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Industry Influence on Occupational and Environmental Public Health

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Traditional covert influence of industry on occupational and environmental health (OEH) policies has turned brazenly overt in the last several years. More than ever before the OEH community is witnessing the perverse influence and increasing control by industry interests. Government has failed to support independent, public health-oriented practitioners and their organizations, instead joining many corporate endeavors to discourage efforts to protect the health of workers and the community. Scientists and clinicians must unite scientifically, politically, and practically for the betterment of public health and common good. Working together is the only way public health professionals can withstand the power and pressure of industry. Until public health is removed from politics and the influence of corporate money, real progress will be difficult to achieve and past achievements will be lost. *Key words:* industry influence; government policy; worker health; science and politics; science manipulation.

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Currently, governmental health agencies charged with protecting workers and the environment appear to have changed course and now work with and condone unhealthy worker and environmental practices. Health agencies should not consort with purveyors of environmental damage and occupational health hazards. Government's role has changed insidiously over the years from that of watchdog and protector. This leaves environmental scientists in a terribly difficult position. In a landmark special issue of this journal, Egilman and Rankin Bohme pointed out that corporate-funded science is increasingly common and is accompanied by a "substantial tradition of manipulation of evidence, data, and analysis, ultimately designed to maintain favorable conditions for industry, at both the material and ideological levels."¹ Industry's wealth and limitless global reach now extends into all aspects of academia, government, and industry-fronted non-governmental organizations. There is little satisfaction

to be found with the science of occupational and environmental medicine, toxicology, and epidemiology so long as much of it is funded and manipulated by industry sponsors and published in journals that do not require disclosures of conflicts of interest.² Additionally, government-appointed panels are often replete with scientists and physicians having clear conflicts of interest to the issue being evaluated. This is especially damaging on panels convened to advise the FDA on new drug therapies or to evaluate untoward effects of drugs, and those industry-laden panels of EPA for establishing environmental health rules. Many researchers are intimidated to report study results antithetical to the interests of major corporations.³⁻⁵

There is no professional organization or governmental agency with any significant record of defending the heroic doctors and scientists who speak out against this growing problem. In fact, many of the professional organizations that once championed environmental and worker health have been implicated in industry funding, manipulation of science, and fraudulent reporting in scientific journals. A recent example of this problem is that of the Finnish Institute of Occupational Health (FIOH), which receives grants from the World Health Organization (WHO) and the International Labor Office (ILO) to publish the FIOH *African Newsletter on Occupational Health and Safety*. The December 2005 issue of the *African Newsletter* contains an article by Mutetwa et al. entitled "Chrysotile fibre levels in asbestos-cement manufacturing in Zimbabwe."⁶ Judging from the study design and findings, and from the few cited references, the article appears to have been written by those who espouse the views of the Chrysotile Institute (formerly Asbestos Institute), the International Chrysotile Association (until last year the Asbestos International Association), or some other representative of the chrysotile asbestos industry. The apparent propaganda in the article follows from the low recorded exposures. There is no excuse for such a misleading article if proper, or even cursory, editorial review is taking place. The Finnish editors must have been aware of the value this publication would have for industry, as well as the increased health hazards it might create for workers, and should have ensured that the article was rigorously refereed.⁷

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William Wiist, at the University of Massachusetts, Amherst, contends that institutions and informal networks have formed a movement that is challenging the growing power and pervasive influence of large corporations. The movement's analyses show that the historical development and current function of the corporate entity require production of sizeable profits regardless of consequences to worker safety, health, society, or the environment. As a result, public health professionals frequently address health problems related to products, services, or practices of corporations.⁸

Sheldon Samuels sees a far more complex problem.⁹ He counters that corporations are creatures of government. Even when their capital is privately controlled, their behavior is not. Their failures are collapses of governance, including the governance of individual behavior, or what he calls "the acceptances" and their consequences. He gives some compelling examples:

