still easy to laugh at the "ether" people, but only if the physicist doesn't read and remember much experimental physics. The "anomalies" are starting to seem more orderly than the "normal" physics.

The ideas mentioned here are intended as a sketch of the possibilities of the neutrino approach—what I want to emphasize is that many things, such as the red shift, that had been treated as answers, should now be seen as problems, still to be solved. If neutrinos offer better possibilities for getting good solutions to any problem, we should proceed to work out all the implications. It is at least certain that nothing can look the same to us once we have considered the possibility of matter and energy interacting with pervasive neutrino fields.

## Can some "Anomalous" Structural Interactions Be Explained by an "Excitable Ether?"

(1976)

First, I want to indicate that I feel an ether theory is philosophically desirable, as an affirmation of rationality and causality beyond even that of the "traditionalist," geometrizing Einstein. Subjectivism in physics is being carried to extremes, and it is time to make physics again a strictly objective science.

Dudley and others have given some very interesting arguments for ways in which the neutrino sea could account for physical events which have traditionally been described in terms of special "fields" and "spontaneous events." I suspect that many of the "anomalies" that have accumulated in recent decades can be accounted for by a similar approach, though at present (for most purposes) I would feel just as comfortable with the phrase "previously unsuspected general process or medium of interaction" as with the concept "neutrino ether."

Lenin's definition of materialism was "the belief that there is something beyond what is presently known." This belief, and its opposite, define the two kinds of science that have been described by Kuhn as "normal science" and "revolutionary science," respectively. Since "normal science" doesn't postulate a world beyond what is known, it is always satisfied with any tolerably consistent set of descriptions. "Normal science" is possible only in a culture which is committed to the metaphysics of idealism, as opposed to a materialism as defined by Lenin. Lenin's materialism incorporates an assertion of the reality of time, an assertion of matter as our future, our potentiality. From the objectivity of time, this materialism (which is dielectical, developmental, historical or temporal) is committed to the reality of causality. It gives us an approach to physics which is utterly different from the idealistic

tendencies of Jeans, Eddington, Schroedinger and others who assert that beyond our knowledge there is nothing.

Two Hindu physicists (Bandyopadhyay and Chaudhuri) have suggested a way in which time, by altering the neutrino sea, would be responsible for the cosmic red shift, and also for an altered gravitational constant. This is a concrete way in which the ether concept is made to affirm the objectivity of time, of causal sequence.

N. A. Kozyrev has successfully predicted numerous physical interactions by introducing into theoretical mechanics the principle of causality and directivity of time. Such mechanics can be called "causal" or "asymmetrical" mechanics.

Kozyrev recognizes "the inadequacy of the knowledge of the essence the casual relationships," and so can be said to be systematizing a "previously unsuspected process or medium of interaction" which participates in all events, without specifying all its properties. His theory, which began with his studies of the internal structure of stars (1948, 1950) and stellar power, led him to accurately predict the cardioid asymmetry of Jupiter and Saturn (and earth), the internal heat of Jupiter and earth's moon, and the red flares on the moon, and to account for the southward deflection of falling objects recorded by Hook (1680) and Reich (1832). He reports that the effect of the causal transmission of energy upon measuring devices such as clocks diminishes with the first power of the distance, and is not affected by shielding. Each of these points — effect on clocks, proportionality to the first power of distance, and passing through ordinary "shielding" — recalls a variety of other experiments which have seemed to involve unusual interactions, possibly involving a "medium of interaction." I will mention a few in the following pages.

Before the first world war, the "best" physicists thought they knew enough about the electrical nature of matter to reject as

"ignorant", a theory of multi-layer adsorption which proposed a potential which could extend into space from the adsorbing surface, even through layers of adsorbed molecules. Thus, Einstein and Haber humiliated Michael Polanyi, rejected his data and ridiculed the notion of an "adsorption potential," almost causing Polanyi to give up his scientific career. About 15 years later, Polanyi and London collaborated to show how electronic fluctuations could account for the adsorption data obtained by Polanyi. Still, for another 15 years no one was willing to oppose the earlier, prestigious but ignorant opinion of Einstein and Haber to use and evaluate Polanyi's isotherm, which turned out to be the most widely useful adsorption isotherm, though Polanyi's never won prizes, as did Langmuir's mistaken theory. In fact, nearly thirty years later (or nearly 60 years after Polanyi's humiliation) I have questioned "experts" on the subject, and found that almost all of them consider Polanyi's isotherm to be "wrong" and of no use, though they are also ignorant of the data relating to it.

After completing his thesis, Polanyi turned most of his attention to other problems in physics, but kept encountering data which seemed to indicate a kind of "smearing" of energy over considerable distances. For instance, while Max Born developed the theory of crystal lattices, again on the basis of merely local atomic forces, Polanyi was observing domains of some sort in crystals which seemed to involve delocalization of forces over distances of about 2 or 3 millimeters. He believed that he demonstrated that defects strengthened crystals:

I was deeply struck by the fact that every process that destroyed the ideal structure of crystals (and thus reduced the areas which could be regarded as single molecules) increased the resistance of crystalline materials. This seemed to confirm the principle by which I explained the low resistance of crystals to stress and to refute the rival theory…

Polanyi's principle for understanding the strength of crystals was that the energy required for producing the new surface formed by breaking the crystal would have to be supplied from the stress stored up on either side of the future break, in an area extending two or three millimeters in both directions of it.

Other experiments, involving plastic deformation, hardening crystals by wetting a surface, deformation hardening in one direction, and "recovery" of crystals, even a study of friction, all tended to support Polanyi's idea of the spatial extendedness or delocalizability of the energy involved in the solid state. In form, they seem similar to the adsorption potential which had been conceived without knowledge of "the electrical concept of interatomic forces." About the same time he found that the rate of reaction of chlorine was too fast to be accounted for by the ordinary reaction kinetics. Born described his results as requiring that energy just jump through empty space, as if that were impossible. It is now commonplace to use light to catalyze a reaction such as polymerization, even using chemiluminescence as the source, but the data Polanyi obtained again seem to have been forgotten, in favor of a free-radical chain reaction explanation of the chlorine reaction. Polanyi now considers the adsorption potential to be explained by "resonance between the polarization of electronic systems," but I suspect that a common denominator of some of his work was an idea of an "excitable ether," which he in fact used in at least one publication.

The common "inverse square" relationship geometrically suggests that the force is being distributed as if on the surface of a

sphere: so it would seem reasonable for forces extending from flat or concave surfaces (as opposed to points, or single ions) to decrease less rapidly with distance. This is apparently the case in the adsorption experiments of A. Rothen, in which antibodies are

adsorbed out of solution by a layer of antigens spread on a thin layer of metal deposited on a glass slide. The effect depends on a certain crystalline structure in the metal, and is destroyed by subjecting the slide to a magnetic field parallel to the surface. In a recent publication (Biophys. J., 1974) Rothen reported that the slides were gradually inactivated during the day, unless shielded by about 3-5 cm of lead, but that they tended to be reactivated at night, by one cm of lead. Irradiation with gamma rays also prevented daytime inactivation. The period of inactivation and its maximum degree were greatest in the summer, corresponding to the position of the sun. Although he suggested cosmic rays as a possible cause of this diurnal change ("It is most intriguing that cosmic rays may be able to favor one configuration or the other depending on the penetrating power of the rays"), those rays are so nearly isotropic that such an effect is unlikely. Rothen's work has attracted little interest (except for a recent thief, who visited him to learn his method and then claimed to have developed it himself), over a period of about 35 years, and one story is that, after he had demonstrated that the effect could be transmitted through a plastic film, someone reported holes to exist in such films. The criticism was incompetent, not only because numerous layers of antibodies could be demonstrated, but because it has been shown microscopically that epitaxial growth of crystals can extend through a similar plastic film — for example, condensing sodium atoms in the pattern of the underlying quartz crystal. The ordering process in the two cases probably has some similarity.

The heavy shielding used to block Rothen's diurnal effect is reminiscent of the many studies done by Frank Brown, showing that organisms in sealed and electrically shielded containers responded to events such as sunrise, sunset (and, I think, even moonrise), the arrival of the sun at the zenith, etc. For example, potatoes respire more intensely, clams or oysters open their shells

when the tide would be high (if the tide could come as far as Indiana), etc. John Ott has made similar observations, for example that a mimosa plant (m. pudica) would continue to fold its leaves at right even though isolated in a cellar under a cement roof; another experiment showed that a plant would respond to sunset and sunrise under a few yards of earth, but that when taken down to a depth of hundreds of feet in a salt mine, the response stopped. Brown's studies show that biological clocks are set by external cues. Ott shows that the balance of radiation is crucial. A French microwave expert has used a complex combination of frequencies to stimulate animals' immune systems; his belief is apparently that a complex substance, the organism, is tuned to a complex frequency. Something of this sort seems to be involved in the highly specific resonance of Rothen's adsorption experiments.

Dror Sadeh mounted a cesium clock on a truck, and left another in Washington, D.C.; when he was a few hundred miles north of Washington a discrepancy between the clocks developed, in which one of them appeared to be "red-shifted," or slowed. The effect began at sunrise, and continued for a few hours each day; I think a similar but smaller shift occurred with moonrise. Anything which could affect the vibration rate of cesium might also be the (seemingly non-electromagnetic) cue by which organisms set their "clocks." Incidentally, the experiment in which a cesium clock was flown around the earth to test the relativistic "twin paradox" would have presented the clocks with a different number of sunrises, and so might be taken as a test of Sadeh's principle, rather than of relativity. Since Polanyi's adsorption potential is in effect condensing the molecules of a gas as they approach a surface, it is not hard to see a similarity between Rothen's adsorption of proteins onto a plane surface being modified in a diurnal rhythm, and Sadeh's diurnal change in the vibration of cesium molecules.

It is known that a lead "roof" of about an inch thickness

produces an optimum shower of particles when hit by cosmic rays. Neutrinos are known to be produced in the process, so if there were a diurnal change in the energy state of an ether (consisting of a neutrino sea) which was affecting the various vibratory (resonant) processes, adsorptive processes (also a kind of resonance, since Rothen's adsorption of antibodies demonstrates specificity), and biological processes, a lead roof might noticeably alter the average neutrino energy, possibly accounting for Rothen's effects. The Anderson-Dudley effect, in which a surface (or solid-state domains) can alter nuclear decay rates suggests an interaction of surfaces with an ether, a "sub-quantum medium" or sub-quantum mechanical level, to use Bohm's terms. If surfaces act on nuclei through such a medium, then it is appropriate to consider such a medium of interaction in other situations which involve surfaces, long-range order, cyclic effects, etc.

In an old monograph on cosmic rays (1942) an experiment is described in which pregnant rabbits abort when placed under a lead roof, and other experiments showed cancer growth rate was increased by the lead roof. In Scientia Sinica (1964-66) a series of papers describes similar experiments, in which a similar lead roof produced different cancer rates at different elevations, with differences also being produced by varying the thickness of lead. Rothen's effect might also vary with altitude. Recently (1975) it was reported that, contrary to the previous belief that the greater "radiation" at high elevations would produce more cancer, the cancer rate declines with increased elevation, even for melanoma within Texas, according to a cancer geographer in that state.

Since many ether studies (e.g., Miller's large series of measurements of light velocity at different elevations) suggest that the ether density varies with altitude, it would be interesting to compare the effect of elevation (and shielding combinations, including deep mines) with the diurnal effects, on many biological

and physical systems.

The medium of interaction in some cases could turn out to be a property of the matter itself, without invoking an ether. Intermediate states of matter, such as liquid crystals, interact with energy in previously unexpected ways. But while remaining open to many new kinds of explanations, we should keep in mind that the right kind of ether theory might be able to explain various anomalies, while unifying physical theory—and possibly also chemical and biological theory, as Kozyrev mentioned in connection with his theory. Such an ether theory would probably be extraordinarily fruitful in terms of new observations and new technologies.

**References**

1. Whittaker, E. T. History of Theories of the Aether and Electricity, New York, 1952.
2. Kozyrev, N. A. Possibility of experimental study of the properties of time. JPRS: 45238, May 2, 1968.
3. Rothen, A. Circadian activity of a nickel-coated glass slide. Biophys. J. 14: 987, 1974.
4. Bohm, D., and Vigier, J. P. Phys. Rev. 96: 208, 1954.
5. Cosmic Rays, 1942.
6. Ott, J. M. Health and Light, 1973.
7. Bandyopadhyay and Chaudhuri, 1971.

Also papers by Frank Brown, Dror Sadeh, H. C. Dudley, and a series in the journal, Scientia Sinica. Polanyi's studies between 1920 and 1926 are especially interesting.

## Neutrinos and Long-Range Interactions

(1976)

What's implied by "a wave"? Something which undulates, ripples, or waves — something which persists, and undergoes a change which is transitory, but a change in shape and energy which extends both through space and through time. We can perceive such movement because our senses operate with some intrinsic generality. If the action of rippling water is reduced to a series of sets of points, it is meaningless until we restore the wholeness and generality which encompasses those points.

To have a "wave without a medium," as most contemporary physicists believe they must, means to them that we must suspend our materialistic common sense, and believe in an abstract reality. They neglect the possibility that the extension through space, the spatial interactions, might be a property of matter interacting with the light, and they deny the other major possibility, that light could be waves in a medium which fills space. I want to suggest that both of these processes may be operating to different degrees, depending on material conditions.

In place of a medium, the physicists have come to believe in "fields", mathematical expressions of forces, which ultimately exist as distortions of the geometry of space. So they present us with a space which really exists, so that it can have a geometry and be distorted, but which has no properties other than those introduced into it by things and their forces. Waves of "gravity," for example, will influence geometry in a way so that things will move toward each other — they are like signals, indicating to the other object how it should behave. Although most physicists have a perverse love for abstractness, for mathematizing the world and making space into a formal but empty something, this scheme of a

space with no properties is potentially fruitful, if we use it only as a starting point to free us of the formalisms of Cartesian and Leibnizian space and time, and if we immediately start filling it up with what we need to account for observed interactions of things.

Some of Reich's apparently most muddled comments about light (e.g., "If 'light' is due to local orgone lumination and does not 'travel through space' at all, it is quite understandable that in the Michelson experiment no phase difference could be observed in the light beams which were 'sent' in the direction of the ether 'drag' and perpendicular to it") seem to have been intelligent attempts to describe physically what he could directly perceive about the nature of consciousness and perception itself: that it is a "lumination" of the living material in resonance with a "lumination" in the world beyond the organism. A "chemical" illustration of this process is the "resonance of electrons" which makes some molecules act as an electronic unity, rather than as a cluster of individual atoms stuck together.

Bandyopadhyay and Chaudhuri (1971) have described how gravity can be accounted for on the basis of charged particles tending to move into a region where the dielectric constant is greater, by assuming that the dielectric, the "neutrino sea," tends to be associated with matter. A similar effect has been used to separate living cells from dead ones—in pure water, living cells with a high dielectric constant will move toward a concentration of charge. This experiment, incidentally, shows a dielectric moving on a charge gradient and suggests how the neutrino sea would tend to be concentrated around matter. If the "ether" is in fact a "neutrino sea," as Dudley has argued, then this is a very important property: it would not only be "dragged along" with the earth, but its density would change according to the density of ordinary matter in that region, and this would resolve the question of whether Reich's orgone accumulator was a Tesla box which

accumulated electrons, or an orgone accumulator — charge would concentrate neutrinos, and vice versa.

It has occurred to me to wonder how quickly this association can be formed: for example, could a lense escape its concentration of ether by moving very rapidly? According to Dudley, the neutrino sea is isotropic, with neutrinos moving at various velocities up to their maximum, which may be the speed of light; if this is so, then maybe some of the slower neutrinos could be escaped from at high speed, like running thru a swarm of annoyed bees.*Presumably, a lense's refractive index could be changed slightly by putting it in different environments or by moving it at high speeds. If the field of neutrino concentration reacts quickly, then a kind of mechanical resonance between objects should be possible, in which vibration could be transmitted by fluctuations in the neutrino gradient. Dudley's suggestion that phonons and rotons can interact with the neutrino sea would also imply the possibility of mechanical resonance directly through the ether. Charge oscillations would also presumably cause oscillations of the dielectric medium, the neutrino sea. At first this seems to be an excessively peculiar idea, and it may seem better just to think of purely electrical interactions, as in the London forces, with electronic fluctuations or protonic fluctuations (Kirkwood). Phonon-electron interactions, for example, are certainly conceivable without assuming an oscillating medium. But it may be that there are "resonant interactions" which don't involve ordinary sound or electromagnetic processes. A fairly large neutrino "resonant domain" in a metal could, for example, absorb waves of radiation in a way consistent with the photoelectric effect. *If it takes time to establish resonance, this would happen — but if neutrinos are caught as easily as outrun, there would be no effect. And if force is exerted by the charged matter on the neutrinos, they would no longer be part of the sea, but would be part of that

particular material system. (A slight excitation might be the closest kind of coupling between atoms and ether.)

Reich's observations of lumination in evacuated tubes might result from a process like this: in a corona discharge, air molecules are ionized, and emit light on recombination: in the dielectric, water, salts become highly ionized; high fluxes of neutrinos might provide the dielectric conditions which promote ionization of the gas molecule in the tube, with light caused by recombination. (This is a matter of shifted equilibrium and not of energy — thermal energy, for example, can be adequate. The neutrinos, etc., might provide the energy.)

Some Russians have proposed that the forces involved in psycho-kinesis may be related to gravity, and that these forces may be what makes life possible, and that they may constitute the material form of mental activity. Drs. A. P. Dubrov and V. N. Pushkin are among those who think something like gravity is involved in psycho-kinesis. The people who have been studied in the USSR move things somewhat as if they had a static electrical charge on their hands, but that has been eliminated as the responsible force; one man presses a book between his hands, gradually removes his hands, and keeps the book suspended. Uri Geller, who performs on U.S. television, says he thinks he is directing some kind of energy outside of his body — his most interesting act is bending nails and keys. These various kinds of psycho-kinesis all are consistent with Dudley's postulations regarding the neutrino sea. Also, Uri Geller's in particular recalls Michael Polanyi's studies of bending and breaking forces in metals and crystals; Polanyi explicitly proposed an "excitable ether" in connection with other observations, but nearly all of this scientific work was in the field of "long range interactions" — friction, adsorption, breaking, and reaction rates, for example, were studied in ways which revealed the inadequacy of the conventional

“crystal lattice” and “atom to atom” ideas of interaction.

If we hold the mystical-mechanist world-view of conventional physics, things like psycho-kinesis have to be subsumed under “conspiracy” or “delusion.” Enough people have seen the performances of Boris Yermolayev, Uri Geller, et al., that a theory of “conspiracy and delusion” now has to be treated as a “lunatic fringe” idea.

In outline, the biophysics of neutrinos might be something like this: biological water, being uniquely ordered, could provide extensive systems of “resonant domains” of interaction with the neutrino sea; these crystalline regions would tend to be mutually stabilizing through resonance with each other, the co-ordination might include electronic and electromagnetic interaction, accounting for the tissue “lasing” apparently involved in the observations of Gurwitsch and others; special interactions between organisms and neutrinos should be measurable in various ways, and might account for the “time” effects of N. A. Kozrev, Reich’s lumination and many other of his effects, and maybe for the loss of weight that has been observed at the moment of death by various investigators (however, it also seems that loss of order in cellular water would reduce solubility of gases, and cause a measurable weight loss from gas emission at death). If the organism is seen as a kind of lens or pump for the ether, the neutrino sea, then special cases of its interaction would be expected to involve anything which normally depends on “ether excitation”: reaction rates, metal bending or breaking, adsorption, crystallization, and nuclear reactions are some processes suggested by the work of Polanyi and Dudley. The effects of “healers” hands on enzyme rates might be a case of this that is already well known. I think there have also been claims about mental effects on crystallization and nuclear fission.

If consciousness itself importantly involves the neutrino sea, then the ether could be an additional channel for perception

and communication, that is, a channel for direct resonance between the organism and what it perceives.

## Letter correspondence with Bertrand Rusell

(1963)

Dear Mr. Russell,

I am sending you a copy of the Blake College bulletin. I think you will be interested to know of this school, for several reasons.

The school is organized as a faculty owned corporation. Thus a high degree of instructional freedom is maintained. It is located in Mexico, and admits both U.S. and Mexican students, to reduce nationalistic bias as far as possible.

The school places most emphasis on science (as defined, e.g., in your article "Science and Culture"), philosophy, and art. Our philosophy department, incidentally, is dominated by "Wittgensteinians," rather than by "Blakeans."

The college cooperates directly with the World Committee for a Constitutional Convention, The American Life Sciences Foundation, The School of Living, and other active liberal organizations.

The average IQ of students is now well over 145. The enclosed sheet indicates the level of achievement maintained, although the average student has had only two years of "higher education."

Raymond Peat

## On Blake (Albion)

(1999)

Maybe the political right, the Nazis, etc., are the only ones who take art seriously, and can see that it is political work of the most effective sort. Science, when it is approached in the same way, is Art and Politics, and participates in intellectual war.

Academic obtuseness has always made it possible to ignore ironic and dialectical language, so I suspect that Ralph Dumain's riddles won't ignite many mental fires.

My recent comment about the political right wing taking art seriously was made in response to the people who are currently trying to separate art from politics, and who would like to limit Blake's political consciousness to religious issues. My remark was topical, but the principle I referred to was broadly historical. Blake appeared to be perfectly conscious of the ways in which not just official censorship, but access to the official exhibitions, and the official promulgation of styles in all the arts, supported the Evil Empire, and oppressed people like him. The tastes of the rich and the ruling classes were met by some painters who collaborated in the destruction of art. After Blake, I don't know of anyone until David Alfaro Siqueiros who so clearly understood the ways in which Money and Empire intervened in art.

Although Blake used the vocabulary of the religious dissenters, one of his great contributions to culture was his understanding that the bad theologies, and their rationalist definition of matter, had been incorporated into the enlightenment empiricisms and the natural philosophies and sciences. Before Lenin, I don't think there was anyone who perceived the rationalism that was hidden in the crude materialism of the sciences.

I wish that those who would spiritualize Blake would discuss the term "Nobodaddy," and explain how it fits into a dematerialized world.

I think Tim's argument is doing an injustice to history, as much as to Blake. If Blake used the vocabulary of 18th century songs of religious dissent in attacking State and Class oppression, and therefore was spiritual rather than political, then the people who sang christian hymns while marching in the streets of the United States were primarily interested in religion, and the communists among them were for the moment no longer political revolutionists. That's no way to argue.

We might have read the same books, but when I read things by 18th century Tory Gentlemen I try to understand how it was possible to achieve such a uniformly insipid tone of self-righteousness. The academic commentators on art who write that "the true destruction of art" was caused by capitalism are, as far as I have been acquainted with them, trying to imbue themselves with something of the nobility of the earlier ruling classes. Good art was sometimes produced under the Catholic Church, and that fact is sometimes used to try to separate the "aesthetic" from the "political," though I think it provides more evidence of their linkage. The ideology is heavy in "their motivation was aesthetic, not in any sense political," though it's the ideology that likes to say "I don't have any ideology." Like the academic types who have asserted that "there are no classes in the United States."

I suppose some people have been impressed by Macauley's "English literature was emancipated forever" by the disappearance of the Licensing Act, but I have never seen any reason to believe that tyrannies take their own laws very seriously. Preventive censorship was replaced by punitive censorship.

In the United States, which hasn't had any Licensing Acts, censorship has been rampant. For example, a college catalog with Blake's Glad Day on the cover, was embargoed by the post office, and couldn't be distributed until language in the text had been deleted.

Do you suggest that Blake was having paranoid delusions when he spoke of the forces that destroy art?

It's hard for many intellectual types to see that whole idea-complexes, as well as particular words, can be "used" creatively or for oppression and manipulation.

The reason I jumped from Blake to Lenin is that I think Marx was only abstract and sketchy in the way he revealed the theological idealism hidden in the various philosophies, but Lenin in his notebooks prophetically and concretely showed the fallacies that were repeated endlessly in 20th century philosophies of science, positivism, language philosophy, etc. Either people don't read Lenin's philosophical work, or they are so trapped in their theologies of "pure science" and other abstract systems that they can't respond in any way to his powerful analysis. I think that's why people don't talk about Blake's highly analytical revelations of the philosophical self-contradictions of the big-shots, it's the deep Neo-Kantianism that rules the official mental life at present.

As a biologist, I think Blake "used" the images of "a world all alive" as a fiendishly clever way to by-pass the dogmatic abstractions that ruled philosophy then as now. I think this philosophical condition accounts for the horrifying oppression that "vitalism" and "Lamarckism" have suffered.

With Vernadsky and Hoyle, et al., I am inclined to believe that at least in an abstract and general sense, the universe is alive, but the "use" that Blake made of that idea was, I think, possibly the most intelligent philosophical act ever.

I don't discount the historical context of religious dissent at

all. Blake would be largely unintelligible without that context. But I think it involves a lot more than "opening a history book" to find historical "facts." I was stating my opinion, not giving an argument. I think the argument first has to make sure that there is a clear understanding of what the big-shot or "official" philosophers were claiming, and then to see how the concepts of the culture of religious dissent could be used to show the internal contradictions in those philosophies. The religious dissenters were concerned narrowly with those churchy issues, Blake wasn't. But since two large contexts are needed before an argument can be made regarding what Blake meant when he talked about Substance and Qualities and Negation and Contradiction, I think it's appropriate just to say that I don't think Blake was idiotic enough to have made merely literal use of the vocabulary of religious dissent.

Since I will assume that you have led a remarkably sheltered existence, or else are very young, and so might not be representative of the people in the Blake discussion, I will answer this privately.

I spent many years as a graduate student in several humanities departments of several universities, before I decided that in this country only the sciences tolerate anything like rational dialog. In English, philosophy, linguistics, art history, uniformly the professors mouthed that moronic party line, "there are no classes in the United States," and my fellow students were if anything even more strident. Later, I had friends in departments of sociology who used elaborate rationalizations to justify the same assertions. The sociological literature is full of their crap; the reaction to G. William Domhoff's work was essentially one of hysterical denial. One of the variations on the theme extends into psychology and biology, arguing that since everyone has the same opportunity in this classless society, social differences are really just a natural expression of innate inferiority and superiority. For

my entertainment, I would occasionally insert into my seminar papers things that could be taken as defense of such elitism, and these were always the occasion for glowing approval by the asshole professors.

The cover of Emanations from Blake College was enclosed as first class mail, and it was therefore inappropriate for the postmaster to open it, but the image, faintly detected through the envelope, was apparently an excuse to examine the contents of the book. The text that was forbidden was by Gregory Corso, a dialog with Alan Ginsberg. The postmaster, a Republican, was nevertheless a kind man, who returned the 300 copies to me for correction, rather than destroying them. I mentioned that, not because it was unusual as an illegal act of censorship, but because the Blake engraving was the trigger. Two of my uncles were postmasters, so I heard inside stories of postal service behavior, but the periodicals of the 20th century give many more famous examples.

In his time (as in the present time), terrible things were used as medications, and probably were more deadly than what they were supposed to cure. Paracelsus invented a magical approach to medicine, in which the official medical crap would be applied to the sword that made the wound, leaving the lucky patient unmedicated. When I used to teach naturopathic physicians, they generally didn't appreciate my suggestion that this principle could account for the relative success of homeopathy when compared with 20th century medicine.

The great biochemist, Albert Szent-Gyorgyi, used to observe that humor was closely allied with the perception of important truth. I think Blake's humor is generally under-appreciated.

Since I see Blake as one of the few people who saw clearly in the 18th century, I like to look for people in this century who

worked constructively with the same themes. Maurice Merleau-Ponty's work with the phenomenology of perception, building on the work of people like Kurt Goldstein, elaborates in modern terms this distinction between passive and active seeing and knowing. From Blake's references and images, I have guessed that Swedenborg's scientific discoveries were being discussed by scientific dissenters in London in Blake's time. The ratio of Blake to Swedenborg would be somewhat equivalent to that of Merleau-Ponty to Sechenov.

Around 1860, Sechenov formulated in a detailed way the idea that the brain and consciousness operate on the basis of reflexes (though Swedenborg seems to have anticipated the whole idea of the cortex of the brain and its (nerve cell) elements as the seat of consciousness with its varied faculties; all apparently for overcoming the dualism of Descartes). And then Merleau-Ponty showed why we shouldn't even believe in the literal reality of reflexes. (P.K. Anokhin worked out the more detailed and modern reasons for rejecting the simplistic idea of "the reflex arc," almost literally expressing the idea that we see, actively, through the eyes, not passively "with" them. In the Russian tradition, the active consciousness has been taken seriously, unlike those in the west, who with Eccles, have insisted on separating the body from the (soul or) mind. One of my professors of neurology, for example, used to sarcastically ask me which I was going to study, the brain or the mind; he thought Pavlov had rejected the thought that neurologists could study the mind.