Josef Warkany – Teratology Then and Now
Expanded Version

W. Wertelecki, M.D.

Presented at the 50th Anniversary of the Teratology Society Meeting
Louisville, KY, USA (June 2010)

Note: This expanded version of the oral presentation is expanded by six video clips and comments by the author. To view the videos, please click on the hyperlinks and the return arrow (upper left) to continue. To display the comments, place the arrow-cursor on the icon on the upper left corner. Please also note that reproduction/dissemination of contents and illustrations requires written permission.

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This presentation is based on

A Story about Josef Warkany
"Of Dreaming on Solid Grounds"

W. Wertelecki, M.D.
(genfir3@gmail.com)
January 14, 1957

Josef Warkany, M.D.
Professor of Research Pediatrics
Children's Hospital
Cincinnati, Ohio

Dear Doctor Warkany:

I am indeed pleased that you are able to arrange your schedule so that you might work with us for a period of approximately two months for the purpose of assisting us in investigations we are making on future program studies for the National Foundation for Infantile Paralysis.
April 21, 1960

Dear Dr. Warkany:

I was greatly pleased to learn from your letter of April 14 of the formation of a Teratology Society in New York City on April 10, 1960.

Knowing as you do The National Foundation's interest and developing activity in the field of congenital malformations, I think you are aware of our desire to cooperate with your Society in every way we can.

I want to extend to you, as President, and to the other officers The National Foundation's good wishes for the success of the Teratology Society in its important health field.

Sincerely yours,

[Signature]

President

Dr. Josef Warkany, President
Teratology Society
The Children's Hospital Research Foundation
Cincinnati 29, Ohio
B.D. 5/28/58
1505 West Main St
Loveland, O.
NO. 4 - 2091

F: Kyle, 37y
M: Betty, 37y.

Mother Rh neg.
Father Rh pos.

No consanguinity
Misc. 1950, 1952, 1956

Pregnancy not remarkable. No illness. No G, M.
9 mos. Was active in utero like older children.
politicians, lobbyists and administrators have become interposed between the granting agency and the investigator. Many investigators have been forced to become admin-politicians.
Of course, I am guilty of many exaggerations and
but extrapolations but
what can you expect from
an investigator who
began his work with a
simple rabbit?

The investigator. Many
investigators have been forced
to become admin & politicians
of the rising reality.
1902-1992

Ego sum
“Me”

ORIGINAL
SYNCRETIC
ARTIST
POINEER
LEADER
IDEALIST
HUMANIST
HUMORIST
CRITIC
AUTHOR
PHYSICIAN
DISCOVERER
SCIENTIST
RESEARCHER
CLINICIAN
TERATOLOGIST

My Circumstance

A Story about Josef Warkany
"Of Dreaming on Solid Grounds"

W. Wertelecki, M.D.
(genfir3@gmail.com)
Josef Warkany

Vision

Humanism-Prevention
(Indirect approaches)
Congenital anomalies
(Mini – Macro)
Mental retardation
"Ego sum" (and my circumstance – Vienna 1900-1933) … “genetic counseling” then.

http://www.medword.net/flash/1988_wark1/
"Unless the hospital is interested in the prevention as well as the cure of disease, unless effort is made to study and investigate problems in a manner which will add in a constructive way to existing knowledge, we have all of us failed to function to the fullest extent."

A. Graeme Mitchell, MD

Board President of the Children’s Hospital in Cincinnati (donated $2.5 million for the building and endowment of the Cincinnati Children’s Hospital Research Foundation – created the first profit-sharing program for employees in the U.S.)

William Cooper Procter
“Ego sum” (an my circumstance – Cincinnati 1933 …
“ … what if I would take-up endocrinology …
most of the patients …
were patients with congenital malformations … ”
Etching and watercolor by G. Mitchell, M.D.
Child of Non-Disjunction                                A Patient's Point of View
…”patients…were treated…as objects…it helped to depress and humiliate the…patient more than necessary.”

(“Affective Poverty - Emotional Deficits”)
Science and Humanism

“... involved in the mental retardation movement ... parents organizations”
Poor in Iodine
Failure – Victory – Scientific Medical Teratology

“... we failed completely ... but we found something much better ...”

http://www.medword.net/flash/1980_wark1_b/
Advisability of Parenthood. “...explain to the prospective parents the chances of having normal and abnormal children and then let the parents make their decision... the embryo-fetus should be assured protection from adverse environmental influences... why the prejudice by calling such (advisory services) genetic counseling” ...
Josef Warkany’s 25 year long “Odyssey”

CONGENITAL MALFORMATIONS

Notes and Comments:
Facts plus personal views.

(“I did not merely copy what others had written before ...”)

1971
LAST (Medical) “CLASSIC”

“In 1945 ... I thought that 2 years would be sufficient time for writing such a book, but it actually took 25 years ... I pointed out that the ancient history of teratology does not teach us much about the origin of congenital malformations but it tells us much about the human mind and its reactions to unexplained phenomena ...”

JOSEF WARKANY, M.D.
Fellow of The Children's Hospital Research Foundation, Cincinnati, Ohio
Professor of Research Genetics, University of Cincinnati

Notes and Comments:
Facts plus personal views.
MYTH-(thanatic) REPORT
("birth defects" are not solely due to genetic flaws)


APPEARANCE OF SKELETAL ABNORMALITIES IN THE OFFSPRING OF RATS REARED ON A DEFICIENT DIET

MATERNAL - FETAL NUTRITION

(1945) “... experiments indicate that congenital malformations may be caused by maternal nutritional deficiency.
The Demise of Acrodynia (a)

(1966) ... children presented symptoms somewhat out of the ordinary and yet all so much alike that they could safely be called the same condition ... more like a low-grade toxemia ... established that acrodynia was due to exposure to mercury ... acrodynia died an inglorious death ... (28 years later) ...
Humanism – Science – Public Health Victory
The story of Acrodynia
“Nothing is as dead as a dead disease …”

The Demise of Acrodynia (b)

(1966) ... mercury was removed as an ingredient of teething powders ... another toxic agent was introduced to replace mercury ... (societies) do not abandon time-honored customs without risk of penalty ...”
APS-SPR  Howland Award Recipients

“Malformations, like all diseases – and all events in this world – are determined by long chains of causative factors, and these chains can sometimes be interrupted by cutting their weak links ...”

“... objection I have is to the attitude (of those) who contend that (research of causes and mechanisms) is the most ... ”sophisticated” (an approach deserving first priority) ... “unsophisticated” observations have sometimes led to the prevention of congenital malformations ...”

“The care of the malformed and prevention of malformations ... is the price of civilization” (paraphrased)
“... how is one to convince virologists (geneticists) of the importance of malformations?”

“... we worked together in 1957 at the National Foundation of Infantile Paralysis

“... our proposals were accepted and “birth defects” became the subject of activity of the National Foundation ...

“There exists ... an almost religious belief in the powers of molecular alchemy ...”

B. O’Connor – J. Warkany
http://www.medword.net/flash/1987_wark2/

“Father of Teratology …”
1959

On April 9-1-, at New York, NY, a Fourth Teratology Conference was held ... 62 of 93 invited participants attended the business session ... for the purpose of organizing (the society) ... elected by acclamation: President, Josef Warkany; President-Elect, James G. Wilson, ...

Fig. 11. With Basil O'Connor (c. 1959).
Fig. 12. Giving the signal to establish a teratology society during a meeting in Palm Beach, Florida (1959)

1961

TERATOLOGY SOCIETY

On April 9-1-, at New York, NY, a Fourth Teratology Conference was held ... 62 of 93 invited participants attended the business session ... for the purpose of organizing (the society) ... elected by acclamation: President, Josef Warkany; President-Elect, James G. Wilson, ...
Josef Warkany – Teratology Then and Now

“... a need exists for longitudinal studies of the natural history ... to attract attention to prenatal factors ... to stress the need for reorientation in the research concerned with the prevention ...”

“... we must attempt indirect methods of prevention ... it must be realized that ... experimentation with teratologic mechanisms are endless enterprises ... seldom useful in prevention ...”

(“There is no proof yet that microcosmic (molecular) research on congenital malformations will lead to teratologic prophylaxis.”)

(... $3 billion Human Genome Project ... “Genetic Map Yields Few New Cures ... perhaps in another 15 to 20 years ... (pharmaceutical) industry researchers urge a wait-and-see patience ...” - New York Times - June 12 and 14, 2010)
**Teratology Now**

Malformations in a Chornobyl-Impacted Region

Anencephaly
Conjoined *Twins*
Sacroccocygeal Teratomas
*(excess of females)*

*Peds 2010: 125; e836.*

<table>
<thead>
<tr>
<th>Anomaly</th>
<th>EUROCAT</th>
<th>UKRAINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neural tube defects</td>
<td>10.2</td>
<td>18.5</td>
</tr>
<tr>
<td>Anencephaly and similar</td>
<td>3.8</td>
<td>8.1</td>
</tr>
<tr>
<td>Microcephaly</td>
<td>2.3</td>
<td>6.0</td>
</tr>
<tr>
<td>Anophthalmia-Microphthalmia</td>
<td>1.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Congenital cataract</td>
<td>1.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Tetralogy of fallot</td>
<td>3.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Cleft lip w/without palate</td>
<td>9.6</td>
<td>10.6</td>
</tr>
<tr>
<td>Cleft palate</td>
<td>6.1</td>
<td>5.0</td>
</tr>
<tr>
<td>Limb reduction</td>
<td>5.7</td>
<td>5.6</td>
</tr>
</tbody>
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Note: much of “Teratology Then” is “Teratology Now” – for example, our investigation of Chornobyl impacted populations demonstrates elevated rates of Conjoined Twins – Teratomas - NTD – Microcephaly – and Micorphthalmia – a review of “Teratology Then” summarized by Warkany is illuminating (see next)
Teratology – Then and Now
Warkany’s “Notes and Comments”

(1951) “Dissimilarity of MZ twins ... non-genetic deviations of metabolic processes of embryonic organizers.”

(1950-1960) Hemihypertrophy ... most plausible etiology ... is a faulty cell division of the zygote ... daughter cells of unequal size ... form of incomplete twinning. Females are more often affected ... right side of the body is involved more frequently ... 

(1961) Some positive indication that (genetic damage on populations exposed to the atomic bombs) was forthcoming from analysis of sex ratio in the off-spring (excess of females)
Etchings and articles by Warkany about the disasters of Hiroshima, Nagasaki, Minamata Bay and Acrodynia show how he was touched by these tragedies. Now we are confronted with large populations exposed to Chornobyl, low doses of ionizing radiation, mercury pollution and the massive petrochemical pollution of the Gulf of Mexico. A retrospective glance to Teratology “Then” may envigorate Teratology “Now”.
End