

NINA PIERPONT, MD, PHD

# Wind Turbine Syndrome

A Report on a Natural Experiment

This extract from Dr. Pierpont's book is being furnished as evidence of her book having been "peer reviewed" prior to publication.

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Notice the text annotated in red in the following pages.

K-Selected Books  
Santa Fe, NM

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This study is dedicated to the memory of Dudley Weider, MD, Professor of Otolaryngology at the Dartmouth-Hitchcock Medical Center, who sent me to Alaska, diagnosed and cured my husband, and taught me about migraine and dizziness. We miss him.

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In the scholarly world (and Pierpont's book is a scholarly book), scholarly articles and books are both peer reviewed. More typically, the reviewers are called Referees and their reports are called Referee Reports.

Pierpont's Referee Reports are all gathered at the back of the book, pp. 287-292.

The following statement was made by the Director Emeritus of the Johns Hopkins University Press. It can be found in the front matter of the Pierpont book.

Mr. Goellner affirms that Pierpont's book was "peer reviewed." End of story.

“Dr. Pierpont has written a superb and powerful book. Truly first-rate in its presentation of hard data, and with remarkable clarity.

“I devoutly hope that her findings, pinned as they are to unassailable research and rigorously peer-reviewed by ranking scientists, come to the attention of movers and shakers who can broaden the research base and shape the politics of dealing with Wind Turbine Syndrome.”

—JACK G. GOELLNER, Director Emeritus, The Johns Hopkins University Press (America’s oldest university press, founded 1878). During Mr. Goellner’s tenure as director, JHUP became a world leader, celebrated for its medical publishing, among other fields.

Read these several pages, where marked, to discover how this book ms. was peer reviewed ("refereed"). It followed the usual scholarly protocol--as confirmed by Mr. Jack Goellner (see above).

fields.<sup>18</sup> Claims that voltage and frequency irregularities in household alternating currents (what some refer to as "dirty electricity") create a wide, non-specific swath of medical problems—from ADHD to rashes to diabetes to cancer—are completely unsubstantiated, and also have no plausible biologic mechanisms.<sup>19</sup>

A few words about peer review. Peer review is quite simple, contrary to the mystique it has acquired among wind developers (most of whom probably have a fanciful idea of what it is). Peer review *consists of sending a scholarly manuscript to experts in that particular field of knowledge, who are asked to judge whether it merits publication.* Simple as that. The identity of reviewers (also called "referees") can be either known to the author (with book manuscripts, authors are routinely asked by editors to submit a list of recommended referees) or kept confidential.

If the referees (usually consisting of two or three) manage to convince the editor that the manuscript is not worthy of publication, the editor contacts the author and rejects the manuscript. If, on the other hand, the referees feel the manuscript merits publication subject to certain revisions and perhaps additions, the editor will forward their reports to the author and ask for a response. "Are you willing to make these changes? Do you agree with these criticisms? If not, give me compelling reasons why not."

The author then revises the manuscript accordingly, except where she feels her referees are wrong—and manages to convince the

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<sup>18</sup>Johansen 2004.

<sup>19</sup> I have asked Prof. Magda Havas, Environmental and Resource Studies, Trent University, Ontario, Canada, to remove references to Wind Turbine Syndrome from her PowerPoint presentation on hypothesized wind turbine health effects, because these references are inaccurate.

editor. Once the editor feels the author has addressed criticisms and suggestions adequately, he (she) proceeds with publication.

Lastly, referees do not have to agree with the author's arguments or conclusions. This is worth emphasizing. Their purpose is merely to certify that a) the manuscript conforms to conventional standards of scholarly or clinical research appropriate to the discipline, and, perhaps most important, b) the manuscript is a significant contribution to knowledge.

In the case of this book, a variety of scientists and physicians, all professors at medical schools or university departments of biology, read and commented on the manuscript and recommended it as an important contribution to knowledge and conforming to the canons of clinical and scientific research. Moreover, they did in fact suggest revisions, even substantial revisions and additions, all of which I made. Some gave me written reports to include in the book itself. See REFEREE REPORTS. Others offered to review the book after it was published.

That said, the litmus test of scientific validity is not peer review, which, after all, is not infallible, as the history of science amply demonstrates. Peer review is an important first step in judging scientific or scholarly merit. Still, the ultimate test is whether other scientists can follow the author's research protocol and get the same results, or if different lines of research point to the same conclusions.

That, of course, remains to be seen with this report.

