

Reprint from New York Times of June 24, 1925.

PRODUCTION HAZARD IN TETRAETHYL LEAD

Will Be Investigated, as Well as
Supposed Danger in Tetraethyl Gasoline

WASHINGTON, June 23.—Any inference that the special committee appointed by the Surgeon General of the Public Health Service to investigate the consequences of the use of tetraethyl gasoline will not investigate the industrial hazards involved in the production of tetraethyl itself is wrong, Surgeon General Hugh S. Cumming stated to-night, after reading the article by Silas Bent, published in Monday's *NEW YORK TIMES*, on the casualties in the du Pont company's plant at Deep Water, N. J.

Surgeon General Cumming said that while there might be an impression from the resolution passed at the recent meeting in Washington that the committee would not go into this phase of the situation, this was a wrong conclusion. On the other hand, it would conduct its investigation from all angles.

While he had not any idea that the committee would not look carefully into the industrial hazards of producing tetraethyl, Dr. Cumming said, he would conduct an investigation of his own should the committee fail to cover the point.

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Clinton Presidential Records / 44 USC 2201

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silent but later admitted it. As a fact
the man escaped some time after the
operation from the hospital to the
street and was caught there. At du
Pont headquarters it was admitted
that this was a case of poisoning.

Sim Jones, negro janitor at "The
House of the Butterflies," wore old
shoes and absorbed the poison through
his feet. It is fatal if inhaled or taken
through the skin in sufficient quantities.
In all, Miss Harris said, forty-eight
cases were treated at Salem. Sim
Jones was the last to die there in 1924.

Thought Danger Averted.

Jones died on Oct. 20, about the
time the series of deaths in the Stand-
ard Oil plant at Bayway centred pub-
lic attention on the startling consequen-
ces of tetraethyl poisoning. An official
of the Ethyl Gasoline Corporation said
publicly that the du Ponts had been
having trouble too; and Irene du
Pont, President of the E. I. du Pont de
Nemours Company, issued on Oct.
30, ten days after Sim Jones died, the
following statement:

Tetraethyl lead, which the du Pont
Company is manufacturing on a com-
mercial scale, and which is reported
as the cause of the recent unfortunate
accident at the Bayway plant of the
Standard Oil Company, should not be
confused with ethyl gas, an improved
motor fuel which contains less than
one tenth-part of 1 per cent. of tetra-
ethyl lead.

Tetraethyl lead is poisonous, and its
manufacture involves risk but no more
so than many chemicals manufactured
and used in enormously greater
amounts.

The du Pont Company, during the
experimental period, experienced much
trouble with men becoming poisoned,
even to the extent of fatalities. Dur-
ing the past year of production, when
more than 100 men have been em-
ployed continuously, the difficulty has
diminished steadily. In the past sev-
eral months, under full production,
only slight difficulties have been en-
countered. Experience has taught the
necessary protection, both in plant and
medical care.

We find that workmen cumulatively
poisoned by this material invariably
indicate it in the incipient stages, be-
fore any harm is done, by a marked
symptom. Doctors in the employ of
the company continually make tests
on workers engaged in this process.

Later Precautions Futile

In "the past several months" to which
Mr. du Pont referred as causing "slight
difficulties," there had been three deaths.
There were no more fatalities until the
following February, after work had
begun in the new plant, where special
precautions had been taken. In that
month three workers died.

A change was made in the process of
manufacture. Prior to this the ethyl
for the compound had been introduced
in the form of ethyl bromide; but the
bromine required for this ingredient
is costly to manufacture and difficult
to procure in quantities sufficient for the
commercial operators as the du Ponts
had in view. The chemists decided to
try ethyl chloride instead. Chlorine,
a greenish-yellow and extremely poi-
sonous gas, can be manufactured in huge
quantities.

Frederick W. DeFiebre, a worker,
21 years old, was the first to die, on
Feb. 21, from poisoning in the new
plant. To the Salem Hospital is an
ambulance run of but twenty minutes,

W. Fiebre (DeFiebre), a laborer who
later died, has shut down the plant to
make modifications to insure greater
manufacturing safety. * * * The du
Pont Company experienced trouble with
men becoming poisoned in the early
stages of the manufacture of this chem-
ical, but for a year difficulties have
diminished steadily and for the past sev-
eral months, under full production, only
slight trouble had been encountered until
these recent fatal illnesses occurred."

The plant had, as a fact, been closed
by order of Dr. Andrew F. McBride
of Paterson, chief of the New Jersey
State Labor Commission. Dr. Mc-
Bride had been conducting a State-
wide inquiry into the manufacture,
use and transportation of tetraethyl
lead. In the latter part of November
he reported to Governor Silzer that
no more of the poison should be man-
ufactured.

The plant was closed five weeks
before Dr. McBride gave permission
to reopen it. Meanwhile the du Ponts
spent \$60,000 making mechanical ad-
justments and installing a new venti-
lating system, whereby warmed and
moistened air within the plant is
changed every forty seconds, in order
to reduce the danger.

Two Deaths After Plant Closed.

The last fatalities were of a mill-
wright and his helper, who were
poisoned while making some repairs
and died after the plant was closed.
These were James Connell, who died
at his home in Wilmington, and Loring
M. Boody, who died at Carney's
Point, on the du Pont reservation.

Boody the helper, was attended by
Dr. Lee of the du Pont staff, and the
death was attributed in part to uremic
poisoning. The day before Boody's
death Connell went home ill, and died
on March 27. In regard to both
these cases the du Pont Publicity
Bureau gave out items to the Wil-
mington daily newspapers, which are
owned by the du Ponts.

Regarding the four deaths which
have occurred this year, therefore,
there has been scattering publicity.
The fact of Huntsinger's death at
Bridgeton was reported in the New
York newspapers. But even before
these deaths occurred there were
persistent rumors of trouble at Deep
Water; and last November it was re-
ported and printed that there had
been nine deaths, although at that
time there had been but four.

C. K. Weston who is at the head
of the du Pont Publicity Bureau, said
that the earlier deaths were not treat-
ed as news because, until after the
Bayway tragedy, there was no public
interest in such occurrences.

Dangers Soon Revealed.

"The complete list of deaths from
the Deep Water plant is now in the
hands of Dr. McBride," he added.
"We have told the facts and it is ab-
surd to say that the du Ponts have
suppressed anything, or that they
subsidize hospitals. As a matter of
custom they contribute small sums to
all the hospitals which are near their
plants and which are likely to be asked
to treat patients. The contribution
this year to the Salem Hospital was
only \$500; but, of course, in addition
to that the company pays, and pays
well, for the treatment of its patients.

"Our people themselves did not
know about this disease at first, but
the physicians quickly learned to cope
with it. We began manufacturing
tetraethyl lead about three years ago,

same reason.

"In several hundred cases which I
treated during that first year," he said,
"I did not lose one. Durr, who died
while I was there, was under the care
of his family physician. I had the
first cases of the disease ever known.
Although it is nervous and mental,
neurologists had no clinical background
for it. It was a brand new challenge
to medical skill.

"We found that nightmares were
the first symptom and that these were
followed by insomnia. Then came
restlessness and inability to eat.
Sometimes a patient lost as much as
thirty pounds in a few weeks. The
blood pressure fell. Frequently they
were nauseated. Then came hallucin-
ations. There was no 'wrist drop,'
none of the symptoms of the well-
known industrial lead poisoning. In
the later stages some of the men be-
came suicidal and had to be prevented
from destroying themselves."

Charles Hendricks, employed as
painter in the tetraethyl plant, was one
worker who tried to kill himself. He
jumped from a ferry between Penns
Grove and Wilmington last April. He
was delirious, and his weight had gone
down from 180 pounds to 135. Harry
Baker, who was confined at the Salem
Hospital, jumped from a window
while his male nurse was out of the
room, but was caught and returned
to his bed. This incident came to
public attention and the patient was
removed to a private sanatorium at
Gladwyn, Pa., where the du Ponts
are paying his bills in addition to a
bi-weekly allowance to his wife. He
is still under treatment.

Precautions in Distribution.

At first tetraethyl lead was shipped
from Deep Water in small containers,
which were stuck into funnel-like at-
tachments at filling stations, so that
the poison would mix automatically
with the gasoline as it was pumped into
motor tanks. This was soon seen to
be dangerous and the plan was
changed. The mixture was shipped
in 40 gallon metal drums to the dis-
tributing points, there to be mixed
with the gasoline. Then, at its last
stage, it was found safest to mix the
tetraethyl with gasoline at the point
of manufacture and ship it in tank
cars. In this way it was expected
to keep it away from persons not edu-
cated to the proper precautions in
handling the stuff, such as washing
in coal oil, or kerosene, parts of the
body exposed to it. The industry had
reached this stage when, pending the
outcome of the Federal investigation,
all production was stopped the middle
of last April.

Thomas Midgley Jr. worked out the
formula for tetraethyl lead in the du
Pont plants while employed as a chem-
ist by the General Motors, of which the
du Ponts own 7,000,000 shares, about
one-third. This was three years ago,
and soon afterward the du Ponts
began production at the old dye plant
at Deep Water. Subsequently officials
of General Motors and the Standard
Oil of New Jersey organized the
Ethyl Gasoline Corporation, in which
the du Ponts had no interest save
through their holdings of General
Motors stock, and began production
at the Bayway plant, near Elizabeth,
N. J. There was a commercial rivalry
between this plant and that at Deep
Water, although the Bayway factory
was the smaller. The du Ponts em-
ployed as many as 200 men in their
tetraethyl plant at one time, but its
sixteen units never reached full pro-
duction.

Reprint from *The New York Times* June 22, 1925.

TETRAETHYL LEAD FATAL TO MAKERS

An Industrial Peril Which the
Washington Inquiry Into Gasoline Does Not Cover.

8 Dead, 300 Ill, in 1 Plant

Dangers in Producing the Chemical Compound Shown in Record at Deep Water, N. J.

Deaths Since Plant Closed

Illness Begins With Hallucinations of Butterflies and Terminates in Violent Insanity and Death.

Deaths in Tetraethyl Gas Production at a Single Plant

Sept. 21, 1923 — FRANK W. DURR, 37 years old, dye worker, died at Penns Grove, N. J.; attended by Dr. Raymond B. Jarratt.

July 30, 1924 — JOSEPH CIANCI, 24 years old, dye works operator; died at Salem (N. J.) Memorial Hospital; attended by Dr. Harry W. Lee.

Aug. 12, 1924 — FRANK HANLEY, 23 years old, dye worker; received at Salem Hospital with gastric ulcer and underwent operation, but went insane subsequently from tetraethyl lead poisoning; attended by Dr. F. H. Church.

Oct. 20, 1924 — SIM JONES, 47 years old, negro janitor at plant; died in Salem Hospital; attended by Dr. Lee.

Feb. 13, 1925 — FREDERICK W.

11 at Delaware Hospital in Wilmington after doing some work in the plant. The death certificate gives typhoid as the cause.

Mrs. Mary Casey of 606 Spruce Street, Wilmington, a cousin of Demesse and his closest relative in this country, told me of a conversation with Dr. Lawrence J. Rigney, whom she called into the case.

"He said there were typhoid germs in the body," she explained, "but that John's lead poisoning didn't help him any."

Efforts to reach Dr. Rigney were unsuccessful. Not he, but Dr. John R. Russo, a member of the hospital staff, signed the death certificate. When asked about the symptoms of the Demesse case he said he had no recollection of it and he reported several hours later that he could find no record of it at the hospital. The death certificate gave no contributory cause of death, nor was there any answer in the certificate to the question: "Where was disease contracted if not at place of death?" This space was left blank.

Demesse was a widower, 35 years old. At du Pont headquarters the point was stressed that if poisoning had contributed to his death his relatives would have demanded a settlement.

Death After Three Attacks

The first tetraethyl poisoning of medical record was that of Harry A. Zanes, now 53 years old, who lives at 97 I street, in Carney's point, an industrial town owned by the du Ponts adjoining Deep Water. He became ill on Sept. 9, 1923, and went to the emergency hospital maintained by the du Ponts on their reservation of six square miles across the Delaware River from Wilmington, where the chemical and smokeless powder plants are grouped. After treatment he went back to work, but a week later had to go home. He couldn't eat, and on rare occasions when he slept he suffered from frightful nightmares. On Sept. 19 he became violent and two trained nurses were assigned to care for him.

"The patient has twitching muscular contractions," the nurses recorded; "respiration rapid, pulse shallow." And a little later: "Patient's head is thrown

In the old tetraethyl plant there was a series of explosions and fires, which occurred from chemical reactions while the autoclaves, huge mixing vats, were being emptied or cleaned. From these there were no deaths, but there were many injuries. C. D. Porch, superintendent of the plant, was himself badly burned, and some of the chemists required medical treatment. Arrangements were made with the Salem (N. J.) Memorial Hospital, to which the du Ponts give annual contributions, to care for patients from Deep Water, and such cases have been its chief source of revenue. An executive of "the dye works" is on the hospital's Board of Managers.

All the men who died in 1924, and one in 1925, were under treatment at this hospital. They were hard to manage on account of their violence, and the du Ponts, in addition to paying all medical expenses and providing for the families, sent male nurses to attend and restrain the patients.

