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Descripton Notes MDL No.381

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OP NEW YORK

In re "AGENT ORANGE" PRODUCT LIABILITY LITIGATION.	MDL 381 (JBW)
	Civil Actions:

Gibbs, *et* al. v. Dow, et al., 81-662; Certain Named Veterans v. Dow, et al., 81-1006; Donovan, et al. v. Dow, et al., 82-783; DeAngelo, et al. v. Dow, et al., 80-2631; Lombardi, et al. v. Dow, et al., 80-1989; Dowd, et al. v. Dow, et al., 79-467; Allen, et al. v. Dow, et al., 82-1749; Abbott, et al. v. Dow, et al., 80-2284; Brooks, et al. v. Dow, et al., 80-2002; Jonas, et al. v. Dow, et al., 82-4033; Houp, et al. v. Dow, et al., 82-861; Baca, et al. v. Dow, et al., 82-1142; Moeller, et al. v. Dow, et al., 81-2719; Gaither, et al. v. Dow, et al., 80-2997; Simko, et al. v. Dow, et al., 81-2721; Smith, et al. v. Dow, et al., 84-3821.

MEMORANDUM, ORDER, AND JUDGMENT

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I. INTRODUCTION

Defendants, seven chemical companies, have moved to dismiss or in the alternative for summary judgment. Plaintiff! are Vietnam veterans and members of their families who have opted out of the class previously certified by the court pursuant to Rule 23(b)(3) of the Federal Rules of Civil Procedure. In re "Agent Orange" Product Liability Litigation, 100 F.R.D. 718 (E.D.N.Y.), mandamus denied, 725 F.2d 858 (2d Cir.), cert. denied, ___ U.S. ____, 104 S.Ct. 1417, 79 L.Ed.2d 743 (1984). They allege that as a result of the veterans' exposure to Agent Orange, a herbicide manufactured by the defendants, they suffer from various health problems.

Defendants contend that they are entitled to judgment dismissing the claims asserted against them because of each plaintiff's conceded inability to identify the individual manufacturer of the Agent Orange to which a given veteran was exposed, inapplicability of any alternative theory of liability that would overcome that inability, the government contract defense, and inability of any plaintiff to prove that his or her injuries were caused by Agent Orange.

Plaintiff Vietnam veterans do suffer. Many deserve help from the government. They cannot obtain aid through this suit against private corporations.

These issues have been discussed extensively in the court's Preliminary Memorandum and Order on Settlement, In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 876-78 (E.D.N.Y. 1984) (citing opinions published in this litigation), and the reader is respectfully referred to it for elaboration. See also, e.g., In re "Agent Orange" Product Liability Litigation, 603 F.Supp. 239 (E.D.N.Y. 1985) (actions against government by veterans, wives and children dismissed on law and for failure to prove causation).

The most serious deficiency in plaintiffs' case is their failure to present credible evidence of a causal link between exposure to Agent Orange and the various diseases from which they are allegedly suffering. Various other reasons why the motion for summary judgment must be granted are set forth below.

The mere fact that this case involves claims of negligence does not preclude granting summary judgment. See, e.g., Haugen v. United States, 492 F.Supp. 398, 400 (E.D.N.Y.), aff'd without opinion, 646 F.2d 560 (2d Cir. 1980); INA Aviation Corp. v. United States, 468 F.Supp. 695,

699 (E.D.N.Y.), aff'd without opinion, 610 F.2d 806 (2d Cir. 1979). Nevertheless, the practice is somewhat unusual. We have, therefore, set out below in some detail the facts and an analysis of the cases bearing on the matter.

II. PROCEDURAL BACKGROUND

The claims of 281 servicepersons who have opted out of the class are embodied in sixteen different cases. One case began the Agent Orange litigation with the filing of a 162-page complaint in this district on February 19, 1979. Dowd v. Dow Chemical Co., Civil Action No. 79-467. The others were consolidated in this court for pretrial proceedings by the Judicial Panel on Multidistrict Litigation ("MDL Panel"). Plaintiffs seek relief on theories of negligence, strict liability, breach of warranty, intentional tort, and nuisance.

This court certified a class action against the defendant chemical companies pursuant to Rule 23(b)(3). See In re "Agent Orange" Product Liability Litigation, 506 F.Supp. 762, 787-92 (E.D.N.Y. 1980), modified, 100 F.R.D. 718 (E.D.N.Y. 1983), mandamus denied, 725 F.2d 858 (2d Cir.), cert. denied, ___ U.S. ___, 104 S.Ct. 1417, 79

L.Ed.2d 743 (1984). The class Was defined as "those persons who were in the United States, New Zealand or Australian Armed Forces at any time from 1961 to 1972 who were injured while in or near Vietnam by exposure to Agent Orange or other phenoxy herbicides, including those composed in whole or in part of 2,4,5-trichlorophenoxyacetic acid or containing some amount of 2,3,7,8-tetrachlorodibenzo-p-dioxin." 100 F.R.D. at 729. The class also included spouses, parents, and children of the veterans born before January 1, 1984 directly or derivatively injured as a result of the exposure.

A separate class was certified on the issue of punitive damages under Federal Rule of Civil Procedure 23(b)(l)(B). Potential class members were allowed to opt out of the Rule 23(b)(3) class but not out of the Rule 23(b)(l)(B) class. 100 F.R.D. at 728.

Extensive notice of the class certification was given. See 597 F.Supp. 746, at 756-57. The notice included a Request for Exclusion Form to be completed by anyone wishing to opt-out of the class. Id.

Over 2.6 million veterans from the United States, Australia, and New Zealand served in Vietnam during the relevant period. Letter from Arvin Maskin, Trial Attorney, Torts Branch of the Department of Justice dated March 29, 1985. The number of persons from that group said to have been exposed to Agent Orange has been estimated in the order of 600,000 or more. See 597 F.Supp. 740, at 756. The class size is far larger since it includes family members of the exposed veterans.

As of May 6, 1984, the Eastern District's Clerk's Office had received 2,440 requests to be excluded from the class, but a substantial number of these opted back in. See 597 F.Supp. 740, at 756. The 281 plaintiffs in the captioned cases under consideration at this time, together with the plaintiff in Lilley v. Dow Chemical Co., Civil Action No. 80-2284, appear to comprise all the opt-outs whose claims are now pending in this court. Some of the remaining opt-outs apparently have not yet filed suit; if they do, their cases presumably will be transferred to this court. A considerable number of opt-outs have been dismissed without opposition or for a variety of reasons not germane to the present discussion.

After settling with members of the class on May 7, 1984, defendants moved on July 24, 1984 for summary judgment in the opt-out cases and a number of cases brought by civilians. On December 10, 1984, the court heard oral argument on defendants' motion. Defendants offered overwhelming proof that no causal connection exists between exposure to Agent Orange and development of miscarriages or birth defects. In response, the veterans' wives and children produced no evidence sufficient to create an issue of material fact on causation. See also In re "Agent Orange" Product Liability Litigation, 603 F.Supp. 239 (E.D.N.Y. 1985) (dismissing claims of wives and children against government).

The court denied summary judgment in the case of Lilley v. Dow Chemical Co., Civil Action No. 80-2284. Defendants' motion to reargue was granted, expedited discovery occurred, and oral argument was heard on April 15, 1985. This case is considered in a separate memorandum granting summary judgment for defendants. _____ F.Supp. ____ (E.D.N.Y. 1985) (forthcoming).

The court adjourned consideration of the opt-out veterans' claims against the chemical companies to allow

plaintiffs' counsel time to produce evidence of causation. Counsel produced the affidavit of Dr. Barry M. Singer and 189 accompanying affidavits on January 24, 1985. At that time, the court, at the request of plaintiffs' counsel, allowed plaintiffs fifteen days to produce additional affidavits; the court's order stated that "no further extensions [would] be granted." See Order dated January 24, 1985. Nevertheless, on March 12, 1985, without leave for late filing, counsel produced a second affidavit by Dr. Singer with 93 accompanying affidavits. On that day, counsel also produced a general affidavit by Dr. Samuel S. Epstein with 15 accompanying affidavits.

Subsequently, counsel for plaintiffs, by application dated April 23, 1985, sought 60 additional days to file further affidavits on behalf of 21 opt-out plaintiffs on whose behalf nothing has been submitted by plaintiffs' counsel. This motion for additional time was denied on April 29, 1985.

Counsel for defendants moved to strike these additional materials as untimely on March 13, 1985 and again on March 18, 1985. The court reserved decision and granted defendants' request to adjourn oral argument on the summary

judgment motion from March 18 until April 15. Oral argument was heard on that date. In view of the importance of the matter, rejection on the ground of lateness of any papers heretofore filed seems inappropriate. The court has in fact considered all of the voluminous papers filed up to April 30, 1985 by both sides, as well as all documents in all the related MDL cases, including those studies and reports filed on the court's own motion as it announced from time to time that it was taking judicial notice. Since no objection to the taking of judicial notice has been made, all of the papers encompassed in the more than 6,000 docket entries in this complex multidistrict litigation are before the court and are relied upon in deciding the motion for summary judgment. See Federal Rules of Evidence, Rule 201.

III. FACTS

In support of their contention that Agent Orange did not cause the various ailments that allegedly afflict the veteran plaintiffs, defendants rest upon a number of epidemiological studies. As this court has indicated in extensive and repeated recorded colloquy with counsel and in prior opinions, e.g., In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 777-95 (E.D.N.Y. 1984), all

reliable studies of the effect of Agent Orange on members of the class so far published provide no support for plaintiffs' claims of causation. See also In re "Agent Orange" Product Liability Litigation, 603 F.Supp. 239 (E.D.N.Y. 1985) (granting summary judgment against the veterans' wives and children in their case against the government for failure to show causation).

A. Epidemiological Studies

Epidemiological studies rely on "statistical methods to detect abnormally high incidences of disease in a study population and to associate these incidences with unusual exposures to suspect environmental factors." Dore, "A Commentary on the Use of Epidemiological Evidence in Demonstrating Cause-in-Fact," 7 Harv. Envtl. L. Rev. 429, 431 (1983). In their study of diseases in human populations, epidemiologists use data from surveys, death certificates, and medical and clinical observations. Id.

A number of sound epidemiological studies have been conducted on the health effects of exposure to Agent Orange. These are the only useful studies having any bearing on causation.

All the other data supplied by the parties rests on surmise and inapposite extrapolations from animal studies and industrial accidents. It is hypothesized that, predicated on this experience, adverse effects of Agent Orange on plaintiffs might at some time in the future be shown to some degree of probability.

The available relevant studies have addressed the direct effects of exposure on servicepersons and the indirect effects of exposure on spouses and children of servicepersons. No acceptable study to date of Vietnam veterans and their families concludes that there is a causal connection between exposure to Agent Orange and the serious adverse health effects claimed by plaintiffs. Chloracne and pophyria cutanea tarda are the only two diseases that have been recognized by Congress as having some possible connection to Agent Orange exposure, but no proof has been shown of any relationship of these diseases to these plaintiffs. See In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 856 (E.D.N.Y. 1984) (of all Vietnam veterans, no chloracne and 2 porphyria cutanea tarda cases are recognized as having a connection with, Vietnam, but not necessarily with Agent Orange); Veterans

Administration, Adjudication of Claims Based on Exposure to Dioxin or Ionizing Radiation, 50 Fed. Reg. 15848, 15849-50 (April 22, 1985). See also, e.g., Tr. at 182 (Hearings March 5, 1985) (comments of David Dean for Plaintiffs' Management Committee) ("chloracne without disability is not compensable" out of Agent Orange funds).