- Tort litigation and civil penalties, when successful, typically tax workers and stockholders with no monetary or career effect on the executives and directors who consciously exchange money for death and disease.
- "Market" strategies are essentially unchallenged in public health policy exchanges, e.g., that pollution 'credits' and similar devices result in unnecessary pollution and in averaging, not decreasing, unnecessary death and disease. The perpetrators receive as rewards full professorships in our leading schools of public health, instead of prison terms.
- "Ethicists" rationalize the use of children, the impoverished, and the homeless in unnecessary drug, pesticide, and chemical experimentation, and government committees propose in the *Federal Register* protocols for such use. The moral sense of a normal person identifies conspiracy and acts of homicide. Schools of public health make their textbooks required reading.
- Public health practitioners focus on the morally empty structure and inadequate rules of subject consent, but not the moral mission of NIH requirements for their grants, placing their own financial well being above human life.
- Public health professionals debate the glorification of their toxicological and epidemiologic disciplines, as merits of "precautionary principles," but ignore implementation through the distributive injustice of fallacious methods of cost-benefit analysis.

There is no body of systematic criminal environmental law to deal effectively with systemic environmental criminality, not in the United States or in any country. And that, not the enhancement of hazy anti-corporation movements, should be the focus of our attention.⁹

Daniel Teitelbaum thinks that rhetoric is of little value¹⁰:

I have in the past three or four years taken upon myself the burden of appearing on a pro bono basis

as an expert witness for the prosecution in a series of criminal prosecutions by various State and Federal Agencies of corporations or corporate executives who have been charged with environmental and occupational crimes including corporate manslaughter. In each case, the corporate defendants have relied upon "noted experts" from the academic and industrial communities to give defense testimony that juries have rejected. Large fines and prison sentences have been levied against the defendants when the juries have found them guilty. The issue isn't more talk. It isn't an anti-corporate movement. It is the activation of responsible and competent scientists to help drive the enforcement of those laws on the books that protect workers and the environment from rapacious attack by corporate executives and boards.

While whistle blowers within Government have been deprived of protection by the Supreme Court, the local law enforcement agencies are far more responsive to the fact that what are often called accidents (Sago Mine, refinery explosions, etc.) are actually incidents. These incidents are fully preventable. They are often the result of what may well be the criminal negligence of corporate officials. We should turn to the local law enforcement agencies and blow the whistle on every case we see of death and injury to workers that is preventable and demand grand jury investigations and indictments for the crimes they are, rather than allow OSHA, MSHA, State regulatory bodies, and other limp agencies to fine faceless companies with meaningless fines which mostly are never paid.¹⁰

Calls for radical reform are not to be lightly dismissed, given the troubled nature of the current practice of occupational and environmental medicine. In a series of three articles, LaDou has presented the problems with the workers' compensation model of occupational and environmental medicine in the United States.^{2,11,12} He contends that the seriously flawed workers' compensation system should be converted to a public health model to remove the influence of industry and insurers on the practice of medicine. Occupational and environmental medicine, as a part of the public health infrastructure, could play a much more substantive part in bringing about a national program to deal with occupational and environmental health. Occupational health and safety professionals trained in public health can and should participate in these activities, but not when they are in the employ of industry or insurers. To preserve and promote healthy environments, including improving deteriorating workplaces, responsible scientists, physicians, and other health and safety professionals must more forcibly speak out about the wrongs being perpetuated by industry and industry apologists. This need especially exists in governmental health institutes and regulatory agencies.

INDUSTRY TACTICS

Differences of opinion about the same scientific data set or about experimental results may be logically strengthening. However industry rarely "bends" in debates as to the best public health course of action, especially when one of their chemicals or products or processes is found to be carcinogenic, mutagenic, teratogenic, or a reproductive hazard. This industry-favored strategy has been gaining momentum over the last 20-plus years and continues unabated with the current administration and houses of Congress. Scores of public health measures long established for protection of workers and the environment have been softened or overturned. Beleaguered public servants likewise are bombarded by non-government organizations that must find the will to fight every pro-industry, [anti-] public health decision.

Industry hires academic experts to support their position, however tenuous and speculative, to endorse their products, and to explain and downplay the risks to government and in public forums. Several recent journal articles document the activities of some of these industry-aligning experts, as a few representative examples, Patricia Buffler, Kenny Crump, Lewis Braverman, Richard Bull,¹³ Kenneth Rothman, Laura Green, David J. Hewitt,¹⁴ Otto Wong, Michael Goodman, David Garabrandt,¹⁵ Dennis Paustenbach, Sverre Langard, Marc Schenker,¹⁶ Ernest McConnell,¹⁷ Coleen Beall, and Elizabeth Delzell.¹⁸ Many more industry experts are listed on the website of the Center for Science in the Public Interest (CSPI), <<http://www.cspinet.org/>>.

Academic credentials often are used to shield industry views and to create the illusion of objectivity. In fact, a person's professional address or organization does not reflect his or her public health philosophy, nor does the institution necessarily reflect a purity of pursuit. Industry often forms institutes to contradict or cloud damaging findings. One alarming result is that public health officials increasingly accede to or are coerced by industry persuasion.¹⁹ Moreover, governmental Institute "leadership" frequently sides with industry. This is particularly true when anti-environment and pro-business administrations and Congresses are in power. Public health and environmental issues typically take a back seat to money-associated dealings. For example, under industry pressure, the National Toxicology Program (NTP) delayed listing fiberglass insulation in its NTP Report on Carcinogens [RoC] for nearly six years, despite the fact that OSHA mandated labeling fiberglass as a carcinogen.^{20,21} The glass fiber industry has again petitioned the NTP to de-list this material from the RoC. Also in response to industry lobbying, the NTP removed saccharin from the NTP RoC, despite lack of unanimity among staff, the NTP Board of Scientific Counselors, and a panel of experts. Currently the phthalate industry has petitioned NTP to remove from the RoC di-2-ethylhexylphthalate (DEHP). Moreover, John Graham, until recently of the

Office of Management and Budget, has placed increasing restrictions including industry oversight on preparing and compiling the RoC so that NTP was not able to meet its congressional obligations for the twelfth edition (due 2006).

PROFESSIONAL ORGANIZATIONS

Another assault on the environment and worker's health comes in the form of professional organizations. The Society of Toxicology (SOT) is one of the more blatant examples of a scientific organization that largely represents industry. The Toxicology Forum is even worse with regard to promoting industry propaganda and subservience, as is the American College of Toxicology (ACT). Perhaps this bent is inevitable given that industry dominates the field of toxicology, and ranks of memberships of these societies. Another example is the International Society of Regulatory Toxicology and Pharmacology (ISRTP) and its pro-industry journal under Gio Gori, a long-time paid apologist for the tobacco industry.^{22,23}

The International Commission on Occupational Health (ICOH) is another front for industry and a source of industry-friendly opinions and regulations. Often presented as an organization established to protect workers' health, ICOH pretends to debate and contemplate and yet typically ends up siding with industry views. Most ICOH members have industry affiliations, even though they seldom admit their conflicts of interest. The ICOH attempts to mask its true purpose by holding a large international meeting every three years, but these infrequent events merely mislead supporters into thinking that progress is being made in international occupational health. Asbestos is but one shameful example of ICOH support of industry, where its officers and members have endorsed and enhanced the mining and manufacture of asbestos products for many decades.²⁴⁻²⁷ Without awareness or approval of its membership, a coterie of Collegium Ramazzini members endorsed a working relationship with ICOH, ostensibly to make positive public health inroads, yet only serving to tarnish the stellar reputation of one of the few organizations devoted to worker health.

The Collegium Ramazzini, without discussing the matter with its membership, accepted NIEHS funding for a meeting held at Mount Sinai in New York. When members learned of this, they pointed out that NIEHS accepts funds from the American Chemistry Council (ACC, formerly the Chemical Manufacturing Association) and other industry groups. Many Collegium members were surprised to learn that industry actually played a part in financing a number of Collegium activities without the members' being informed, including such corporate players as Wacker Chemie, Johns Manville, Exxon, Montedison, API, Mobil, and Commercial Union. Following requests for clarification, the Secretary General of the Collegium, Morando Soffritti,

replied that, "All the scientific events which have been held in Bologna received some support from private and public contributors." He went on to say that, "I can tell you that the limited support we received from industry for our research never conditioned our freedom or our independence." Many concerned members of the Collegium Ramazzini do not agree with this policy but appear to be in the minority. It is the simple fact that by going to such a meeting, Collegium members tacitly acknowledge some debt to industry.