I thank Dr. Joel Lehrer in particular for providing me with new information regarding vestibular function, contributions echoed by Drs. Owen Black and Abraham Shulman (all in otolaryngology/neurotology). I thank Professors Ralph Katz (epidemiology) and

Henry Horn (ecology) for discussion of scientific method and presentation. Dr. Jerome Haller (neurology) and Professor Robert May (theoretical ecology and epidemiology, past president of the Royal Society of London) read the manuscript and provided commentary to be included in the book, as did Dr. Lehrer and Professors Katz and Horn, for which I am most grateful. Barbara Frey (biomedical librarian) edited the manuscript, and discovered and sent me many essential—indeed critical—references. Christina Ransom and William McCall, librarians of the Champlain Valley Physician’s Hospital in Plattsburgh, NY, and the FYI Hospital Library Circuit Rider Program, sent countless articles by PDF and delivered several books. I am grateful for all their work and good humor, and for their program, which gives rural doctors access to the full medical and scientific literature.<sup>20</sup>

I also thank the other readers who read and discussed the manuscript with me and advised on routes of publication: Professor Carey Balaban (neuroscience), Dr. Rolf Jacob (psychiatry/neurotology interface), Dr. John Modlin (pediatrics/infectious diseases), and Dr. Anne Gadomski (pediatrics/public health).

George Kamperman, INCE (Institute of Noise Control Engineering) Board Certified noise control engineer, and Rick James, INCE Full Member, edited the sections describing noise measurement and modeling. They also analyzed noise studies done at the homes of several affected families, while developing standards and protocols for the assessment and control of noise from industrial wind turbines. Kamperman and James presented their standards and rationale at the Noise-Con 2008 meeting of the Institute of Noise Control Engineering (USA) in July 2008, then expanded their paper with a detailed discussion of noise measurement protocols and a

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<sup>20</sup> While I’m acknowledging debts, I wish to thank R. Forrest Martin for the fine (and witty) drawings decorating the *REPORT FOR NON-CLINICIANS*, and I thank Jordan Klassen for his eye and care in designing this book.



Here are the peer reviews (Referee Reports).

## Referee reports

Dr. Pierpont's report deserves publication. Although the case numbers are not large, the careful documentation of serious physical, neurological, and emotional problems provoked by living close to wind turbines must be brought to the attention of physicians who, like me, were unaware of them until now.

By a well devised questionnaire/interview the author has been able to obtain data demonstrating the correlation of symptoms induced by active wind turbines, the improvement/resolution of symptoms when the interviewees have moved away, and the re-emergence of the same symptoms when returning to their homes near the turbines.

With the pressure on our governments to go "green," eliminating coal-powered sources of electricity, the United States Environmental Protection Agency in conjunction with Dr. Pierpont and this report should expand this investigation and establish the necessary guidelines for creating wind turbine "farms" and protect those near to them.

JEROME S. HALLER, MD, Professor of Neurology and Pediatrics (retired 2008), Albany Medical College, Albany, New York. Dr. Haller is a member of the American Academy of Pediatrics, the American Academy of Neurology (Child Neurology Section), and the Child Neurology Society.

June 10, 2008

Dr. Pierpont's study addresses an under-reported facet of Noise Induced Illnesses in a fashion that is detailed in its historical

documentation, multi-systemic in its approach and descriptions, and painstakingly and informatively referenced.

The study provides a scientific underpinning for viewing symptom complexes that are generally unappreciated and difficult to comprehend for the great majority of medical practitioners who have to rely, in their daily practice, on identifying anatomical or chemical abnormalities in order to establish a diagnosis. This approach opens up an avenue to diagnosis and comprehension that was exciting to me, and, I feel, would excite the interest of a large group of practitioners who are open to looking at the patient as a person, rather than as a machine. It will encourage physicians to listen carefully to their patients and place their patients in the environment rather than the lab.

Dr. Pierpont's study is particularly important because of the present energy crisis (and the role of environment-changing technologies to address it), it is very readable, extremely well referenced and most informative. The patients described are true "sufferers" (the root of the word patient) whose lives have been seriously disrupted. As I mentioned above, it is particularly relevant at a time when wind energy technology and its applications are growing worldwide. It alerts the medical profession to the potential for illness caused by low frequency vibrations. It encourages the medical profession to scrutinize other, new energy technology for potential side effects.

It is my hope that this study, when published, will stimulate research not only on the deleterious effects of low frequency vibration on the human species, but also on its effects upon the animal world in general. I would also hope that the symptom complexes that are described will be studied more intensely so as to gain a greater understanding of the human body as regards its physiology and pathophysiology. I am convinced that successful analysis of the physical forces that impact on humans will add an important

dimension to our understanding of physiology and disease states. This study opens up the area of low frequency vibration to the medical community. Other physical forces, both mechanical and electrical, could play a role in certain human diseases. This study could encourage recognition of the research accomplishments in analyzing disease states through analysis of these physical forces.

Since the analysis of these forces is presently outside of the medical model of disease diagnosis, many of these sufferers have been labeled as having a purely psychological problem. The author has provided a basis to describe such a group of symptom complexes as pathophysiological, and I applaud her.

JOEL F. LEHRER, MD, Fellow of the American College of Surgeons, Clinical Professor of Otolaryngology, University of Medicine & Dentistry of New Jersey. Formerly Professor of Otolaryngology, Mount Sinai School of Medicine, New York, New York.

June 29, 2008

I congratulate you on your case-series investigation on Wind Turbine Syndrome. That is, the conception, the data gathering, the analysis and the write-up. As an epidemiologist I fully appreciate your truly remarkable effort, one that smacks of being well done and with a full respect for honest inquiry. Given your initial suspicions on this matter, your high level of scientific integrity is revealed both in your design decisions and in your writing, both of which are of the highest order.

What you have accomplished is, at once, both remarkable and limited (as you fully appreciate). I see several noteworthy outcomes of your admirable and remarkable presentation of this case-series

report on Wind Turbine Syndrome from your perspective as a concerned, practicing physician from the community.

- 1) Creation of a case-definition for Wind Turbine Syndrome. You have initiated a critical first step needed to convert “an issue of concern” into a “researchable topic” by your putting forth a clear case-definition of Wind Turbine Syndrome, including the recognition and development of a newly defined symptom which you document and call Visceral Vibratory Vestibular Disturbance (VVVD).
- 2) Creation of a thoughtful list of future research suggestions into Wind Turbine Syndrome. By your deep and obvious commitment to get at the truth of this matter, you have proposed a thoughtful and rich list of directions for others to pursue in this line of inquiry, something that involved investigators can uniquely do as a result of the depth of their intellectual investment in the line of inquiry.
- 3) Candidly presented an insightful list of the limitations of your case-series study. It instills confidence in the reader that you, indeed, conducted a study aimed at discovering the truth of the matter, which always demands candor and insights from the investigator who best knows the range of limitations, from minor up to major (if any), in one’s own study.

As you fully appreciate, the biggest overall limitation of your work is the lack of “generalizability” of the specific findings to broader populations due to the specific (but both appropriate and necessary) eligibility criteria for subjects in your case-series. This is nothing to worry about, merely something to appreciate and build upon, as this limitation is inherent to any early-stage epidemiologic investigation into an evolving subject area.

You have laid a remarkable, high quality, and honest foundation for others to build upon with the next stages of scientific investigation. In doing so, you have made a commendable, thorough, careful, honest, and significant contribution to the study of (what we can now call) Wind Turbine Syndrome.

RALPH V. KATZ, DMD, MPH, PhD, Fellow of the American College of Epidemiology, Professor and Chair, Department of Epidemiology & Health Promotion, New York University College of Dentistry, New York, New York

October 5, 2008

Dr. Pierpont has gathered a strong series of case studies of deleterious effects on the health and well being of many people living near large wind turbines. Furthermore she has reviewed medical studies that support a plausible physiological mechanism directly linking low frequency noise and vibration, like that produced by wind turbines, which may not in itself be reported as irritating, to potentially debilitating effects on the inner ear and other sensory systems associated with balance and sense of position. Thus the effects are likely to have a physiological component, rather than being exclusively psychological.

More extensive and statistically controlled observations may be needed to discover just how far from the turbines the deleterious effects occur, and in what proportion of the population. However, it is already clear that many people are affected at far greater distances than the minimum set-backs currently allowed between turbines and residences. Accordingly, it would be prudent to establish much longer set-backs from houses as a criterion for siting new turbines, pending further studies on this newly documented “wind

turbine syndrome.” Documentation of the syndrome itself is strong evidence that current set-backs are woefully inadequate.

HENRY S. HORN, PhD, Professor of Ecology and Evolutionary Biology, and Associate of the Princeton Environmental Institute, Princeton University, Princeton, New Jersey

October 17, 2008