1. Miscarriages and Birth Defects

The claims of the opt-out wives and children were dismissed orally on December 10, 1984 and many of them subsequently rejoined the class. Evidence regarding their claims is, however, still relevant because it suggests that the veterans' concerns about their ability to reproduce healthy children are, like their concerns about their own health problems, unrelated to Agent Orange exposure. It must be recalled that plaintiffs' counsel pressed these claims of children and wives with at least as much vigor as those of the veterans, relying on much the same kind of inadequate proof now reasserted in connection with the veterans' claims.

The studies to date conclude that there is as yet no epidemiological evidence that paternal exposure to Agent

Orange causes birth defects and miscarriages. See, e.g., Erickson, Mulinare, et al., "Vietnam Veterans' Risks for Fathering Babies with Birth Defects," 252 J.A.M.A. 903-12 (1984); J.D. Erickson, J. Mulinare, et al., Vietnam Veterans' Risks for Fathering Babies with Birth Defects, published by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control (August, 1984) ("CDC study"); J.W. Donovan, et al., Case-control Study of Congenital Anomalies and Vietnam Service (Birth Defects Study): Report to the Minister for Veterans' Affairs, January 1983, published by Australian Government Publishing Service, Canberra (1983) ("Australian study"); Donovan, MacLennan and Andena, "Vietnam service and the risk of congenital anomalies," 140 Med. J. of Australia, 394 (March 31, 1984). See also, e.g., the discussion of lack of proof of causation in In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 749, 775-95 (E.D.N.Y. 1984).

In a comprehensive epidemiological examination of 96 categories of birth defects occurring among subsequently conceived offspring of American servicemen who served in Vietnam, the authors of the CDC study concluded: "This study provides strong evidence that Vietnam veterans, in

general, have not been at increased risk of fathering babies with the aggregate of the types of defects studied here." CDC study at 2. The CDC study further concluded: "At present, no adverse human reproductive effects have been shown to be related to exposure to phenoxy herbicides and dioxin." Id. at 67 (emphasis supplied).

The conclusions of the Australian study are similarly negative:

> There is no evidence that Army service in Vietnam increases the risk of fathering children with anomalies diagnosed at birth.

Donovan, MacLennan and Andena, "Vietnam service and the risk of congenital anomalies," 140 Med. J. of Australia 394 (March 31, 1984). See also CDC study at 6-7 (number of offspring of Vietnam veterans with serious birth defects no greater than the population at large); cf. House Rep. No. 98-592 on Veterans' Dioxin and Radiation Exposure Compensation Standards Act, reprinted in 1984 U.S. Code Cong. & Admin. News 4449, 4453 ("insufficient credible scientific evidence" that veterans exposed to Agent Orange are experiencing higher incidence of medical problems).

2. Veterans' Health

Epidemiological studies addressing the effect of Agent Orange exposure on veterans' health have not furnished support for plaintiffs' claims. They have been negative or inconclusive.

The Air Force study is the most intensive examination to date of Agent Orange effects on exposed veterans. See Air Force Health Study, An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides (February 24, 1984) (Ranch Hand II Study--1984 Report). This study utilized 1,024 matched pairs of men for analysis. Id. at v. Essentially all those who had participated in the fixed wing spraying and who could be located were studied. The conclusion was negative. In summary,

> This baseline report concludes that there is insufficient evidence to support a cause and effect relationship between herbicide exposure and adverse health in the Ranch Hand group at this time.

Id. at iii. Significantly, "no cases of chloracne were diagnosed clinically or by biopsy." Id. at iii, XV-9.

The small Ranch Hand sample and other factors, particularly the length of time it takes for most cancers to develop, support the conclusion that more work is needed before any firm conclusion can be reached respecting morbidity. Id. at v. The authors suggest a 20-year mortality follow-up study. Id. at v., XVIII-1-3.

The Ranch Hand Study authors state that "[i]n full context, the baseline study results should be viewed as reassuring to the Ranch Handers and their families at this time." Id. at iii; see also id. at XIV-4 to XIX-9. Their study offers no solace to plaintiffs in the instant litigation. It is at best inconclusive. See In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 788 (E.D.N.Y. 1984).

A comprehensive study by the Centers for Disease Control may be available after mid-1989. See Centers for Disease Control, Protocol for Epidemiologic Studies of the Health of Vietnam Veterans (November 1983). But cf. McIntyre, "End to Dioxin Study Fund Asked," Newsday, May 1, 1985, at 25, col. 1 (White House scientist Alvin L. Young, a toxicologist, recommends that no further research on dioxin

should be funded, "because research has failed to show it causes cancer or birth defects in humans.").

No valid state study supports plaintiffs' causality claims. See In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 787 (E.D.N.Y. 1984); see also 3 Agent Orange Review 1 (July 1984) (describing ongoing studies); Agent Orange Advisory Committee to the Texas Department of Health, Guy R. Newell, Chairman, Development and Preliminary Results of Pilot Clinical Studies 13, 15-19 (March 26, 1984) (Texas study).

Two recently-released studies fail to establish any causal connection. A comparison of New York State Vietnam veterans with veterans of that era who did not serve in Vietnam revealed no increased incidence of disease. Lawrence, et al., Mortality Patterns of New York State Vietnam Veterans, 75 AJPH 277 (1985). The authors note that the long induction period involved in some of the diseases suggests the need for further study, but conclude:

> Overall, these studies show no remarkable disease differences between Vietnam veterans and other veterans of that era. To the extent that Vietnam service may be indicative of dioxin-contaminated herbicide exposure, we find no suggested association with cause of

death.

Id. at 279.

The comprehensive three-part Australian study is similarly negative. Australian Veterans Health Studies, The Mortality Report (1984). In 1980, the government of Australia commissioned the Commonwealth Institute of Health to conduct a series of scientific studies of the health of Vietnam veterans and their families. The Commission undertook a retrospective cohort study of mortality among former national servicemen of the Vietnam era, which is reported in Part I of the Report. Australian forces that served in Vietnam were exposed at least as heavily as United States forces to Agent Orange. See Tr. at 479 (San Francisco Hearings, August 24, 1984).

This study sought to determine whether death rates among Vietnam veterans were higher than among comparable non-veterans for all causes of death combined. The study included 46,166 subjects: 19,209 veterans who served in Vietnam or Vietnam waters for over 90 days and did not die prior to two years of service, and 26,957 non-veterans. Information about the study subjects was obtained through

death registers, medical certificates, and military and nonmilitary records. The follow-up rate was high, and the authors conclude that the data used was of "high quality." "Executive Summary," at vii.

The study found the death rate among study subjects--both veterans and non-veterans--"statistically significantly lower than expected for Australian males, taking age and calendar year into account." Id. Mortality among veterans was not higher than that among non-veterans in a statistically significant sense, except among Veterans who were members of The Royal Australian Engineers. Id. at viii. Part III of the Report offers several possible explanations for this discrepancy, none of them attributable to Agent Orange. See Part III, "The Relationship Between Aspects of Vietnam Service and Subsequent Mortality Among Australian National Servicemen of the Vietnam Conflict Era," at 41-46 (1984).

With respect to specific causes of death, the Report found no statistically significant difference in death rates from cancer among veterans and non-veterans. In particular, the study found that:

> there was no statistically significant difference in the death rates from soft tissue sarcoma or non-Hodgkin's lymphoma. Other studies have indicated that both cancers are possibly caused by phenoxy acetic acid herbicides * * * sprayed in Vietnam.

Part I, "Executive Summary," at ix.

The study found no statistically significant difference in death rates from a number of other causes of death, including diseases of the skin, of the musculoskeletal system and connective tissue, of the blood, and of the neoplasmic, endocrine, nutritional, metabolic, and circulatory systems. Id. at ix-x; see also id. at 79-90. The study attributed a higher veteran mortality rate from diseases of the digestive system to alcoholism. Id. at x; see also id. at 88.

While cautioning that diseases such as cancer may take longer to develop, id. at ix, the Australian study found no evidence of an excess of deaths among the veterans studied due to "unusual causes." Id. at x. Such evidence--had it surfaced--"might have suggested that some deaths of veterans might have been caused by a specific toxin or pathogen." Id. (emphasis supplied).

Congress agrees with this generally negative assessment of the effect of Agent Orange exposure. The House Report accompanying the recent Veterans' Dioxin and Radiation Exposure Compensation Standards Act, Pub. L. No. 98-542, 98 Stat. 2725 (1984), states that "[t]here is no consensus of opinion in the scientific community that exposure to dioxin causes any identifiable disability other than chloracne." House Rept. No. 98-592 (Veterans' Affairs Comm.) at 5, reprinted in 1984 Cong. & Ad. News 4449, 4451. As of May 22, 1984, Senator Cranston noted that:

> Although 13 chloracne cases have been granted service connection, the VA reported in a May 17, 1984 letter * * * that it appeared after review that none of the cases, in fact, involved chloracne.

Cong. Rec. Sen. S.6145 (daily ed. May 22, 1984). The House Report concluded that "it is generally agreed that there is insufficient credible scientific evidence that this group of veterans has demonstrated they are experiencing any higher incidence or frequency of medical problems related to their possible exposure to dioxin while in service as to warrant a statutory presumption that such medical problems are related

to military service." House Rept. at 7, reprinted in 1984 Cong. & Ad. News 4449, 4453.

Plaintiffs cite a number of studies conducted on animals and industrial workers as evidence of a causal link between exposure to TCDD and the development of various hepatotoxic, hematotoxic, genotoxic, and enzymatic responses. None of these studies do more than show that there may be a causal connection between dioxin and disease. None show such a connection between plaintiffs and Agent Orange.

Plaintiffs also rely on several depositions and affidavits by experts. As indicated below, to the extent that these experts rely on available epidemiological studies, the studies supply no basis for an inference of causation. There is simply no other reliable data on which an expert can furnish reliable testimony. Thus, no expert tendered by plaintiffs would be permitted to testify under Rules 702 and 703 of the Federal Rules of Evidence.

B. Expert Affidavits

Even most of plaintiffs' experts express doubt about causation, except for some ill-defined possible

"association" as compared with associations with any specific other products or natural carcinogens; none supports the conclusion that present evidence permits a scientifically acceptable conclusion that Agent Orange did cause a specific plaintiff's specific disease. See, e.g., Report of Dr. Hyman J. Zimmerman, Comments on Porphyria Cutanea Tarda & Related Matters ("[t]he relevance of [liver destruction and cancer] to man and the relevance of liver injury and PCT to exposure to DIOXIN remains to be evaluated by proper epidemiologic studies.") (Plaintiffs' Supplemental Memorandum in Support of Plaintiffs' Opposition to Defendants' Motion for Summary Judgment, Ex. 8; emphasis supplied); Deposition of Dr. Ellen Silbergeld, at 321 ("I think there is an association [between exposure to Agent Orange and lymphoma]") (Id., Ex. 2; emphasis supplied); Deposition of Dr. Marvin Schneiderman, at 50 ("rhabdomyosarcoma * * * is more likely, in my opinion, to have been related to that exposure than to some other not known ill-defined set of causes." (Id., Ex. 3; emphasis supplied.); id. at 144 ("Lymphocitic lymphoma * * * could be related to exposure * * * to Agent Orange") (Id., Ex. 3; emphasis supplied); Deposition of Dr. Maureen C. Hatch, at 54 ("there may be a causal association") (Opt-out Plaintiffs'

Opposition *to* Defendants' Motion to Dismiss, or in the Alternative, for Summary Judgment, Ex. 6; emphasis supplied).

It is significant that like Doctors Singer and Epstein, whose affidavits are described in detail below, the various experts referred to in the preceding paragraph apparently had no physical contact with individual plaintiffs. For example, Dr. Silbergeld, whose opinion is relied upon heavily in plaintiffs' briefs, states:

> In preparing this affidavit, I have not seen any material related to the plaintiffs in this litigation, no medical records or other descriptions of the medical status of these persons.

Undated Aff. of Dr. Ellen K. Silbergeld, ¶ 4 at 2, Ex. 5 to Opt-Out Plaintiffs' Opposition to Defendants' Motion to Dismiss or, in the Alternative, for Summary Judgment.