Two other organizations affiliated with ICOH appear to represent industry while their roles are masked with credentials tying them to the WHO and ILO. ICOH affiliates Medichem and the International Centre for Pesticide Safety (ICPS) also are industry fronts. Their publications do not identify their interests and funding, nor the companies and users with whom they collaborate. Company toxicologists sit on regulatory committees across the world to supply information about their products.^{28,29}

Scientific experts who sit on governmental and international bodies and advisory groups dealing with pesticides and other chemicals represent, reflect, and focus on the dominant toxicology models they advocate. They often emphasize modes of action and demonstrate great confidence in one often self-serving model of toxicity and any presumptive thresholds. The deliberations of such committees are confidential and members may be bound by collective responsibility. Regulatory toxicologists working for governments and international agencies do not have the staff or resources to replicate or to become instant and dominant experts concerning the original research and hence must most often depend on the companies to supply the primary data or synopses so that the regulators can make appropriate decisions about approvals and usage. Further, industry contacts with regulators are innumerable and corporations are relentless in their pursuits to influence any eventual promulgations reflecting on their vested interests.³⁰

The nefarious activities of company experts can be found throughout the world. The U.S. approval of atrazine serves as an example of their influence. Atrazine is a common agricultural herbicide with endocrine-disruptor activity, and there is evidence that it interferes with reproduction and development, and may cause cancer. It is the most heavily used herbicide in the United States, with more than 40 million pounds applied on corn acres in 2005 alone. Although the U.S. Environmental Protection Agency (EPA) approved its continued use in October 2003, that same month the European Union (EU) announced a ban of atrazine because of potential adverse health concerns from ubiquitous and unpreventable water contamination. The manufacturer of atrazine, Syngenta, to influence the U.S. atrazine assessment, submitted flawed scientific data as evidence of no harm, and met repeatedly and privately with the EPA to negotiate the government's regu-

latory approach. Many of the details of these negotiations continue to be withheld from the public, despite EPA regulations and federal open government laws that require such decisions to be made in the open.³¹ In their June 2006 risk assessment of chlorinated triazines, EPA again decided atrazine does not pose any threat to human health or the environment [see PTCN, 26 June 2006, <<http://www.ptcnonline.com/home.asp>>].

GOVERNMENT AND INDUSTRY

The current government's willingness and proclivity to forge partnerships between industry and government rings with sound-good propaganda, e.g., "cooperation, benefit public health, better use of limited resources, generate unassailable findings, partnerships." The National Institute of Environmental Health Sciences (NIEHS), for example, entered into an agreement with the American Chemical Council (ACC) to test hundreds of chemicals for potential environmental endocrine-disrupting activities. Under the bold banner of "NIEHS and ACC" the NIEHS journal *Environmental Health Perspectives* ran this advertisement/announcement in 2001.

NIEHS and ACC Establish Grant Program

On 26 July 2001 the NIEHS and the American Chemistry Council (ACC) signed a unique memorandum of understanding that will provide \$4 million over the next two years to conduct multidisciplinary extramural research on potential developmental toxicants. The research will specifically study mechanisms of action, using tools such as DNA microarrays and genetically sensitized animal models to look at cellular networks of responding genes, help define important target molecules and pathways for toxicity investigations, and provide clues to future biomarkers of toxic exposure and effect. Says NIEHS director Kenneth Olden, "This [memorandum of understanding] is a collaboration between government and industry to improve the health of the American people by improving the quantity and quality of the data on potential developmental toxicants that are available for use in the risk assessment process."³²

What is not said here is that NIEHS put up \$3 million [75%] of the mentioned \$4 million while the chemical industry, through the ACC, contributed a comparatively paltry \$1 million and gained substantial influence over these studies. Hence, once again, the citizens of America pay through their taxes for studies of industry chemicals and study design and eventual evaluations influenced by industry. The U.S. EPA and other agencies also have taken this "partnership" path to allow and promote industry control over governmental health initiatives and programs. The GAO came down harshly on these industry-government funding agreements: "the arrangements

raised concerns about the potential for ACC to influence research that could affect the chemical industry." After evaluating this industry-government arrangement, and overall, "GAO recommends, among other things, that NIH and EPA develop formal policies for evaluating and managing conflicts of interest when entering into research arrangements with nongovernmental partners, particularly those representing a regulated industry, and that NIH revise its gift policy to require conflict of interest evaluations and documentation of decisions."³³

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC)/WHO

During the last decade industry has had increasing and often decisive influence on IARC's Monograph Series: Evaluation of Carcinogenic Risks to Humans.³⁴⁻³⁶ IARC consistently "downgraded" [lowered the risk evaluation of] more chemicals than it "upgraded" in the 1990s: acrylonitrile, amitrole, atrazine, di(2-ethylhexyl) phthalate (DEHP), ethylenethiourea (ETU), glasswool, insulation [fiberglass], d-limonene, melamine, rock (stone) wool, saccharin and its salts, slagwool, and sulfamethazine as examples. These downgrades were based most often on "modes of action" (a naïve and unproven furtive metaphor for "mechanism") that IARC (and industry, and all too frequently U.S. regulatory agencies) stated were operative only in animals and were not relevant to humans, and thus a hope-we-are-right leap to "safe for humans." DEHP [and 1,3-butadiene] is a most egregious example of science manipulation and misrepresentation, and thus perpetuation of harm to humans based on speculative mechanistic behavior.³⁷⁻³⁹

Industry-friendly scientists spread industry influence to scientific panels in the United States and in other countries, and to the WHO. Fortunately IARC has new leadership for their Monographs, yet we must continue to carefully watch over the IARC Monographs activities and their choices of experts.⁴⁰ The same diligence must be directed towards another WHO program, the International Programme on Chemical Safety (IPCS), that has shown to have been industry-conservative in the past.^{28,41}

INDUSTRY INFLUENCE ON IDENTIFYING AND CLASSIFYING CHEMICAL CARCINOGENS

Nothing since the Food and Drugs Act of 1906 and the Federal Food, Drug, and Cosmetic Act of 1938 has had a greater positive impact on the safety of foods and food products from a carcinogenesis point of view than the Delaney Amendment, promulgated in 1958. This law, named after Congressman James Delaney of New York, forbid the addition to foods of any agent or chemical that was known or shown to cause cancer in humans or animals. That is, "the Secretary [of the Food and Drug Administration] shall not approve for use in food any chemical additive found to induce cancer in

man, or, after tests, found to induce cancer in animals." Not any. What could be more decent and proper and fair? Industry did not think so, and over the decades since this Law was enacted in 1958, during the Eisenhower administration, fought and cajoled and financed efforts to have Delaney repealed or gutted.

Interestingly, the Delaney Clause applied to pesticides in processed foods only when residues of a cancer-causing pesticide increased during processing; for example, when more of a pesticide was present in ketchup than in the raw tomatoes used to make it. Moreover, Delaney never applied to pesticides in raw foods. In 1988, the EPA eased restrictions on several pesticides that posed a "de minimus" or "purported absence" of risk to humans. This change was challenged successfully by the Natural Resources Defense Council and overturned in 1992 by the Ninth Circuit Court of Appeals. However, pesticide use was removed from the Delaney Clause in 1996 by an amendment to Title IV of the Food Quality Protection Act. This demise of the Delaney Clause was another victory for industry, and a jolting defeat for American public health.

The politically-led FDA has over the years done less and less to promote good health: as one serious example FDA leadership approved aspartame and like artificial sweeteners over staff and advisory council's advice to the contrary. Soffritti and colleagues, at the Ramazzini Foundation in Bologna, Italy, found that aspartame ["NutraSweet"; "Equal"™] causes leukemia and cancers of the kidney and brain in laboratory animals, yet aspartame is widely distributed on the world market, with new uses being announced with apparent seamless frequency—now in more than 6,000 products worldwide.⁴² Decades ago NTP wasted a golden opportunity to set straight the debate over the industry's findings of brain tumors once and perhaps for all. The FDA on several occasions "blocked" the NTP from honoring the nomination of aspartame for full toxicologic testing and evaluation. Perhaps as a cover, the NTP "tested" aspartame in an inadequate transgenic model, and—no carcinogenic response was observed,⁴³ as predicted. The NTP, knowing this model was inappropriate (among other deficiencies, it does not detect "non-genotoxic chemicals or those causing liver tumors"), still went ahead and declared aspartame non-carcinogenic despite these "false-negative" findings.⁴³