An official of the hospital told me that Joseph Cianci, the victim in July, a man of great strength, had actually by his insane violence overturned the bed to which he was strapped; but Miss Hanna B. Harris, Superintendent, denied this.

"I've seen him actually lift the bed three or four inches off the floor by his struggles," she said, "but I'm sure he was never as bad as that."

Miss Harris did not admit at first that Frank Hanley's death in August was due to tetraethyl poisoning.

"He had an ulcer of the stomach and underwent an operation," she explained. But when she was told that the death certificate specified "acute intoxication lead tetraethyl" she was silent but later admitted it. As a fact the man escaped some time after the operation from the hospital to the street and was caught there. At du Pont headquarters it was admitted that this was a case of poisoning.

Sim Jones, negro janitor at "The House of the Butterflies," wore old shoes and absorbed the poison through his feet. It is fatal if inhaled or taken through the skin in sufficient quantities. In all, Miss Harris said, forty-eight cases were treated at Salem. Sim Jones was the last to die there in 1924.

and Dr. Harry W. Lee, chief surgeon of the du Pont staff at Deep Water, rushed the patient for treatment.

Even before this death Robert F. Huntsinger, 35 years old, had become ill and had insisted on going to his home at Bridgeton, twenty miles away in Cumberland County. He lived there at 120 Orchard Street. When he became violently insane Dr. E. C. Lyon, who was treating him and who is the county physician, took him to the Bridgeton Hospital, where it was found that the patient's condition was such he could not be cared for. Then he was taken to the Cumberland County Hospital for the Insane, where six men were required at times to restrain him. He died there Feb. 16, two days later. Dr. Lee went from Deep Water to help Dr. Lyon attend the patient.

A reporter for a Bridgeton newspaper asked the county physician whether he would ask for an inquest. "No," said Dr. Lyon, "it was not an accident. It was an occupational disease, and there is no occasion to call in the Coroner."

Plant Closed Soon Afterwards.

Dr. Lyon, who repeated this statement to me, was warm in his praise of the du Ponts for the care they exercised in behalf of their employees. The facts about the death were printed in the Bridgeton newspapers, and inquiries were made regarding it at du Pont headquarters. A statement was issued by the publicity department in which, after giving the facts of his illness, it was said:

"Meanwhile the company, because of his illness and the illness of Fred W. Fiebre (DeFiebre), a laborer who later died, has shut down the plant to make modifications to insure greater manufacturing safety. * * * The du Pont Company experienced trouble with men becoming poisoned in the early stages of the manufacture of this chemical, but for a year difficulties have diminished steadily and for the past several months, under full production, only slight trouble had been encountered until these recent fatal illnesses occurred."

The plant had, as a fact, been closed by order of Dr. Andrew F. McBride of Paterson, chief of the New Jersey State Labor Commission. Dr. McBride had been conducting a State-

and one of the doctors said to me once that he had never known an industrial malady which flew the red flag so quickly.

"The du Ponts are well known for their interest in their employees. They spare no expense to protect the health and lives of their men, and when one is hurt or loses his life, the company pays, in New Jersey and every other State where it has properties, higher compensation and pension rates than the law requires. It is a fact that we have a great deal of trouble inducing the men to be cautious. We have to protect them against themselves." Mr. Weston had heard of the workers' name for the plant.

"Some of them drew pictures of butterflies on the walls of the plant," he said. "This disease is somewhat like delirium tremens. Instead of seeing snakes, the men see butterflies."

Danger in Gas, Not Gasoline.

Since production began 300,000,000 gallons of ethyl gasoline have been distributed in twenty-eight States, from 12,000 filling stations, with no record of poisoning or ill-health from its use, according to Mr. Weston. The name "looney gas" is deceptive, in his view, in that it may apply to the ethyl gasoline instead of the fumes from tetraethyl lead.

Dr. Lynch, former chief surgeon at Deep Water, is now practicing medicine at Wilmington and occasionally has tetraethyl cases. He was reluctant to discuss the disease because he is no longer associated with the du Ponts, and said he had refrained from publishing a paper dealing with his year's experience in their service for the same reason.

"In several hundred cases which I treated during that first year," he said, "I did not lose one. Durr, who died while I was there, was under the care of his family physician. I had the first cases of the disease ever known. Although it is nervous and mental, neurologists had no clinical background for it. It was a brand new challenge to medical skill.

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