Plaintiffs' Supplemental Memorandum in Support of Plaintiffs' Opposition to Defendants' Motion for Summary Judgment devotes considerable attention to the specific background of one David Lambiotte, with reference to expert opinions inferring that his illnesses were caused by Agent Orange exposure. Id. at 3-6. Much of this discussion is

irrelevant to the specific opt-out cases currently before the court. Mr. Lambiotte, for example, is a member of the class and filed a claim form seeking to share in the settlement proceeds. See Claim No. 28397 (on file at Agent Orange Computer Center).

Plaintiffs offer the opinion of two experts who conclude that in the cases of the specific opt-out plaintiffs before the court, exposure to Agent Orange caused adverse health effects. One is Dr. Singer's submission. The other is Dr. Epstein's.

1. Dr. Singer's Affidavit

Plaintiffs submitted two affidavits on causation by Dr. Barry M. Singer. Their wording is virtually identical. Dr. Singer's affidavits were accompanied by 282 "affidavits" by individual veteran plaintiffs. The latter are form statements, signed by either the plaintiff or his attorney, or both. A representative set of statements is attached as Appendix "A" to this opinion.

The forms typically allege that the plaintiff "saw spraying of Agent Orange, entered defoliated areas and

consumed local food and water." The forms then describe the plaintiff's diagnosed medical problems and refer to an attached "checklist" for a description of alleged Agent Orange related symptoms.

The checklists allow the individual to identify any or all of a number of symptoms which they attribute to their exposure to Agent Orange in Vietnam. In addition to general symptoms such as fatigue, space is provided in which to indicate specific skin, skeletal-muscular, gastro-intestinal, visual and behavioral disorders, as well as to identify any tumors as malignant or nonmalignant. Finally, the checklist asks for information about the individual's offspring. A perusal of the checklists reveals that plaintiffs believe they suffer most frequently from "behavioral" disorders: memory loss, increased irritability, anger and anxiety, insomnia, confusion, depression, and tremors.

The final part of the form affidavits describes the individual's medical history, and asks for a description of tobacco, alcohol, and drug use. This portion also alleges no exposure to any toxic chemical besides Agent Orange.

Dr. Singer, who is board certified in internal medicine, hematology, and oncology, reaches a number of conclusions based on his review of the numerous form affidavits with their attached checklists. He bases his opinion on his medical background, a review of the literature on the biomedical effects of Agent Orange, and an examination of the individual affidavits. He apparently did not examine any medical records nor any plaintiffs. In discussing his conclusions, the numbers from his two separate affidavits will be combined.

Dr. Singer notes at the outset that 2,4-D, 2,4,5-T, and 2,3,7,8-tetrachlorodibenzo-p-dioxin ("dioxin") "are potent and toxic agents capable of inducing a wide variety of adverse effects both in animals and in man." Singer Aff. ¶ 5 (emphasis supplied). See also In re "Agent Orange" Product Liability Litigation, 597 F.Supp. at 778 (dioxin one of most powerful poisons known). Dr. Singer then analyzes the various ailments suffered by the individual affiants.

Fifty-four plaintiffs, Dr. Singer reports, suffer from some form of hepatic (liver) abnormality, either

abnormal liver function tests, hepatitis, cirrhosis of the liver, or pericentral steatosis. He notes that liver disorders have been reported to develop in humans after industrial exposure and accidents, and in dogs, rats, mice, and primates after subacute and chronic exposure. For example, "[i]n both mice and rats, small doses of TCDD predictably produce an increase in liver weight." Aff. fl 6.

Dr. Singer also asserts that 2,4,5-T "produces liver enzyme abnormalities * * * liver swelling and centrilobular necrosis" (death of a central liver lobule, or functional unit of the liver), and that one plaintiff suffered from a bile duct microadenoma (small, usually benign tumor in the passage between the liver and gall bladder) and from fatty metamorphosis of the liver. He concludes that "these compounds are capable of producing marked alteration in hepatic architecture and function" and that the liver abnormalities plaintiffs allege are "consistent with" the known effects of polychlorinated herbicides. (Emphasis supplied.) Although Dr. Singer does not reveal the studies that he relies upon to reach this conclusion, it is clear he is not referring to studies that analyze the effects of Agent Orange on exposed veterans. In any event, the liver disorders Dr. Singer finds in the

animal and industrial studies differ substantially from those plaintiffs report they suffered.

Or. Singer next notes that many affiants suffer from asthenic (exhaustion) symptoms: "[f]atigue was present in [211] patients, numbness of the extremities in [206], tremor in [114] and depression in [219] [and] [228] patients complained of increased irritability, increased anger was present in [215], increased anxiety in [219], sleep disturbances in [188], increased aggression in [167], and confusion in [149] patients." Aff. ¶ 7. He notes that such neurological effects have been reported to result from industrial accidents and testing in animal models, again without naming his sources or specifying what quantity of 2,4,5-T was involved. He concludes that many neurological symptoms complained of by the plaintiffs are "clearly compatible with" the known effects of dioxin on the human nervous system. (Emphasis supplied.)

Dr. Singer next discusses the affiants complaining of weight loss (57), decreased appetite (88), and gastrointestinal disturbances (178). He asserts that nausea, vomiting, diarrhea, and abdominal pain have been reported after industrial exposure to polychlorinated

herbicides; he adds that TCDD produces weight loss in primates, rodents, and fowl. Dr. Singer thus concludes that the affiants' symptoms are "compatible with known biological effects of polychlorinated herbicides." (Emphasis supplied.)

Or. Singer again relies on animal and industrial exposure studies in reaching his conclusion that the elevated cholesterol or triglyceride levels alleged by thirteen affiants "are compatible with" exposure to polychlorinated herbicides." Aff. ¶ 9 (emphasis supplied).

Similarly, unnamed studies of rats and primates convince him that the decreased reproductive capacity claimed by nine plaintiffs "would be compatible with known effects of polychlorinated herbicides." Aff. ¶ 12 (emphasis supplied).

Sixteen of the plaintiffs allege that they suffer from some form of cancer, including Hodgkin's Disease. Dr. Singer cites animal and industrial exposure studies that conclude that exposure to TCDD leads to cancer of the hard palate and the stomach, and increases the incidence of sarcomas and lymphomas. He also refers to a study allegedly

conducted in North Vietnam between 1962 and 1968 which found an increased incidence of liver cancer, although he does not mention in which segment of the population. Cf. Frank, 13A Courtroom Medicine, S 24.30 at 24-12 ("[h]ematologic malignancies have been reported with pesticide exposure, but, since there have been no population-based studies, a cause-and-effect relationship cannot be proven at this time.") (emphasis supplied). Based on these studies, Dr. Singer asserts that polychlorinated herbicides "would represent potential causative factors in the tumors claimed by the affiants." Aff. fl 10 (emphasis supplied).

Dr. Singer next turns to what may be broadly described as plaintiffs' dermatological difficulties: hair loss (93), rash (226), acne (105), and other skin problems such as peeling, hypopigmentation, and photosensitivity (211). Only two plaintiffs specifically mention chloracne, but Dr. Singer warns that it may be confused with acne without a careful physical examination. Mammals exposed to TCDD, Dr. Singer notes, have developed alopecia (baldness) and contact dermatitis (inflammation of the skin caused by allergy to a substance). Dr. Singer concludes: "Thus polychlorinated herbicide exposure may well constitute a

cause of the dermalogic difficulties complained of by plaintiffs." (Emphasis supplied.)

Dr. Singer's final analysis focuses on 324 complaints of chronic sore throat, lymphadenopathy (simple enlargement of the lymph nodes), sinus congestion and inflammation. Dr. Singer attributes these problems to Agent Orange exposure. Animal studies have shown, he states, that polychlorinated herbicides may induce "thymic atrophy" in animals. Cf. J.E. Schmidt, 1-2 Attorneys' Dictionary of Medicine, at A-298 & T-52 (atrophy, a wasting away, is usually due to defective nutrition; the thymus may be a gland of internal secretion but its function is not understood). He also relies on animal studies finding a number of alterations in the immune system after exposure to TCDD: phytohemagghetining transformation of spleen cells, decline in serum globulin concentrations, increased sensitivity to bacterial endotoxins, depressed T-cell rosette formation, and delayed hypersensitivity. Although he does not reveal the dosage of TCDD involved in creating these aberrations in the functioning of the immune system, he concludes that they "could be a contributing factor in the infectious symptoms experienced by some of the plaintiffs." (Emphasis supplied.)

As a review of Dr. Singer's affidavit reveals, he attributes some 37 separate diseases, disorders, and symptoms--including baldness and diarrhea--to exposure to Agent Orange. He mentions only two doubtful examples of chloracne and none of porphyria cutanea tarda, the two afflictions Congress considered worthy of a statutory presumption of service connection, although not without reservations. See House Report, supra, reprinted in 1984 U.S. Code Cong. & Admin. News 4447, at 4453 ("insufficient credible scientific evidence" that veterans exposed to Agent Orange suffer increased adverse health effects).

Stripped of its verbiage, Dr. Singer summarizes his overall conclusion by stating that if the affiants are telling the truth and if there is no cause for their complaints other than Agent Orange, then Agent Orange must have caused their problems. Dr. Singer states:

> Assuming the truth of the affidavits submitted, and absent any evidence of pre-existing, intervening, or superseding causes for the symptoms and diseases complained of in these affidavits, it is my opinion to a reasonable degree of medical probability (that is, more likely than not) that the medical difficulties described by the affiants were proximately caused by exposure to Agent Orange.

(Emphasis supplied.)

Put differently, Dr. Singer's analysis amounts to this: the affiants complain of various medical problems; animals and workers exposed to extensive dosages of TCDD have suffered from related difficulties; therefore, assuming nothing else caused the affiants' afflictions, Agent Orange jj caused them. One need hardly be a doctor of medicine to lj make the statement that if X is a possible cause of Y, and if there is no other cause of Y, X must have caused Y. Dr. Singer's formulation avoids the problem before us: which of myriad possible causes of Y created *a* particular veteran's problems. To take just one of the diseases reported by plaintiffs in an undifferentiated form, and relied upon by Dr. Singer, hepatitis: this is a disease common in the civilian population and there is not the slightest evidence that its incidence is greater among those i exposed to Agent Orange than those not exposed. See, e.g., J.E. Schmidt, 1 Attorney's Dictionary of Medicine H36-37 (1977) (listing various forms).

As section IV.A.3 will show, Dr. Singer's conclusory allegations lack any foundation in fact. His

analysis, in addition to being speculative, is so guarded as i to be worthless.

2. Dr. Epstein's Affidavits

Plaintiffs belatedly submitted affidavits by Dr. Samuel S. Epstein. He has been specially trained in the I fields of pathology, bacteriology, and public health. He is currently Professor of Occupational and Environmental Medicine at University of Illinois Medical Center in Chicago. Among his 239 publications are a number of articles on the effects of exposure to 2,3,7,8-tetrachlorodibenzo-paradioxin ("TCDD"). His credentials clearly suffice to qualify him as an expert pursuant to Rule 702 of the Federal Rules of Evidence.

Dr. Epstein submitted a general or master affidavit on the scientific literature on causation. This ii 65-page affidavit is substantially identical to an earlier 1 brief submitted by plaintiffs dated September 18, 1984 in opposition to the motion for summary judgment--some time before Dr. Epstein was retained on February 27, 1985. Dep. of Dr. Epstein at 14 (April 11, 1985). An extensive deposition of Dr. Epstein dated April 11, 1985 adds nothing

of a substantive nature to the affidavit, but consists of a devastatingly successful showing of his lack of knowledge of the medical and other background of those on whose behalf he submitted affidavits.

Just as in plaintiffs' brief, Or. Epstein reviews over one hundred epidemiological studies of the effects of TCDD on animals and on humans as a result of industrial accidents. These studies were submitted to the court and have been made a part of the record in the multidistrict litigation. They were discussed orally on the record during argument of the motion and rejected as virtually useless in establishing causation.

Dr. Epstein also relies on affidavits by Doctors Carnow, Silbergeld, and Singer which were separately submitted in the "opt-out" cases. None of these affidavits are helpful in supporting causation. The Carnow affidavit is discussed in the opinion granting summary judgment in Lilley v. Dow Chemical Co., ____ F.Supp. _____ (E.D.N.Y. 1985) (forthcoming). Dr. Epstein concludes that "a causal relationship exists between exposure to Agent Orange and a wide range of toxic multi-system and multi-organ effects." Aff. at 63.

The court has reviewed these and other like studies dealing with animal laboratory studies, industrial accidents, and other products. They suggest that dioxin may cause diseases in animals, including man. They are not correlated to those exposed to Agent Orange in Vietnam. At most, they collectively have the probative force of a scintilla of evidence.

Dr. Epstein also submitted fifteen individual affidavits of causation. In reaching conclusions with respect to the individual plaintiffs, he says that he generally relied upon their military service records, Veterans Administration medical records, and interview questionnaires, symptomology checklists, and affidavits completed by plaintiffs. See Attachments to Dr. Epstein's Deposition submitted as Appendix A to Defendants' Supplemental Memorandum in Opposition to Plaintiffs' Motion for Partial Summary Judgment and Reply Memorandum in Further Support of Defendants' Motion to Dismiss and/or for Summary Judgment, Dep. at 474 ff. Each affiant-plaintiff states in general terms that he was exposed to Agent Orange.

Each of the fifteen plaintiffs described by Dr. Epstein reports that he suffers from a number of diseases and has varying family histories and personal habits as follows: cancer of the ileum (family history of cancer; 1-1/2 packs of cigarettes per day); Hodgkin's Disease, coronary artery disease, cavernous angioma of the brain, bile duct microadenoma (no family history; infrequent smoker); chloracne, infertility (no family history; nonsmoker); brain cancer (family history of lung cancer; nonsmoker (now deceased)); malignant astrocytoma of the brain (no family history; smokes two packs of cigarettes per day); chronic hepatitis (no family history; nonsmoker; nondrinker; subsequent exposure to chlorinated hydrocarbon solvents); basil cell carcinoma of the skin (no family history; one pack of cigarettes per day); chronic hepatitis (no family history; one pack of cigarettes per day; moderate drinker); chloracne (no family history; two packs of cigarettes per day; moderate drinker; possible exposure to toxic substances at a sewage plant); squamous and basal cell carcinomas of the lip (no family history; cigarette smoker; alcohol consumption unknown); chronic hepatitis and child with multiple birth defects (no family history; current nondrinker with history of alcohol abuse); chloracne (no family history); chloracne (no family history; nonsmoker);

carcinoma of the bladder (no family history; nonsmoker); II cancer of the colon (nonsmoker).

In sum, Dr. Epstein attributes some fourteen different diseases and afflictions to exposure to Agent Orange of fifteen plaintiffs. Dr. Epstein's affidavits, even if considered timely, are insufficient to oppose the motion for summary judgment. All the diseases in the cases he relies upon are found in the general population of those who were never exposed to Agent Orange. There is no showing that the incidence of the diseases relied upon are greater in the Agent Orange-exposed population than in the population generally. It must be borne in mind that these are fifteen cases not taken at random but deliberately s ted because of their claims from a population of 2,400,000 who served in Vietnam.

IV. LAW

A. Legal Standards Governing Expert Opinion

In determining whether an expert opinion is sufficient to withstand a summary judgment motion, courts undertake a detailed inquiry into the admissibility of the

proffered testimony. In a case such as the one before us, Rules 102, 104(a), 401-403, 702-703 and 803(18) of the Federal Rules of Evidence control the inquiry. See Fed. R. Ev. 101; Weit v. Continental Illinois National Bank and Trust Co., 641 F.2d 457, 467 n.38 (7th Cir. 1981) (Rules of Evidence apply to summary judgment motions), cert. denied, 455 U.S. 988, 102 S.Ct. 1610, 71 L.Ed.2d 847 (1982). Rule 104(a) of the Federal Rules of Evidence requires a court to make a preliminary inquiry into the admissibility of expert testimony. See In re Japanese Electronic Products Antitrust Litigation, 723 F.2d 238, 260 (3d Cir. 1983) (in limine rulings on admissibility appropriate even when not required by Rule 104), cert. granted, 105 S.Ct. 1863 (1985). The preponderance of the evidence standard generally governs in such a determination. Cf. Lego v. Twomey, 404 U.S. 477, 484, 489, 92 S.Ct. 619, 624, 626, 30 L.Ed.2d 618 (1972).

1. Admissibility of Epidemiological Studies

In a mass tort case such as Agent Orange, epidemiologic studies on causation assume a role of critical importance. Cf. In re Swine Flu Immunization Products Liability Litigation, 508 F.Supp. 897, 907 (D. Colo. 1981) ("[w]here * * * the exact organic cause of a disease cannot

be scientifically isolated, epidemiologic data becomes highly persuasive."), aff'd sub nom. Lima v. United States, 708 F.2d 502 (10th Cir. 1983). Confronted with the reality of mass tort litigation, courts have been forced to abandon their traditional reluctance to rely upon epidemiological studies. Dore, "A Commentary on the Use of Epidemiological Evidence in Demonstrating Cause-in-Fact," 7 Harv. Envtl. L. Rev. 429 (1983).

Commentators have approved the growing judicial reliance on such scientific evidence. See, e.g., Black & Lilienfeld, "Epidemiologic Proof in Toxic Tort Litigation," 52 Ford. L. Rev. 732 (1984); Symposium on Science and the Rules of Evidence, 99 F.R.D. 187 (1983); Gianelli, "The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half-Century Later," 80 Colum. L. Rev. 1197 (1980); Korn, "Law, Fact, and Science in the Courts," 66 Colum. L. Rev. 1080 (1966).

One vehicle for the admissibility of such studies has been Federal Rule of Evidence 803(8), the public records and reports exception to the hearsay rule. This exception is based upon our experience that public officials who are scientists generally perform their duties accurately and

faithfully. Grant, "The Trustworthiness Standard for the Public Records and Reports Hearsay Exception," 12 W. State U. L. Rev. 53, 56 (1984); see also In re Japanese Electronic Products Antitrust Litigation, 723 F.2d 238, 265 (3d Cir. 1983) ("reports of investigations are presumed to be reliable."), cert. granted, 105 S.Ct. 1863 (1985). Subsection (8)(C) of the rule allows as evidence "factual findings resulting from an investigation made pursuant to authority granted by law, unless the sources of information or other circumstances indicate lack of trustworthiness." See City of New York v. Pullman, Inc., 662 F.2d 910, 914 (2d Cir. 1981) (discretion of trial court emphasized), cert. denied, 454 U.S. 1164, 102 S.Ct. 1038, 71 L.Ed.2d 320 (1982).

A number of courts have found epidemiological studies conducted by the government sufficiently trustworthy. The Fourth Circuit recently held admissible under Rule 803(8)(C) epidemiological studies of toxic shock syndrome conducted by the Federal Centers for Disease Control and three state health departments. Ellis v. International Playtex, Inc., 745 F.2d 292 (4th Cir. 1984). The court noted that CDC and the state health departments used "uniform procedures and methods that are widely accepted by

their peers" and carried out the studies in a timely and impartial manner. Id. at 301.

Plaintiffs have failed to show, under Rule 803(8)(C), that the various state and national studies averted to above were flawed. See also Kehm v. Proctor & Gamble Mfg. Co., 724 F.2d 613, 617-20 (8th Cir. 1983) (affirming admissibility of CDC and state studies showing link between use of tampons and incidence of toxic shock syndrome; studies were timely, conducted in skillful manner and no motive probative of untrustworthiness present).

CDC epidemiological studies have been heavily relied upon in the swine flu cases. See, e.g., In re Swine Flu Immunization Products Liability Litigation, 508 F.Supp. 897, 907 (D. Colo. 1981), aff'd sub nom. Lima v. United States, 708 F.2d 502 (10th Cir. 1983); see also Cook v. United States, 545 F.Supp. 306 (N.D. Cal. 1982); Migliorini v. United States, 521 F.Supp. 1210, 1218 (M.D. Fla. 1981); Heyman v. United States, 506 F.Supp. 1145 (S.D. Fla. 1981); cf. Reyes v. Wyeth Laboratories, 498 F.2d 1264, 1270 n.1 (5th Cir.) (CDC studies admitted to show incidence of polio), cert. denied, 419 U.S. 1096, 95 S.Ct. 687, 42 L.Ed.2d 688 (1974).

In the Agent Orange litigation, the federal, state, and Australian government studies discussed above are on file having been subject to the court's judicial notice. In re "Agent Orange" Product Liability Litigation, 603 F.Supp. 239, 246 (E.D.N.Y. 1985). These studies are reliable, and would be admitted under Rule 803(8)(C). Ellis v. International Playtex, Inc., 745 F.2d 292 (4th Cir. 1984). See also Black & Lilienfeld, "Epidemiologic Proof in Toxic Tort Litigation," 52 Ford. L. Rev. 732 (1984). Plaintiffs have made no objections to their admissibility and in fact rely specifically on the Ranch Hand Study in supporting their case for causation. See Tr. at 44 (Hearings on April 15, 1985).

The fact that the federal government was a defendant in related Agent Orange cases does not suggest a motive for untrustworthiness by the independent government scientists who conducted the studies. The Swine Flu cases cited supra found no such motive even though there the government was the defendant. Compare United States v. Esle, 743 F.2d 1465, 1474 (11th Cir. 1984) (affirming exclusion of market surveys where radio stations conducting them had motive to exaggerate number of Hispanic listeners).

These epidemiological studies alone demonstrate that on the basis of present knowledge, there is no question of fact: Agent Orange cannot now be shown to have caused plaintiffs' numerous illnesses.

The parties, and especially plaintiffs, rely on over one hundred epidemiological studies not conducted by government officials and as such not subject to the 803(8)(C) exception. Such privately conducted studies may be admissible as learned articles under Rule 803(17) and some of them would qualify under Rule 803(6) and other exceptions to the hearsay rule. At trials, they are commonly analyzed under Rule 703 as a basis for expert opinion rather than as independently admissible. Cf. In re Japanese Electronic Products Antitrust Litigation, 723 F.2d 238, 275-84 (3d Cir. 1983) (discussing admissibility of privately conducted economic reports under Rules 702-703), cert. granted, 105 S.Ct. 1863 (1985).

Were they relevant, almost all of these privately conducted studies would be admitted as evidence-in-chief under a variety of the above hearsay exceptions, including Rules 803(24) and 804(5) (catchall exceptions based on need and general reliability). There is no need at this point to

analyze them individually. Most of the studies rely on inapposite data and would be excluded under Rules 401 to 403. Some of them on industrial exposure have been recognized as flawed. See, e.g., Palmer v. Stora Kopparbergs Bergslags Aktiebolac (S.Ct. Nova Scotia, Sept. 23, 1983) (Nunn, J.), slip op. at 174-81 (refusing to enter injunction against spraying of 2-4-D,2,4,5-T-phenoxy herbicides in part because expert studies, such as Hardell's, showing alleged adverse health effects were widely recognized as flawed).

The many studies on animal exposure to Agent Orange, even plaintiffs' expert concedes, are not persuasive in this lawsuit. In a jointly-authored article, Dr. Ellen K. Silbergeld writes that "laboratory animal studies * * * are generally viewed with more suspicion than epidemiological studies, because they require making the assumption that chemicals behave similarly in different species." Hall & Silbergeld, "Reappraising Epidemiology: A Reponse to Mr. Dore," 7 Harv. Envtl. L. Rev. 441, 442-43 (1983). Dr. Silbergeld further notes that "[a]nimal studies are aimed at discovering a dose-response relationship, while epidemiological studies show an association between exposure and disease." Id. at 443 n.18.

There is no evidence that plaintiffs were exposed to the far higher concentrations involved in both the animal and industrial exposure studies. Cf. In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 782 (E.D.N.Y. 1984). The animal studies are not helpful in the instant case because they involve different biological species. They are of so little probative force and are so potentially misleading as to be inadmissible. See Fed. R. Ev. 401-403. They cannot be an acceptable predicate for an opinion under Rule 703. See In re "Agent Orange" Product Liability Litigation, 603 F.Supp. 239, 247 (E.D.N.Y. 1985).

2. Admissibility of Expert Opinion Under Rule 702

Rule 702 of the Federal Rules of Evidence provides for opinion testimony by experts "if scientific, technical or other specialized knowledge will assist the trier of fact to determine a fact in issue" and the witness is "qualified as an expert by knowledge, experience, training or education." The court must first determine whether the expert is sufficiently qualified in his or her field to be allowed to testify. Frazier v. Continental Oil Co., 568 F.2d 378, 383 (5th Cir. 1978). The court must also

determine whether the proffered evidence would be helpful to the trier of fact, although doubts should be resolved in favor of admissibility. In re Japanese Electronic Products Antitrust Litigation, 723 F.2d 238, 279 (3d Cir. 1983), cert. granted, 105 S.Ct. 1863 (1985); see also Kline v. Ford Motor Co., Inc., 523 F.2d 1067, 1070 (9th Cir. 1975) (within discretion of trial judge to determine whether expert opinion on causal connection between defects in steering column and auto accident was helpful).

Until recently the assumption of the Federal Rules favoring admissibility was sometimes applied with less force in cases involving novel scientific evidence. Cf. Rule 102 of Federal Rules of Evidence. Once governed by the Frye test of general acceptance in the relevant scientific community, Frye v. United States, 293 F. 1013 (D.C. Cir. 1923), the assessment of novel testimony now involves a balancing of the relevance, reliability, and helpfulness of the evidence against the likelihood of waste of time, confusion and prejudice. United States v. Downing, 753 F.2d 1224 (3d Cir. 1985); United States v. Williams, 583 F.2d 1194, 1198 (2d Cir. 1978), cert. denied, 439 U.S. 1117, 99 S.Ct. 1025, 59 L.Ed.2d 77 (1979). But cf. Note, "Expert Testimony Based on Novel Scientific Techniques:

Admissibility Under the Federal Rules of Evidence," 48 Geo. Wash. L. Rev. 774 (1980) (arguing that a modified Frye test is preferable to balancing adopted in Williams).

Courts abandoning Frye stress Rule 702's liberal attitude towards the admissibility of relevant expert testimony whenever it would be helpful to the trier. When either the expert's qualifications or his testimony lie at the periphery of what the scientific community considers acceptable, special care should be exercised in evaluating the reliability and probative worth of the proffered testimony under Rules 703 and 403. See Downing, supra, 753 F.2d at 1239 (qualifications and professional stature of expert as well as non-judicial uses to which the scientific technique is put may constitute circumstantial evidence of the technique's reliability); cf. Huber, "Safety and the Second Best: The Hazards of Public Risk Management in the Courts," 85 Colum. L. Rev. 277, 333 (1985) ("a Ph.D. can be found to swear to almost any 'expert' proposition, no matter how false or foolish").

(a) Admissibility of Dr. Singer's Testimony

(i) Qualifications as an Expert. Federal Rule 702 embodies a liberal policy towards qualification as an expert. The court makes the determination based on the witness' actual qualifications and knowledge of the subject matter and not his title. Mannino v. International Manufacturing Co., 650 F.2d 846, 851 (6th Cir. 1981). Thus, it is not determinative that Dr. Singer is not an epidemiologist.

It is disturbing that Dr. Singer has shown no great interest in the subject of critical importance in this case. He does not belong to any epidemiological societies. Cf. Kubs v. United States, 537 F.Supp. 560, 562 (E.D. Wisc. 1982) (peer review important). Apparently his only publication after eighteen years of practice is a co-authored article addressing leukemia therapy--a subject far removed from the population-based studies Dr. Singer purports to rely upon in his affidavit. See Black and Lilienfeld, supra, at 775 (arguing that a medical doctor should be allowed to testify on toxic tort causation "only if he could demonstrate knowledge of epidemiology."). He does, nevertheless, have a distinguished record as practitioner and teacher. In keeping with the spirit of rule 702, Dr. Singer will be considered an expert although

obviously he would not be held in the same esteem on the critical issue of causation and the effects of toxic substances as Dr. Epstein or some of the other experts relied upon by plaintiffs and defendants.

(ii) Helpfulness. Dr. Singer's testimony addresses one of the most hotly contested issues in the protracted Agent Orange litigation--causation--and would therefore assist the trier of fact. Breidor v. Sears, Roebuck and Co., 722 F.2d 1134, 1139 (3d Cir. 1983). His general scientific technique consists of making an inference from epidemiologic data and animal studies that the particular plaintiff considered by him suffers from an affliction causally connected to Agent Orange exposure. This technique has been accepted by a sufficient number of courts to allow judicial notice to be taken of its general acceptance. See Federal Rules of Evidence, Rule 201; United States v. Downing, 753 F.2d 1224, 1237 (3d Cir. 1985). The method of drawing inferences employed by Dr. Singer could withstand the flexible approach to Rule 702 admissibility followed in the Second and Third Circuits. See Downing, supra, at 1240; United States v. Williams, 583 F.2d 1194 (2d Cir. 1978), cert. denied, 439 U.S. 1117, 99 S.Ct. 1025, 59 L.Ed.2d 77 (1979). Acceptability of the scientific

technique under Rule 702 does not, as indicated *infra*, assure the testimony's compliance with the requirements of Rules 703 and 401 to 403.

(b) Admissibility of Dr. Epstein's Testimony

Ample authority exists for refusing to consider the untimely affidavits of Dr. Epstein. *See*, *e.g.*, *Tabatchnick* v. *G. D. Searle & Co.*, 67 F.R.D. 49, 55 (D. N.J. 1975); *cf*. *Marx & Co., Inc.* v. *Diners' Club, Inc.*, 550 F.2d 505, 508 n.9 (2d Cir.) (prejudicial effect of inadmissible testimony heightened by its untimely and surprise nature), *cert*. *denied*, 434 U.S. 861, 98 S.Ct. 188, 54 L.Ed.2d 134 (1977). Nevertheless, the court has considered it in deference to the policy of deciding cases on the merits where that is possible. *See* Fed. R. Civ. Pro. 1.

Dr. Epstein's affidavits and deposition demonstrate that his testimony would meet the standards of Rule 702. He is clearly a highly qualified expert in the field, his testimony meets the helpfulness requirement, and his analytical technique--inference from epidemiological data and medical records--is acceptable. Just as in the case of Dr. Singer's testimony, however, compliance with

Rule 702 does not guarantee admissibility under Rules 703 and 403.

3. Rule 703

Rule 703 of the Federal Rules of Evidence attempts to delimit the bases upon which an expert may rely in testifying to those "reasonably relied" upon "by experts in the field." It provides:

> The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to him at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence.

Neither Dr. Singer nor Dr. Epstein based his conclusions on observations. But cf. Dep. of Dr. Epstein at 16 ("I had some conversations with the clients"--none of whom is apparently involved in the opt-out cases now before the court); documents at Dep. 474 ff. Rather, each one relied almost wholly upon the specific anecdotal written information supplied by the plaintiffs and upon general studies and literature.

The trial court must decide whether this data is of a type reasonably relied upon by experts in the field. Rule 104(a), Federal Rules of Evidence. See State v. Rolls, 389 A.2d 824, 829-30 (Me. 1978) (relying on Federal Rule of Evidence 703 to interpret Maine's equivalent Rule).

Courts have adopted two general approaches to Rule 703: one restrictive, one liberal. Arnolds, "Federal Rule of Evidence 703: The Back Door is Wide Open," 20 The Forum; Tort and Insurance Practice Section, American Bar Association 1, 7 (Fall 1984). The more restrictive view requires the trial court to determine not only whether the data are of a type reasonably relied upon by experts in the field, but also whether the underlying data are untrustworthy for hearsay or other reasons. The more liberal view, best represented by In re Japanese ElectronicProducts Antitrust Litigation, 723 F.2d 238 (3d Cir. 1983), cert. granted, 105 S.Ct. 1863 (1985), allows the expert to base an opinion on data of the type reasonably relied upon by experts in the field without separately determining the trustworthiness of the particular data involved. Arnolds, supra, at 7.

Although the Second Circuit has not squarely addressed this issue, there is some indication that it would adopt a narrower view than that espoused by the Third Circuit. In Shatkin v. McDonnell Douglas Corp., 727 F.2d 202 (2d Cir. 1984), the panel alluded to a trial court's "discretionary right under Fed. R. Evid. 703 to determine whether the expert acted reasonably in making assumptions of fact upon which he would base his testimony," id. at 208, and cited with apparent approval the restrictive approach outlined in Zenith Radio Corp. v. Matsushita Electric Industrial Co., Ltd., 505 F.Supp. 1313 (E.D. Pa. 1981), before it was affirmed in part and reversed in part sub nom. In re Japanese Electronic Products Antitrust Litigation, 723 F.2d 238 (3d Cir. 1983), cert. granted, 105 S.Ct. 1863 (1985). The trial court had developed its own set of standards for determining reasonable reliance, but the Court of Appeals for the Third Circuit found these standards too restrictive.

In reversing, the Third Circuit found the trial court had erred in ignoring the "unequivocal and uncontradicted affidavits" from the experts that the materials they had relied upon were of a type reasonably relied upon by experts in their respective fields. Id.

at 276. The trial court, the Court of Appeals appropriately noted, must make a factual inquiry under Federal Rule of Evidence 104(a) to determine what data experts find reliable. The district court should not, however, have substituted its own views of "reasonable reliance" for those of the experts. Id. at 277.

Even assuming the Second Circuit would agree with the more permissive approach of the Court of Appeals in Japanese Electronic Products, the Third Circuit did not dispute that "'the assumptions which form the basis for the expert's opinion, as well as the conclusions drawn therefrom, are subject to rigorous examination.'" Id. (quoting Zenith, 505 F.Supp. at 1328). See also Wilder Enterprises, Inc. v. Allied Artists Pictures Corp., 632 F.2d 1135, 1143-44 (4th Cir. 1980) (expert's testimony properly excluded under Rule 703 where no facts presented to support his calculations nor any proof that underlying data was of a type reasonably relied upon by experts in the field); Carlson, "Collision Course in Expert Testimony: Limitations on Affirmative Introduction of Underlying Data," 36 U. Fla. L. Rev. 234, 240-41 & n.26 (1984) (trial court tests appropriateness of expert's reliance upon out-of-court data). "Rigorous examination" is especially important in the mass

toxic tort context where presentation to the trier of theories of causation depends almost entirely on expert testimony.

"Though courts have afforded experts a wide latitude in picking and choosing the sources on which to base opinions, Rule 703 nonetheless requires courts to examine the reliability of those sources." Soden v. Freightliner Corp., 714 F.2d 498, 505 (5th Cir. 1983). The trial court's examination of reasonable reliance by experts in the field requires at least that the expert base his or her opinion on sufficient factual data, not rely on hearsay deemed unreliable by other experts in the field, and assert conclusions with sufficient certainty to be useful given applicable burdens of proof. Courts must undertake this inquiry while taking care not to infringe upon the fact-finder's role of assessing the weight of the expert testimony. Poller v. Columbia Broadcasting System, Inc., 368 U.S. 464, 473, 82 S.Ct. 486, 491, 7 L.Ed.2d 458 (1962).

(a) Reliance on Inadmissible Evidence

Rule 703 permits experts to rely upon hearsay. The guarantee of trustworthiness is that it be of the kind

normally employed by experts in the field. The expert is assumed, if he meets the test of Rule 702, to have the skill to properly evaluate the hearsay, giving it probative force appropriate to the circumstances. Nevertheless, the court may not abdicate its independent responsibilities to decide if the bases meet minimum standards of reliability as a condition of admissibility. See Fed. R. Ev. 104(a). If the underlying data is so lacking in probative force and reliability that no reasonable expert could base an opinion on it, an opinion which rests entirely upon it must be excluded. Fed. R. Ev. 401, 402. The jury will not be permitted to be misled by the glitter of an expert's accomplishments outside the courtroom. Fed. R. Ev. 403; see also, e.g., United States v. Esle, 743 F.2d 1465, 1474 (llth Cir. 1984) (expert opinion based on untrustworthy market surveys); Barrel of Fun, Inc. v. State Farm Fire & Casualty Co., 739 F.2d 1028, 1033 (5th Cir. 1984) (unreasonable for expert to rely upon voice stress analysis); United States v. Cox, 696 F.2d 1294, 1297 (llth Cir.) (affirming exclusion of expert testimony that was based on hearsay knowledge of historical events not reasonably relied upon by experts in the field), cert. denied, 104 S.Ct. 99, 78 L.Ed.2d 104 (1983); Soden v. Freightliner Corp., 714 F.2d 498, 503-06 (5th Cir. 1983) (exclusion of expert opinion based on

unreliable accident statistics); Dallas & Mavis Forwarding Co., Inc. v. Stegall, 659 F.2d 721, 722 (6th Cir. 1981) (testimony of state trooper offered as an expert regarding cause of accident based on story of biased eye witness "the sort of hearsay testimony" Rule 703 meant to foreclose); Toys "R" Us, Inc. v. Canarsie Kiddie Shop, Inc., 559 F.Supp. 1189, 1205 (E.D.N.Y. 1983) (excluding expert opinion based on surveys lacking "sufficient indicia of trustworthiness" under Rule 703).

In In re Swine Flu Immunization Products Liability Litigation, 508 F.Supp. 897 (D. Colo. 1981), aff'd sub nom. Lima v. United States, 708 F.2d 502 (10th Cir. 1983), a case that resembles the one now before the court, the trial judge struck the testimony of one of plaintiff's experts. In formulating his opinion that plaintiff's Guillian-Barre Syndrome ("GBS") was caused by a swine flu vaccination, the doctor had relied on two exhibits. One, compiled by plaintiff's attorney, was a summary of all GBS cases treated in Colorado hospitals from October 1976 until August 1977. The other also reported on GBS cases in Colorado during the same time period, but relied instead on data retrieved from a computer listing, the International Classification of Diseases Adapted. This code listed diseases other than GBS,

which the court noted is an extremely difficult disease to diagnose, and medical clerks decided which of the diseases listed actually were GBS. 508 F.Supp. at 903.

The court excluded the doctor's testimony because the underlying data was "based upon hearsay evidence not reasonably relied upon by experts in neurology and epidemiology" and was "of a rudimentary nature." Id. at 904. Although the doctor himself claimed that epidemiologists would rely on information of the type gathered by the medical clerks, two other experts disagreed. They stated that the medical clerks were incapable of judging which of the listed diseases were in fact GBS and so had overstated the incidence of the disease.

O'Gee v. Dobbs Houses, Inc., 570 F.2d 1084 (2d Cir. 1978), is not to the contrary. There, the court affirmed the admissibility of testimony by a physician retained for the litigation who had seen plaintiff more than four years after her accident. The physician was allowed to testify not only to what plaintiff had told him about her injuries, but also to what she had told him about her prior physicians' conclusions. The physician stated, however, that he was relying not on plaintiff's statements alone; he

I had before him the reports of at least two of the prior treating physicians and the hospital records. The Second Circuit found no abuse of discretion in admitting the physician's opinion, but observed:

> [W]hile expert witnesses are to be permitted to explain the basis of their opinions, we do not here decide that that leeway extends to the kind of multiple hearsay that would have been present here in the absence of the doctors' reports.

, Id. at 1089; see also Slaughter v. Abilene State School, 561 S.W. 2d 789, 791 (Tex. 1977) (doctor's testimony predicated upon both hearsay and personal knowledge admissable); Smith v. Tennessee Life Insurance Co., 618 S.W.2d 829, 832 (Tex. Civ. App. 1981) ("report of private investigators is not * * * the type of hearsay data that a doctor can rely upon in forming his expert opinion").

Reliance on patient statements to render a medical opinion is usually justified as trustworthy because patients have a strong incentive to tell their treating physician the truth--the desire to recover. Rheingold, "The Basis of Medical Testimony," 15 Vand. L. Rev. 473, 495 (1962). While this indicia of trustworthiness was absent in the O'Gee case, supra, the medical records provided ample

corroboration. Cf. Ferebee v. Chevron Chemical Co., 736 F.2d 1529, 1535 (D.C. Cir.) (treating physicians' reliance on test results and physical examination of patient to conclude his illness caused by exposure to paraquat), cert. denied, 105 S.Ct. 545, 83 L.Ed.2d 432 (1984). Necessity is also a consideration in justifying reliance on hearsay to render expert advice. United States v. Aluminum Co. ofAmerica, 35 F.Supp. 820 (S.D.N.Y. 1940); Maguire & Hahesy, "Requisite Proof of Basis for Expert Opinion," 5 Vand. L. Rev. 432, 446-47 (1952).

(i) Dr. Singer

Plaintiffs' checklists and "affidavits," illustrated by Appendix "A" to this opinion, submitted with Dr. Singer's affidavits are not material that experts in this field would reasonably rely upon and so must be excluded under Rule 703. Although the court would usually hold a full Rule 104(a) hearing prior to making such a determination, the unreasonableness of Dr. Singer's affidavits is so blatant that a hearing would be useless. The court takes judicial notice--based on hundreds of trials--that no reputable physician relies on hearsay checklists by litigants to reach a conclusion with respect

to the cause of their afflictions. See United States v. Downing, 753 F.2d 1224, 1238 n.18 (3d Cir. 1985); cf. Mannino v. International Manufacturing Co., 650 F.2d 846, 853 (6th Cir. 1981) (experts often rely on studies, literature and tests in testifying).

It is significant that none of plaintiffs' experts assert that they normally rely on hearsay checklists such as those in Appendix "A" in reaching conclusions as to the causes of their patients' illnesses. Compare In re Japanese Electronic Products Antitrust Litigation, 723 F.2d 238, 277 (3d Cir. 1983), cert. granted, 105 S.Ct. 1863 (1985). The bald assertion of plaintiffs' counsel that Dr. Singer's affidavit was "based upon the kind of information which any treating or examining physician would require in rendering an opinion" does not suffice. See Tr. at 64 (April 15, 1985). Instead, courts look to evidence from experts in the field as to the reliability of the materials in question, In re Japanese Electronic Products, supra, 723 F.2d at 277, as well as their own experience and common sense.

Here we have statements of problems ranging from baldness to the most serious cancers. It verges on the absurd to use affidavits such as those in Appendix "A" to

determine both disease and cause. While courts allow reliance on patient statements, they are based upon a personal history corroborated by medical records, a physical examination and medical tests. O'Gee v. Dobbs Houses, Inc., 570 F.2d 1084 (2d Cir. 1978). See also Rheingold, "The Basis of Medical Testimony," 15 Vand. L. Rev. 473, 488 (1962).

No case cited by plaintiffs has gone so far as to allow a doctor to rely on such self-serving laypersons' general affidavits and checklists prepared in gross for a complex litigation. The influence of glimmering gold at the end of the litigation is particularly evident in the affidavits signed by plaintiffs' counsel. See Appendix "A." These affidavits resemble the compilations ruled inadmissible in the swine flu case discussed earlier. See In re Swine Flu Immunization Products Liability Litigation, 508 F.Supp. 897, 903 (D. Colo. 1981), aff'd sub nom. Lima v. United States, 708 F.2d 502 (10th Cir. 1983). There, medical clerks were held unqualified to determine which diseases were actually GBS. Here, plaintiffs and their counsel are even less qualified to determine the nature and cause of their afflictions.

Plaintiffs may argue that Dr. Singer's reliance upon such checklists was necessary in light of the size of this litigation and the number of parties involved. Yet, after six years of litigation, it does not seem too much to expect plaintiffs' counsel to have obtained more persuasive medical and other records. In any event, necessity justifies reliance on such blatant hearsay only when "the surroundings" convince the court that the data relied upon is otherwise truthworthy. United States v. Aluminum Co. of America, 35 F.Supp. 820, 823 (S.D.N.Y. 1940).

Here, the usual inducement to candor with a physician--the hope of successful treatment or diagnosis--was wholly lacking. Cf. Fed. R. Ev. 803(4). Instead, plaintiffs had every incentive to be overinclusive in describing their symptoms, as an examination of one of their checklists makes clear. See Appendix "A."

(ii) Dr. Epstein

Dr. Epstein's affidavits on individual causation are not as vacuous as are Dr. Singer's. Dr. Epstein, while not a treating physician, purports to rely at least in part on medical and military records to corroborate the extent of

; plaintiffs' exposure and the nature of their illnesses. See O'Gee v. Dobbs Houses, Inc., 570 F.2d 1084, 1089 (2d Cir. 1978); cf. Johnston v. United States, 597 F.Supp. 374, 406 (D. Kan. 1984) (noting plaintiff's failure to call his treating physicians).

It is significant that no medical records of any of the nearly 300 opt-out plaintiffs have been submitted by plaintiffs. Nor are there any affidavits or letters from any treating or examining physicians. There is nothing from any person who has even seen a plaintiff and observed any medical condition. No scrap of verification of a single plaintiff's claim is supplied by plaintiffs. The only material remotely resembling what would be required was elicited, over plaintiffs' attorney's objection, at Dr. Epstein's deposition. See, e.g., Dep. at 16, 40-41, 76-78, 136, 474 ff; Appendix "B" to Defendants' Supplemental Memorandum in Opposition to Plaintiffs' Motion for Partial Summary Judgment and Reply Memorandum in Further Support of Defendants' Motion to Dismiss And/or for Summary Judgment.

Dr. Epstein relies in the main on the same self-serving hearsay used by Dr. Singer. In all of the

individual affidavits, Dr. Epstein bases his finding of exposure to Agent Orange on such plaintiffs' statements:

> I was exposed to Agent Orange. I was sprayed with Agent Orange. I saw the spraying of Agent Orange. I entered defoliated areas. I consumed local food. I drank local water.

As in the case of the studied failure to support any medical claim, there is no support for exposure: no place, no date, no circumstance is given.

Given the difficulty of determining dose-response relationships in toxic tort situations, cf. Ferebee v. Chevron Chem. Co., 736 F.2d 1529 (D.C. Cir.), cert. denied, 105 S.Ct. 545, 83 L.Ed.2d 432 (1984); Allen v. United States, 588 F.Supp. 247 (D. Utah 1984), the amount and existence of exposure to Agent Orange may be critical under plaintiffs' theory of causation. Claims of exposure without detail cannot suffice. Such analyses as those based on HERBS tapes of spraying missions and personnel locations seem necessary. See, e.g., Analysis of Drs. Stellman referred to in Appendix "J" of Special Master Feinberg's Report to the court dated February 27, 1985. Reference to the Veterans Administration's Agent Orange Registry does not alleviate the hearsay problem since placement in the

Registry is based on plaintiffs' complaints, not medical records or results of an examination. Even if the examination is negative, the veteran's name is carried in the Registry. Nor is it dispositive that most or all of these fifteen plaintiffs were field soldiers.

Dr. Epstein also relies on unverified hearsay information regarding plaintiffs' personal habits and possible exposure to toxic substances other than Agent Orange. How much a plaintiff smokes and whether he has been exposed to other harmful substances are crucial to the issue of causation.

Dr. Epstein relies on the sparsest medical records in concluding no family history of the disease in question exists as to some of the plaintiffs he considers. The fact that a family history is not recorded in such medical records does not show the nonexistence of family history.

Plaintiffs have submitted no evidence that other physicians would rely upon material of this kind in reaching a medical conclusion as to causation.

To the extent Dr. Epstein has reviewed plaintiffs' medical records, he relies on them only to show that the disease complained of did not manifest itself prior to service in Vietnam. Temporal sequence is not, of course, the equivalent of causation. We must, as Dr. Epstein concedes, recognize the huge array of carcinogens and other harmful substances other than Agent Orange that people are exposed to--whether in Vietnam or in this country.

Even were we to ignore the deficiencies outlined above, it is a fatal flaw in Dr. Epstein's material, as in Dr. Singer's, that no account is taken of the relative degree of specific health problems of those exposed to Agent Orange as compared with those not exposed. All the studies to date indicate no significant differences.

(b) The Requirement of "Sufficient Basis"

Courts excluding expert opinion as not based on data reasonably relied upon in the field often note that the expert's conclusions are speculative or unfounded in fact. This was the approach of Judge Skelly Wright in Merit Motors, Inc. v. Chrysler Corp., 569 F.2d 666 (D.C. Cir. 1977), a complex antitrust case. To establish the requisite

antitrust injury plaintiffs relied almost exclusively on their expert's report which set forth a theory of "inherent" economic effect. Id. at 671. Judge Wright, for the court, approved the trial court's grant of summary judgment, finding that the expert had made "unsupported assumptions about the elasticities of demand in various markets and that he virtually ignore[d] the impact of the dominant forces in the automobile market: General Motors and Ford." Id. at 673; see also Barris v. Bob's Drag Chutes & Safety Equipment, Inc., 685 F.2d 94, 101-02 n. 10 (3d Cir. 1982) (trial court properly excluded expert testimony as to strength of fibers in harness where no showing that expert relied on facts or data from plaintiff's other expert); United States v. Various Slot Machines on Guam, 658 F.2d 697, 700 (9th Cir. 1981) (summary judgment appropriate where opposition to motion consisted of expert opinions merely asserting without factual basis that certain slot machines were not gambling machines).

Similarly, in Pennsylvania Dental Association v. Medical Service Association, 745 F.2d 248 (3d Cir. 1984), cert. denied, _____ S.Ct. _____ (April 15, 1985), the Third Circuit affirmed the exclusion of an expert's opinion lacking any factual predicate in the record. In attempting

to define the relevant market for purposes of establishing an antitrust violation, plaintiffs' expert made a number of conclusory statements not based on any evidence in the record. Id. at 261-62 n.7. The appellate court affirmed under Rule 703 and the Merit Motors case, finding the affidavit insufficient to create a material issue of fact.

Instructive is the way courts address the problem of expert opinions insufficiently based on facts in the context of deciding appropriate damages. Thus in Shu-Tao Lin v. McDonnell Douglas Corp., 742 F.2d 45 (2d Cir. 1984), the Second Circuit found that the trial below had been incurably tainted by an expert's "lengthy, extravagant, and non-probative projections of * * * future income." Id. at 49. The trial court had undertaken a detailed analysis of the expert opinion in deciding the question of remittitur, concluding that the expert's projection that decedent's income would have vastly increased was based only on "unclear tax records." 574 F.Supp. 1407, 1410 (S.D.N.Y. 1983). Nor did the expert offer any studies or empirical data as a basis for his conclusion about the projected increase. Id. See also Shatkin v. McDonnell Douglas Corp., 727 F.2d 202, 208 (2d Cir. 1984) (affirming district court's exclusion of testimony that contained "assumptions and

assertions * * * so unrealistic and contradictory as to suggest bad faith"; same expert as testified in Shu Tao Lin, supra.); Drayton v. Jiffee Chemical Corp., 591 F.2d 352, 364 (6th Cir. 1978) ("no reasonable person would, in the ordinary affairs of life, act upon the astronomical projections and assumptions made by plaintiffs' expert * * *."); Scheel v. Conboy, 551 F.2d 41, 43 (4th Cir. 1977) (rejecting unfounded assumptions in expert opinion on future economic loss); McFarland v. Gregory, 425 F.2d 443, 448 (2d Cir. 1970) (affirming exclusion of expert's testimony where he had no knowledge of property in question and his conclusions were conjectural); cf. Arkansas State Highway Commission v. Roberts, 246 Ark. 1216, 441 S.W.2d 808, 811-12 (1969) (expert evidence regarding value of certain condemned land rejected as unfounded in fact).

Experts must ground their opinions on verifiable propositions of fact in commercial cases as well as tort actions. For example, in DiRose v. PK Management Corp., 691 F.2d 628 (2d Cir. 1982), cert. denied, 461 U.S. 915, 103 S.Ct. 1896, 77 L.Ed.2d 285 (1983), the Second Circuit rejected the testimony of plaintiff's expert on valuation as "simplistic" and granted a new trial. Id. at 631. The

court wrote: conclusions that "rest upon conclusory and subjective opinions will not suffice." Id. at 632.

Courts are particularly wary of unfounded expert opinion when causation is the issue. In Tabatchnick v. G. D. Searle & Co., 67 F.R.D. 49 (D.N.J. 1975), the court refused to allow the testimony of plaintiff's expert that an oral contraceptive caused certain adverse neurological effects. The expert relied in part on the notion that the symptoms stopped when plaintiff discontinued use of the pill, yet the testimony had been that the symptoms continued for some time. Id. at 55. Labelling the expert's opinion a "bare conclusion," the court admonished that careful screening of expert testimony on causation was "especially important when the subject is emotionally charged, as it is here." Id.; see also Cunningham v. Rendezvous, Inc., 699 F.2d 676, 678 (4th Cir. 1983) (under Rule 703, expert on cause of ship's sinking properly limited to hypotheses "supported by or consistent with the evidence"); Horton v. W. T. Grant Co., 537 F.2d 1215, 1218 (4th Cir. 1976) (affirming refusal to admit expert testimony on whether design defect of television set caused fire where no showing that set expert used to reach conclusions had not been previously tampered with); Gilbert v. Gulf Oil Corp., 175

F.2d 705, 709 (4th Cir. 1949) ("expert testimony may not be received unless it appears that the witness is in possession of such facts as would enable him to express a reasonably accurate conclusion as distinguished from guess or conjecture"); compare Bieghler v. Kleppe, 633 F.2d 531 (9th Cir. 1980) (denying summary judgment where accident reconstruction expert's affidavit, which was based on visits to the site, discussions with plaintiffs, and examination of motorcycle involved, unequivocally concluded that defendant's negligence caused accident).

Because the rational basis for rules of evidence requires the rejecting of inadequately supported expert testimony, state courts follow the same practice as federal courts. For example, in State v. Tyler, 77 Wash.2d 726, 466 P.2d 120, 137 (1970), vacated on other grounds, 408 U.S. 937, 92 S.Ct. 2865, 33 L.Ed.2d 756 (1972), the Supreme Court of Washington found that the two psychiatrists whose opinion testimony was offered to show lack of criminal intent had no reasonable medical knowledge upon which to base an opinion. The doctors had no knowledge of the quantities, strengths or dosages of cocaine, amphetamines, Dexamyl, marijuana and LSD ingested by defendant or of the intervals in which they were taken. The experts had not examined the accused directly

before or after the commission of acts allegedly committed under the drugs' influence. Without any facts on which to base their opinions with reasonable medical certainty, the Supreme Court found that the doctors' testimony had been properly excluded as speculative and argumentative. See also Brugh v. Peterson, 183 Neb. 190, 159 N.W.2d 321 (1968) (error to admit the opinion of plaintiff's expert on speed of vehicle because it depended on the resolution of many variables, rested on assumptions and amounted to mere statement of possibility).

As these cases illustrate, the testimony of Doctors Singer and Epstein is insufficiently grounded in any reliable evidence. Framing Dr. Singer's testimony as a hypothetical does not defeat the need for an adequate basis. Cunningham v. Rendezvous, Inc., 699 F.2d 676, 678 (4th Cir. 1983). The conclusions Doctors Singer and Epstein reach are also insufficient as a basis for a finding of causality because they fail to consider critical information, such as the most relevant epidemiologic studies and the other possible causes of disease. "[E]ven if a witness is eminently qualified, even if there is merit to his views, and even if F.R. Evid. 702, 703, 704 and 705 are most liberally interpreted, there must be and ought to be

some reliable factual basis on which the opinions are premised." Johnston v. United States, 597 F.Supp. 374, 401 (D. Kan. 1984).

Dr. Epstein's lengthy master affidavit and Dr. Singer's affidavits contain numerous references to mostly unidentified studies on the effects of exposure to TCDD on animals and on workers after industrial accidents. As already noted, such studies involve doses of dioxin far more concentrated than those alleged to have been inflicted upon any of the veterans. In re "Agent Orange" Product Liability Litigation, 597 F. Supp. 740, 783 (E.D.N.Y. 1984). Neither doctor analyzes the epidemiological studies conducted on Vietnam Veterans. The doctors' failure to consider and discuss the studies that address the actual population and amount of exposure involved in this lawsuit confirms the conclusion that their opinions are legally incompetent.

Central to the inadequacy of plaintiffs' case is their inability to exclude other possible causes of plaintiffs' illnesses--those arising out of their service in Vietnam as well as those that all of us face in military and civilian life. For example, the largest number of

plaintiffs considered by Dr. Singer suffer from symptoms such as exhaustion, depression, sleep disturbances, anxiety and anger. He concludes that these symptoms are "compatible with" exposure to dioxin. As scientific literature establishes, such symptoms are also frequently identified with Vietnam stress syndrome due to battle and other military stresses. DeFazio, "Dynamic Perspectives on the Nature and Effects of Combat Stress" in Stress Disorders Among Vietnam Veterans; Theory, Research and Treatment 23 (C. Figley, ed. 1978); Shatan, "Stress Disorders Among Vietnam Veterans: The Emotional Content of Combat Continues" in id. 43 (both articles on file as subject to court's judicial notice). The onset of stress syndrome may be delayed and the symptoms may persist for decades. DeFazio, supra, at 34-35. Dr. Singer in no way rules out stress syndrome as the cause of plaintiffs' neurological symptoms.

Similarly, Dr. Singer has no basis for concluding that the affiants' dermatological difficulties result from exposure to Agent Orange. While many plaintiffs have become bald since leaving Vietnam, baldness is often a natural part of aging. C. Vallis, Hair Transplantation for the Treatment of Male Pattern Baldness 45 (1982) ("[i]n normal men

!i advancing age is accompanied by an increase in the incidence and extent of baldness.") (on file as subject to court's judicial notice). Similarly, with respect to dermatitis one source notes:

> There are many forms and many causes. Dermatitis may be caused by inhaling, eating, or touching substances to which the person is allergic. It may be initiated by infection, by exposure to the sun, by poisons, by the application of certain medicinal preparations, by injury, by certain plants (as poison ivy), by exposure to x-rays or radium rays, etc.

J.E. Schmidt, 1 Attorneys' Dictionary of Medicine, at D-25-26 (1977).

Both Doctors Singer and Epstein attribute plaintiffs' lymphatic difficulties to Agent Orange exposure. Neither considers the possibility that these plaintiffs suffer from filariasis, a disease affecting the lymphatic system which is caused by tropical worms prevalent in Vietnam. Lawsuits have recently been brought in this court seeking to hold the government liable for the failure to treat this disease in Vietnam veterans. See, e.g., Bernagozzi v. United States, No. 85-CV-1121 (E.D.N.Y. filed Mar. 25, 1985); Hartman v. United States, No. 85-CV-1122

(E.D.N.Y. filed Mar. 25, 1985); Naples v. United States, No. 85-CV-1123 (E.D.N.Y. filed Mar. 25, 1985) (all subject to court's judicial notice).

Plaintiffs' experts also opine that exposure to Agent Orange has caused the various liver diseases indicated in the checklists. Compare Tr. at 179-80 (March 5, 1985) (no causal relationship between cirrhosis of the liver and Agent Orange exposure) (remarks of Plaintiffs' Management Committee member David Dean). Dr. Singer does not indicate whether the plaintiffs whose cirrhosis of the liver he attributes to Agent Orange are or were heavy alcohol consumers. See T. Chen & P. Chen, Essential Hepatology 185 (1977) ("[c]irrhosis of all types ranked seventh among the leading causes of mortality in 1973, accounting for 33,000 deaths. Cirrhosis due to alcoholism predominates in the United States * * *.") (on file as subject to court's judicial notice). The undifferentiated hepatitis described by plaintiffs may be caused by alcohol consumption as well as by many other factors in civilian life, including eating contaminated shellfish and blood transfusions. See, e.g., Chen & Chen, supra, at 181-82 (alcohol). Of the plaintiffs with hepatitis considered by Dr. Epstein, one admittedly is a "moderate drinker"; the other has a history of alcohol

abuse; and the full alcohol history of any of the plaintiffs has not been explored by Dr. Epstein. Dr. Singer does not discuss the alcohol consumption or other life experiences of the affiants he assumes have hepatitis.

Dr. Singer's failure to discuss the individual plaintiffs' medical histories and personal habits is endemic to his analysis. He does not consider alternative possible causes of illness, even when those potential causes are admitted by the plaintiffs themselves in their affidavits. As the defendants have pointed out without contradiction, certain plaintiffs admit that (a) they smoke several packs of cigarettes a day, (b) they have been exposed to polychlorinated biphenyls (PCBs), (c) they have taken various drugs (Darvon, Donnatol, marijuana), (d) they have suffered from certain conditions (diabetes, malaria, veneral disease, goiter) that they do not claim are related to exposure to Agent Orange, but which are related to other adverse health conditions, and (e) they drink large quantities of alcohol (e.g., 42 beers a week). For example, one plaintiff affiant, James H. Yarborough, claims to suffer from tuberculosis as a result of exposure to Agent Orange, while admitting to a family history of tuberculosis.

Dr. Singer still concludes that his tuberculosis was caused by Agent Orange exposure.

On the issue of cancer, Dr. Epstein has himself acknowledged that the approach he uses in Agent Orange of ignoring all other possible causes of illness is invalid. In his treatise, The Politics of Cancer, Dr. Epstein writes:

> Cancer is now a killing and disabling disease of epidemic proportions. More than 53 million people in the United States (over a quarter of the population) will develop some form of cancer, from which approximately 20 percent of the U.S. population will die. It is estimated that 765,000 new cancer cases will be diagnosed in 1979, and there will be 395,000 cancer deaths. Cancer deaths this year alone were about five times higher than the total U.S. military deaths in all the Vietnam and Korean war years combined.
>
> Cancer strikes not only the elderly, but also other age groups, including infants. Among males, cancer is the second leading cause of death for all age groups except 15-34 years, where it is exceeded by violent deaths, accidents, homicide, and suicide.

S. Epstein, The Politics of Cancer 4 (Anchor Press ed. 1979) (on file as subject to court's judicial notice). He also cites with approval the conclusion of the "blue ribbon HEW draft document, 'Estimates of the Fraction of Cancer in the

United States Related to Occupational Factors,'" which states:

> Most cancers have multiple causes: It is a reductionist error and not in keeping with current theories of cancer causation to attempt to assign each cancer to an exclusive single cause.
>
> * * *
>
> Reasonable projections of the future consequences of past exposure to established carcinogens suggested that at least five of them (benzene, arsenic, chromium, nickel oxides, and petroleum fractions) may be comparable in their total effects to asbestos.
>
> * * *
>
> These projections suggest that occupationally related cancers may comprise as much as 20 percent or more of total cancer mortality in forthcoming decades. Asbestos alone will probably contribute up to 13-18 percent, and the data (on the other five carcinogens) suggest at least 10-20 percent more. These data do not include effects of radiation, or effects of a number of other known chemical carcinogens . Although exposure to some of the more important occupational carcinogens has been reduced in recent years, there are still many unregulated carcinogens in the U.S. workplaces; a number of occupations are characterized by excess cancer risks that have not yet been attributed to specific agents.
>
> * * *
>
> The conclusion that a substantial fraction of cancers in the United States are occupationally related is not inconsistent with conclusions that a substantial fraction of cancers are also associated with other factors, such as cigarette smoking and diet.

The Politics of Cancer at 376-78. Dr. Epstein recognizes, as he must, that cancer is ubiquitous in our society. He also acknowledges that the etiology of cancer, to the limited extent it is known, has been linked to numerous environmental, biological and genetic factors. See, e.g., id. at xv-xvii, 3. One of the main points in The Politics of Cancer is that daily exposure to environmental and occupational carcinogens must be recognized as a major source of cancer in the United States:

> Environmental factors incriminated as causes of human cancer encompass a wide range of influences including background and man-made radiation, smoking, naturally occurring plant, fungal, bacterial, and chemical carcinogens, and industrial chemical carcinogens contaminating air, water, food, consumer products, and the workplace.

Id. at 19.

Doctors Singer and Epstein identify a number of different kinds of cancer as resulting from Agent Orange exposure. In particular, seventeen plaintiffs suffer from Hodgkin's Disease. The doctors do not reveal the demographical characteristics of these particular plaintiffs.

It is well known that Hodgkin's Disease is more likely to occur in whites, males, and persons in certain age groups. See, Schottenfeld, "Epidemiology of Hodgkin's Disease" in Hodgkin's Disease 5 (M.J. Lacher ed. 1976); H. Kaplan, Hodgkin's Disease 24-29 (1972) (on file as subject to the court's judicial notice). There are roughly 7500 new cases of Hodgkin's disease per year in the United States. Frank, 13 Courtroom Medicine 8-58 (1984). The fact that seventeen of these persons happen to be Agent Orange plaintiffs proves nothing about the origin of their condition.

Many of the diseases and afflictions that the doctors attribute to Agent Orange exposure can be similarly analyzed. See "Disorders of the Gastrointestinal Tract, Disorders of the Liver, Nutritional Disorders" 68 (J. Dietschy ed. 1976), 1 The Science and Practice of Clinical Medicine (J. Sanford ed.) (on file as subject to the court's judicial notice) ("[a]cute diarrheal illness is a worldwide problem and no population or person is spared from its effects"). The point is that Doctors Singer and Epstein rely on hearsay checklists to garner essential facts about plaintiffs and on inapposite literature to reach their conclusions. They ignore more relevant studies and fail to show how the myriad illnesses at issue are more likely to

have been caused by Agent Orange than by something else. Such "conclusory and subjective opinions" cannot be considered admissible under Rule 703. DiRose v. P K Management Corp., 691 F.2d 628, 632 (2d Cir. 1982), cert. denied, 461 U.S. 915, 103 S.Ct. 1896, 77 L.Ed.2d 285 (1983). The doctors' unfounded insistence that Agent Orange caused these afflictions only exacerbates the already emotionally charged atmosphere of this case and requires exclusion under Rule 403 of the Federal Rules of Evidence. Tabatchnick v. G. D. Searle & Co., 67 F.R.D. 49, 55 (D.N.J. 1975).

The deposition of Dr. Epstein submitted by plaintiffs and also by defendants demonstrates that his fifteen individual affidavits contain material inaccuracies and sweeping generalizations that are not true. For example, the affidavits attribute all the "disease states" and "complaints" exclusively to Agent Orange exposure in Vietnam. Under examination, however, Dr. Epstein admitted that the "chronic skin rashes" that he listed in his specific affidavit in the Cockrell case are in fact unrelated to Agent Orange. Dep. at 281, 293, 305. He made the same admission with respect to the "chronic skin rashes" discussed in his affidavits submitted in connection with the

Loucks case (Dep. at 375), the Knight case (Dep. at 434, 438-39), the Prunty case (Dep. at 387), and the Clarke case (Dep. at 322). In addition, Dr. Epstein conceded that the "infertility" identified in his Clarke affidavit cannot in fact be attributed to Agent Orange. Id. He also retreated from the conclusion in his specific affidavit that two of plaintiff Johns' disease states--i.e., "cavernous angioma of the brain" and "bile duct microadenoma"--were caused by Agent Orange. Dep. at 165.

His deposition also shows that Dr. Epstein's conclusions are based on (1) incomplete or complete lack of knowledge of the family histories of the plaintiffs; (2) complete lack of knowledge concerning the geographical locations in which the plaintiffs lived; (3) incomplete or complete lack of knowledge concerning each plaintiff's occupational exposures; and (4) incomplete or complete lack of knowledge concerning the likelihood of exposure to Agent Orange in Vietnam.

Dr. Epstein made little if any effort to assess the possible environmental exposures to carcinogens experienced by the 15 plaintiffs from "a couple of hundred" he selected. Dep. at 18. In the case of Daniel Sweet, for

example, Dr. Epstein's disregard for exposure to other environmental carcinogens in arriving at his causation opinion is evident in his deposition:

> Q: Do you know any other substances to which Mr. Sweet was exposed in Vietnam?
>
> A: I don't have any record but *I* would be very surprised if he wasn't exposed to other materials, too.
>
> * * *
>
> Q: Anything else that you can think of that's quite possible?
>
> A: You name it. It's a wide range of material we used [in Vietnam].

Dep. at 67-68. It is clear from Mr. Sweet's case and from his testimony concerning the other fourteen cases that Dr. Epstein completely disregarded not only generally accepted scientific methodology but his own methodology for determining cancer causation, and that he did not rely on data and information reasonably relied upon by experts in the field. See Fed. R. Ev. 703.

In The Politics of Cancer, Dr. Epstein lists various means for the prevention of cancer. The steps include (1) stop smoking ("The most effective single action you can take is never to start smoking or, if this advice

comes too late, to stop smoking as quickly as possible."); (2) reduce alcohol ingestion ("While there is no direct evidence that alcohol is itself a carcinogen, heavy drinking, particularly of hard liquor, increases the risk of developing cancer of the mouth, throat, esophagus, larynx and liver."); (3) monitor the types and quantities of food eaten ("Your dietary choices and habits are clearly important. Some diets may reduce your cancer risk, while others may increase it."); (4) monitor water intake ("It is now common knowledge that drinking water in most cities, particularly downstream from chemical industries, contains a great variety of synthetic organic chemicals, of which more than 700 have so far been identified, including many known carcinogens."); (5) monitor use of drugs ("A wide range of drugs are known to be carcinogenic, as shown by human experience and animal tests."); (6) monitor use of cosmetics (avoid using products containing carcinogens such as certain hair dyes); (7) avoid X-rays ("X-rays are carcinogenic. The more X-rays you submit to and the greater the dose, the greater is your risk of cancer. Avoid unnecessary X-rays like the plague."); (8) monitor sexual activity (sexual activity may influence the development of various cancers); (9) avoid sunlight; (10) where you live ("This influences your overall risks of cancer, and also the particular type

you may get."); (11) your home ("Your house or apartment can expose you to hidden carcinogenic hazards."); and (12) your race ("You should recognize that race and color are factors that may be associated with excess risks of cancer."). The Politics of Cancer at 473-92. In addition, Dr. Epstein identifies various consumer products to avoid--spray cans, pesticides, and cleaning agents and solvents. Id. at 493-94. Finally, Dr. