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| **Townsend Letter For Doctors - June 2000Images of PoliomyelitisA Critique of Scientific Literature****by Jim West****Pesticides And Polio**Warning: It has been alleged that DDT causes or contributes to a wide variety of diseases of humans and animals not previously recognized as associated with any chemical. Such diseases included ... poliomyelitis,... such irresponsible claims could produce great harm and, if taken seriously, even interfere with scientific search for true causes ... (Handbook of Pesticide Toxicology, edited by Wayland J Hayes, Jr. and Edward R. Laws, Academic Press Inc., Harcourt Brace Jovanovich, Publishers, San Diego (1991) 3 volumes, v2p769)Hayes and Laws were informing their readers about the heretic, Dr. Morton S. Biskind. In 1953, when Biskind's writings were being published, following the apex of the greatest polio epidemic in the United States, he and the entire public were encountering dramatic images: a predatory poliovirus, nearly a million dead and paralyzed children, iron lungs, struggling doctors, and dedicated nurses. The late president Franklin D. Roosevelt had been memorialized as a polio-victim who was infected with the deadly poliovirus near the beautiful and remote island of Campobello. Positive images were presented regarding scientific progress and the marvels of DDT. Jonas Salk was preparing to move center stage.Through this intellectually paralyzing atmosphere, Dr. Biskind had the composure to argue what he thought was the most obvious explanation for the polio epidemic: Central nervous system diseases such as polio are actually the physiological and symptomatic manifestations of the ongoing government and industry sponsored inundation of the world's populace with central nervous system toxins.Today, few remember this poignant writer who struggled with the issues of pesticides, issues that Rachel Carson would be allowed to politely bring to public awareness nine years later, as the lead story in New Yorker magazine and then a national best seller, by limiting her focus to the environment and wildlife. Biskind had the audacity to write about human damage. I found "M. S. Biskind" in the endnotes to Hayes and Laws' diatribe. What could possibly have motivated that biased genuflection towards germ theory? Such offerings, commonly written into the final paragraphs of scientific articles, are usually done with an appearance of impartiality.With great anticipation, I went to a medical library and found Biskind's 10 page article in the American Journal of Digestive Diseases, v20 (1953). Presented below are excerpts regarding polio:"In 1945, against the advice of investigators who had studied the pharmacology of the compound and found it dangerous for all forms of life, DDT (chlorophenoethane, dichlorodiphenyl-trichloroethane) was released in the United States and other countries for general use by the public as an insecticide."Since the last war there have been a number of curious changes in the incidence of certain ailments and the development of new syndromes never before observed. A most significant feature of this situation is that both man and all his domestic animals have simultaneously been affected. In man, the incidence of poliomyelitis has risen sharply;"It was even known by 1945 that DDT is stored in the body fat of mammals and appears in the milk. With this foreknowledge the series of catastrophic events that followed the most intensive campaign of mass poisoning in known human history, should not have surprised the experts. Yet, far from admitting a causal relationship so obvious that in any other field of biology it would be instantly accepted, virtually the entire apparatus of communication, lay and scientific alike, has been devoted to denying, concealing, suppressing, distorting and attempts to convert into its opposite, the overwhelming evidence. Libel, slander and economic boycott have not been overlooked in this campaign."Early in 1949, as a result of studies during the previous year, the author published reports implicating DDT preparations in the syndrome widelyattributed to a "virus-X" in man, in "X-disease" in cattle and in often fatal syndromes in dogs and cats. The relationship was promptly denied by government officials, who provided no evidence to contest the author's observations but relied solely on the prestige of government authority and sheer numbers of experts to bolster their position."["X-disease"] ... studied by the author following known exposure to DDT and related compounds and over and over again in the same patients, each time following known exposure. We have described the syndrome as follows: ... In acute exacerbations, mild clonic convulsions involving mainly the legs, have been observed. Several young children exposed to DDT developed a limp lasting from 2 or 3 days to a week or more."Simultaneously with the occurrence of this disorder [X-diseasel a number of related changes occurred in the incidence of known diseases. The most striking of these is poliomyelitis. In the United States the incidence of polio had been increasing prior to 1945 at a fairly constant rate, but its epidemiologic characteristics remained unchanged. Beginning in 1946 the rate of increase more than doubled. Since then remarkable changes in the character of the disease have been noted. Contrary to all past experience, the disease has remained epidemic year after year."**DDT vs Polio (1944-1953)**In the graph below, I provide confirmation of Biskind's observations for 1945-1953, in terms of polio incidence and pesticide production. I have utilized pesticide data from Hayes, et al. which they had obtained from the U.S. Transportation Board. Polio incidence data was gathered from US Vital Statistics. Although I argue against Hayes' characterization of Biskind's work, credit goes to Hayes for publishing arcane pesticide data.**Physiological Evidence**Biskind also describes physiological evidence of DDT poisoning that resembles polio physiology: "Particularly relevant to recent aspects of this problem are, neglected studies by Lillie and his collaborators of the National Institutes of Health, published in 1944 and 1947 respectively, which showed that DDT may produce degeneration of the anterior ham cells of the spinal cord in animals. These changes do not occur regularly in exposed animals any more than they do in human beings, but they do appear often enough to be significant."He continues, bearing his exasperation in trying to make the obvious plain: "When the population is exposed to a chemical agent known to produce in animals lesions in the spinal cord resembling those in human polio, and thereafter the latter-'disease increases sharply in incidence and maintains its epidemic character year after year, is it unreasonable to suspect an etiologic relationship?"Before finding Biskind, I had spent months engaged in a nearly futile search for the physiology of acute DDT poisoning. I began to sense that American DDT literature as a whole intends to convey that DDT -is not a dangerous toxin except with regard to its general environmental effects due to persistent bioaccumulation, and that the physiology of acute DDT poisoning is therefore trivial. DDT literature jumps uniformly from descriptions of symptoms, over physiology, to the biochemistry of DDT-caused dysfunction in nerve tissue. It was as if detectives had come upon a mass-murder scene and immediately became obsessed with the biochemistry of dying cells around bullet holes, while ignoring the bullet holes.Eventually, I did find one study of the physiology of acute DDT poisoning by Daniel Dresden (Physiological Investigations Into The Action Of DDT, G.W. Van Der Wiel & Co., Arnhem (1949)). This study confirms that DDT poisoning often causes polio-like physiology: Conspicuous histological degeneration was, however, often found in the central nervous system. The most striking ones were found in the cerebellum, mainly in the nucleus dentatus and the cortex cells. Among other things an increase of the neuroglia and a necrotic degeneration and resorption of ganglionic cells was found. The Purkinje cells were less seriously affected than the other neurons. Also in the spinal cord abnormalities of a degenerative nature were found.... such changes were not found invariably .. there is neither an obvious relation between the size and spreading of the lesion and the quantity of DDT applied ... information of adequate precision about the nature of the anomalies is lacking.So we find that especially the cerebellum and the spinal cord are histologically affected by DDT And more recently, in the-works of Scobey, I found that from ancient times to the early 20th century the symptoms and physiology of paralytic poliomyelitis were often described as the results of poisoning. It wasn't until mid-19th century that the word "poliomyelitis" became the designation for the paralytic effects of severe poisoning and polio-like diseases assumed to be germ-caused.Today, various other forms of the word "Polio" are still used to describe the effects of poisoning, though usually with regard to paralysis in animals. A search of Medline ("Polio" and "Poison") finds about 45 contemporary articles where poisoning causality is attributed to polio. The terminology found was: "polioencephalomalacia," "poliomye lomalacia," "polyradiculoneuritis," "neurological picture similar to that of poliomyelitis," "polioencephalo myelomalacia," "lumbal polio myelomalacia," "cerebrocortical necrosis (polioencephalomalacia)," "Lead poisoning in grey-headed fruit bats (Pteropus. poliocephalus)," "multifocal poliomyelomalaciai" "spinal poliomalacia," "Polio and high-sulfate diets," "Atypical porcine enterovirus encephalomyelitis: possible interaction between enteroviruses and arsenicals," "Polioencephalomalacia and photosensitization associated with Kochia scoparia consumption in range cattle," "bovine pohoencephalomalacia."In Britain, a farmer turned scientist, Mark Purdey has found substantial evidence that "Mad Cow Disease," a form of polio-like encephalitis, is caused by the government mandated cattle treatment, a treatment formulated with organophosphate peAticide and a compound similar to thalidomide. Purdey's works can be found on the NIH website (PUBMED ID's 9572563, 8735882,8735881).Unlike most scientists, during his research Mark Purdey became legally embroiled with the government, and... "lost his farm, was shot at, blockaded in his home to prevent him giving a lecture, and saw a new farmhouse go up in flames the day he was due to move in." (Dr. Jon Whale, www.whale.to/bse.htm)Morton S. Biskind's writings regarded humans, and fell into disfavor after the successful introduction of the polio vaccines. By October, 1955, Biskind, whose works were often found in established medical journals a and who testified before the House of Representatives on- the dangers of pesticides, was forced to self-publish his writings, one of which I found in an old card catalog. A scan of Medline finds no other works by him except for a very tame article in 1972. He died not long thereafter. He was born in 1906. A Contemporary StudyBelow are three graphs that confirm Biskind, utilizing data that spans far beyond his observations. Again, the pesticide data comes from Hayes and Laws.**DDT vs Polio (1940-1970)**In the following graph I did not include DDT data for the period of 1954 onward because DDT distribution was then being shifted out of the US and into developing nations, while its US production skyrocketed.**BHC vs Polio (1940-1970)**BHC (benzene hexachloride), a persistent, organochlorine pesticide, is several times more lethal than DDT, in terms of LD50 (lethal dosage required to kill 50% of a test population). BHC was produced in 1945-1954 at quantities similar to DDT. In spite of BHC's lethal quality it has received much less publicity than DDT. While DDT was banned for such things as an association with the thinning of eagles' eggs, BHC was phased out of production because it was found, after 15 years, to impart a bad taste to food. It is still used in underdeveloped nations. BHC's correlation with polio incidence is astonishing:**Lead-Arsenic vs. Polio (1940-1970)**After viewing the DDT and BHC graphs above, notice that the period of 1940-46 is unaccounted for in terms of poliopesticide correlation. The missing piece of the puzzle for this 6-year period is supplied by the lead and arsenic compounds. These CNS toxins have been the major pesticides during the several centuries previous to the advent of the organochlorines in the early 1940s. For those who have thought that "organic" food was the norm before the release of DDT to the civilian sector in 1945, the immense production of leadarsenic compounds seen in this graph is disappointing. This data requires a reconsideration of statements regarding the "natural" quantities of arsenic found in apple seeds, apricots, or almonds, or "natural" chemotherapies derived from seeds where pesticides can accumulate in soil.**Pesticides Composite: Summary**Virtually all peaks and valleys correlate with a direct one-to-one relationship with each pesticide as it enters and leaves the US market. Generally, pesticide production precedes polio incidence by 1 to 2 years. I assume that this variation is due to variations in reporting methods and the time it takes to move pesticides from factory to warehouse, through distribution channels, onto the food crops, and to the dinner table.A composite of the three previous persistent pesticides, e.g., lead, arsenic, and the dominant organochlorines (DDT and BHC), are represented:These four chemicals were not selected arbitrarily. These are representative of the major pesticides in use during the last major polio epidemic. They persist in the environment, are neurotoxins that cause polio-like symptoms and polio-like physiology, and were dumped onto/into human food at dosage levels far above that approved by the FDA- They directly correlate with the incidence of various neurological diseases which were called "polio" during the epidemic shown. They were utilized in the "most intensive campaign of mass poisoning in known human history." (quotation from Biskind, op. cit.) Virus CausalityA clear, direct, one-to-one relation between pesticides and polio over a period of 30 years with pesticides preceding polio incidence in the context of the CNS related physiology just described, leaves little room for complicated virus arguments, even as a co-factor, unless there exists more than mere argument or supposition, unless there exists a rigorous proof for virus causality. Polio shows no movement independent from pesticide movement, as one would expect if a causal virus existed. Popular images, even with doctors, are that a small amount of virus can, invade a body (infect) and begin replicating to the point of producing disease; however, in the laboratory, poliovirus does not easily behave in such a predatory manner. Laboratory attempts to demonstrate causality are performed under conditions which are extremely artificial and aberrant.Virus causality was first established in the mainstream mind by publications of an experiment by Landsteiner and Popper in Germany (1908-1909). Their method was to drill holes into the of two monkeys and inject into their brains a pulverized puree of diseased brain tissue. These monkeys died and proof of virus causality was then declared after finding lesions. The poliovirus presence was assumed (not proven). The weakness of this method is obvious to everyone except certain viropathologists and has recently been criticized by the microbiologist PeterDuesberg regarding a modern-day attempt to establish virus causality for Kuru, another CNS disease (Inventing The AIDS Virus, Regnery Press (1996) p16). Since 1908, the basic test has been Orthodox medical literature, in its own terms, can offer no evidence that the poliovirus was anything else than benign until the first polio epidemic (Sweden, 1887). This small epidemic occurred 13 years after the invention of DDT (Germany, 1874),14 years after the invention of the first mechanical pesticide crop sprayer (1873), which was used to spray formulations of water, kerosene, soap, and arsenic. The epidemic also occured immediately following an unprecedented flurry of pesticide innovations. This is not to say that DDT was causal for the first polio epidemic, as arsenic was then in widespread use and DDT is said to have been merely an academic exercise. However, DDT, or any of several neurotoxic organochlorines already discovered, could have caused the first polio epidemic if it had been used experimentally as a pesticide. DDT's absence from early literature is little assurance that it was not used.Poliovirus is an enterovirus. There are at least 72 known enteroviruses discovered to date. According to Duesberg, many enteroviruses are harmless "passenger viruses" (Inventing Vie AIDS Virus, Regnery Press (1996) pl4,74,80). In view of the herein revised polio images, probably unknown to Duesberg, it is reasonable that we also view poliovirus as harmless, outside of extreme laboratory conditions.**The Symbiotic Poliovirus**Having now established the possibility of an innocent poliovirus, its presence in polio can be explained as follows:Accelerated Genetic Recombination: Genetic recombination is accelerated whenever a biological system is threatened (Molecular Approaches to Environmental Biology (1996). The proliferation of viruses can often be part of this process. The presence of pesticides is threatening to a biological system.The SOS Response: When a cell is critically threatened, accelerated genetic recombination (which may include virus proliferation) is just one of a set of events that may occur. This set of events is called the "SOS Response" which is known to be triggered by exposure to toxins or radiation (Mark Ptashne, A Genetic Switch (1992) p62).Arnold Levine (Field's Virology, p6) provides an example: When lysogenic bacteria were lysed [split open] from without, no virus was detected. But from time to time a bacterium spontaneously lysed and produced many viruses. The influence of ultraviolet light in inducing the release of these viruses was a key observation that began to outline this curious relation between a virus and its host.Is it only ironic that common medical procedures such as chemotherapy, radiation therapy, and the use of toxic pharmaceuticals, accelerate genetic recombination and thus the potential for a necessary virus proliferation?The Ames Assay Test: The SOS Response is utilized in the Ames Assay Test, a standard test whereby chemical toxicity is determined. According to procedure, bacteria are exposed to a chemical solution in question, and if, thereby, it is found that genetic recombination accelerates via the spontaneous proliferation of viruses from these bacteria then the chemical is determined to be a toxin. The phenomena is sensical, the bacteria being analogous to a poker player with a bad hand who must request an exchange of cards and a re-shuffled deck to improve the possibilities for survival.' In the Ames Assay Test, bacteria are concerned with their genetic "hand" in order to improve their abilities to metabolize toxins, create utilizations for toxins, and shield against toxins. Thus they engage in this well-known phenomena, "gene shuffling," facilitated by virus proliferation.Thus, I propose that the poliovirus is a symbiotic virus (and possibly a dormant virus) that behaves in a manner suggested by the phenomena found in the Ames Assay Test, a test used to determine toxicity. One could object to the Ames Test analogy on the grounds that because the Ames Test utilizes prokaryote cells (bacteria-like cells) rather than eukaryote cells (nucleus-containing cells that comprise multicellular tissue) and because it is asserted that poliovirus invokes damage by infecting eukaryote cells, the explanation is invalid. However, the evolution of eukaryotes includes an inheritance of structures and functions inherited from symbiotic unions of prokaryotes. Eukaryotes continue to possess to this day prokaryote functionality, such as found in the genetic independence of the organelles within the eukaryote cells, such as mitochondria (Lynn Margulis and Dorion Sagan, What Is Life? (1995), and,Lynn Margulis, Dorion Sagan, Slanted Truths Essays on Gaia, Symbiosis, and Evolution (1997)). Thus, generalizations derived from the Ames Test can contribute to a valid hypothesis for the presence of poliovirus in "polio."Dormant Virus: Thus, when a cell is critically threatened by toxins (or radiation) it can invoke survival mechanisms (the SOS Response) such as the suspension of metabolism, or the activation of dormant viruses, triggering their proliferation from the cell. The words "dormant" and "latent" are used conventionally to describe such viruses, but these words are not my preference because they imply that viruses are only externally generated and are found in the cell in a condition of temporary rest (dormancy). In cyclical phenomena, such as the life cycle of the virus, the "starting point" is a political- philo s ophical decision. The orthodox virus image (possibly a projection of the orthodox mind) is of an external, selfish, nonliving parasite that tricks cells into infecting themselves with the virus and then to replicate said virus with cell machinery. Dormant viruses are publicized as external life forms that spend most of their time (as much as several decades) waiting inside cells, awaiting activation to perform parasitic activities. However, orthodoxy itself states that virus evolution originates from the genetic material. of cells, and extremely recently in genetic history (see item 7, below).Gene Sharing: Viruses represent shared capability, shared data, and data in transit. They are genetic couriers. Shared data decreases the burden on each cell to carry all capabilities. Capability, in the form of genetic information, can be stored in the environment as virus "gene packets," and different capabilities can be stored in different cells, just as humans each have, to some degree, uncommon capabilities which are shared with the community as needed. In the microbiotic world, when a particular capability is needed, cells share genetic information from the dynamically changing universal library of free floating genetic material, such as exists in viruses, free organelles, symbiotic parasites, and free nucleic acid, in addition to straight sexual intercourse where nucleic acid is transferred directly from cell to cell. I could be said that cells can carry unused (dormant) genetic information in the form of nucleic acid and when that information is required, share it by activating virus proliferation.For example, in terms of disease, symbiotic virus presence could be explained as a provider of capabilities to facilitate particular cathartic mechanisms which are appropriate for particular toxic or stressed environments. These cathartic mechanisms are manifested as disease symptoms, in the form of masses of sacrificed leucocytes, obviously found in boils, pimples, and pocks. Orthodoxy gives the label "transduction" to the processes of virus infection Transduction is one of the several possible modes of inter-cellulai transport of genetic material. Cells can use transduction to move genetic date from cell to cell without going through the process of formalized "male-female" sexual processes. This data is routine used to alter their structure and metabolism processes dynamically, without engaging in the slower, more formal reproduction cycles.The concept of the symbiotic virus is explained in Encyclopedia Brittanica, Macropaedia (1990) p507: Although viruses were originally discovered and characterized because of the diseases they cause most viruses that infect bacteria, plants, and animals (including humans) do not cause disease. In fact, bacteriophages [bacteria viruses] may be helpful in that they rapidly transfer genetic information from one bacterium to another, and viruses of plants and animals may convey genetic information among similar species, aiding the survival of their hosts in hostile environments.Brittanica continues with thanks to industrial biotechnology, that humans too may some day enjoy such capabilities: This could in the future be true for humans as well. Recombinant DNA biotechnology may allow genetic defects to be repaired by injecting afflicted persons with harmless viruses that carry and integrate functional genes to supplant defective ones.And it is admitted in mundane language that, as part of nature, humans may already possess these functions: Such events may actually occur in nature in the transmission of "good" viruses from one person to another.**Virus Contradictions**The concept of a predatory poliovirus becomes less certain in the context of these uncommonly known virus facts:1) Poliovirus "Infectosomes have yet to be . experimentally demonstrated...", writes Roland R. Rueckert, under the subtitle, "Infection: A Rare Event" in Field's Virology.2) The poliovirus is difficult to work with in the laboratory because it does not vigorously infect in accordance to its notoriety, "...research in this area is often confounded by the rarity of successful entry." (http:// cumicro2.cpmc.columbia.edu/PICO/ Chapters/Cellular.html) The word "rarity" appears to be a hope-filled supposition, in view of item 1.3) "Eukaryote cells have a wide arsenal of activities to control the halflives of mRNAs, and these nucleases have made it difficult to isolate intact ANA viral genomes from cells." ("Virus Evolution", Ellen G. Strauss, et al, Field's Virology (1996) v1p163) In view of item 1, this appears to be another careful way of saying never.4) Only herpes virus has been traced enroute to site of disease from site of infection. "Viruses during retrograde transport on their way up to the cell bodies have so far been localized ultrastructurally only in the case of herpes simplex and herpes virus suis." (Martin E. Schwab and Hans Thoenen, Encyclopedia of Neuroscience, edited by George Adelman, pub, Birkhauser Bros. Inc., Boston (1987) Chapter 39, p102-3)5) The poliovirus has been electrophotographed in cell tissue. Due to the lack of any photos of poliovirus as an infectosome, these photos should be interpreted as evidence of the cell's SOS response rather than of polio causality. Electrophotography has existed for several decades and has yet to photograph a pohovirus infectosome.1 6) "It seems likely that all viruses trace their origins to cellular genes and can be considered as pieces of rogue nucleic acids." (Encyclopedia Britannica, Micropaedia (1997) "Virus")7) The point in history when known viruses began their evolution has been calculated by molecular biochemists who have interpolated backwards through time the speed and direction of virusevolution. They found that "most viruses we know today have probably evolved since the last ice 'age." ("Virus Evolution," Ellen G. Strauss, et al, Field's Virology (1996) v1p164)8) Viruses are involved in a process called transduction, one of the three modes of genetic transfer between cells, a process that accelerates genetic recombination when cells are critically threatened by toxins.9) Virus infection is used by clone technology to transfer genetic material into cells.10) "Genetic information moves between viruses and their hosts to the point where definitions and classifications begin to blur." (Field's Virology (1996) p6).11) In terms of genetic similarity, There was a remarkable continuum...' from virus to host. (Field's Virology (1996) p6)12) "Carrel (1926) was able to produce tumors resembling Rous' sarcoma and transmissible by cell-free filtrates with indol, arsenic, or tar in chicken embryo. Carrel's observations have been confirmed by other workers. Fischer (1926), by treating cultures of normal cells with arsenic obtained on one occasion a filtrable virus capable of causing tumors." (Ralph R. Scobey, MD, "Poliomyeltis Caused by Exogenous Virus? " Science, v71 (1954))Any of the items listed above can be used to direct work towards a refreshing view of viropathology. For instance, Carrel and Fischer's experiments, in 1926, preceded the discovery of the cellular SOS Response by decades. Their work is important in its impact on the basic tenets of viropathology, the contemporary proofs of virus causality and definitions of immunity. If one views Carrel and Fischer as a reinforcement of the symbiotic virus paradigm, then strong alternative views can be presented:In the case of classical induction of disease by injection of extremely high quantities of virus, the alternative view would be that the presence of such quantities of virus serve as an informational context, a context that indicates imminent toxic death to naive tissue, with an expected tissue reaction (disease). That is, disease induction is no more than an overreaction (like jumping out of a window when someone yells "fire") in terms of inflammation and catharsis (disease manifestations). In the case of the classical demonstration of immunity whereby surviving subjects are immune to attempts to induce disease by subsequent injections of virus, the alternative view is that with virus injection experiments, you can't fool them twice. Thus, a) the inducement of disease by the injection of highquantities of virus, and b) the acquired immunity in survivors of these injections, can both be viewed as parlour tricks, utilized to demonstrate virus causality for disease.**Conclusion**The word "virus" is ancient Latin, meaning "slime" or "poison." Mainstream science admits that most viruses are harmless, yet the word "virus " adds to a biased and highly promoted language of fear regarding nature. Definitions of viruses; range from "pathogenic" to "not usually pathogenic" - the more popular the media source, the more frightening the definition. Less fearful definitions would change the relationship between the medical industry and its "patients."Paradoxically, early virus studies considered virus filtrates to be a poison, not a microbe, thus the name virus. Today, we know that viruses are information. Now, nearly a half-century later, the validity of Dr. Biskinds work appears even more certain. Again, according to Biskind:It was even known by 1945 that DDT is stored in the body fat of mammals and appears in the milk. With this foreknowledge the series of catastrophic events that followed the most intensive campaign of mass poisoning in known human history, should not have surprised the experts. Yet, far from admitting a causal relationship so obvious that in any other field of biology it would be instantly accepted, virtually the entire apparatus of communication, lay and scientific alike, has been devoted to denying, concealing, suppressing, distorting and attempts to convert into its opposite, the overwhelming evidence. Libel, slander and economic boycott have not been overlooked in this campaign.The unique correlations between CNS disease and CNS toxins present a variety of research opportunities not only in medical science, but political science, philosophy, media studies, psychology, and sociology.Jim WestEmail: harpub@hotmafl.comCopyright Jim West (HARPUB) 1987,1998,19% -All Rights Reserved**Suggested Bibliography**Aristotle, The Politics, Penguin Classics, Penguin Books (1962, reprinted 1992)Casarett and Doull's Toxicology, The Basic Science of Poisons, 5th ed., pub. McGraw-Hill (1996)Dresden, Daniel, Physiological Investigations Into The Action Of DDT, G.W. 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