NTP staff presented their aspartame study results in a technical report format usually reserved for two-year bioassays that attempted to have their oversight Board of Scientific Counselors endorse the short-term exposure results as a bona fide "negative" outcome. Fortunately, the Board, after much debate, insisted on a more reasonable albeit less-than-scientifically accurate conclusion: "Under the conditions of this 9-month feed study, there was no evidence of carcinogenic activity of aspartame in male or female p53 haplo-insufficient mice exposed to 125 to 50,000 ppm. Because this is a new

model, there is uncertainty whether the study possessed sufficient sensitivity to detect a carcinogenic effect." More than 25 years have passed without proper attention to the carcinogenicity of aspartame, due largely to a testing veto to the NTP lodged by the FDA.⁴⁴

Important web sites for learning the facts and truth about public health and environmental and occupational health issues are listed in the Appendix. On the other side of the spectrum are many organizations devoted to obfuscation and deceit about environmental issues and public health. These sources of information are largely supported and funded by industry, and often are created by the industries being regulated (as examples, Formaldehyde Institute; Phthalate Institute) to use any means necessary or at their disposal for thwarting and delaying public health efforts to make their products safer.

On February 18, 2004, over 60 leading scientists—Nobel laureates, medical experts, former federal agency directors, and university chairs and presidents—voiced their concern over the misuse of science by the Bush administration.⁴⁵ In their report, the Union of Concerned Scientists (UCS) detailed cases where the administration has manipulated science on environmental and other issues.

On global warming alone, the [Bush] administration belittled, misrepresented, altered or quashed multiple reports suggesting a clear link between greenhouse gas emissions and the burning of fossil fuels like coal and oil. A study detailing the impact of mercury emissions from power plants was sanitized to industry specifications. Another study suggesting that a Congressional clean-air bill would achieve greater pollution reductions than the administration's own plan, at approximately the same cost, was withheld.

It is a common Administration practice to engage in "suppressing inconvenient facts that might force Mr. Bush's friends in the oil, gas and coal industries to spend more on pollution control." The UCS report points to "similar shenanigans involving other agencies, including Agriculture, Interior and even, on reproductive health issues, the Centers for Disease Control." The UCS report "also criticizes the administration for stacking advisory committees with industry representatives" and removing standing members or blocking nominees who might not blindly adhere to the administration's political-environmental viewpoints.

Many in the government—particularly the U.S. Public Health Service and the U.S. EPA—continue to be dangerously credulous in their dealings with vested industries, conflicted scientists, and misguided industry-manipulated congressmen/senators.³³ These health and environmental setbacks will not be overcome or even neutralized for many years, largely because programs and congressional promulgations set in place are

not easily overturned or made right. This is especially true for public and occupational health regulations. Even with a new administration's appointments to health agencies, considerable time goes by before any positive environmental and workplace impact can be felt. The International Agency for Research on Cancer and the World Health Organization, after some unfortunate years of excessive industry influence, are beginning to regroup and return to their objective scientific and world public health roots and to the esteemed international status they previously held.⁴¹ If only we could say the same about agencies in the United States charged with dealing with and protecting health concerns and issues in the workplace and the environment.

CONCLUSIONS

We need to do our immediate best to overcome negative public health trends and continue to fight prevalent and pervasive industry influence. Wrong-headed industry-posed deceptions and fabrications must be counteracted with scientific truth regarding the real hazards of chemicals and industry practices. The task is significant; while support to continue this minority discourse is virtually absent. For better public and general environmental health we must not take the easy route of going along or compromising our scientific convictions. We need not give up the code that brought us into this field of endeavor. We need to make even bigger demands for better health and safety, without which habitable environment, life-sustainable public health, and safe workplaces will be unrealized or remote. Our credo should be that there is no compromise for these human and humanistic goals.

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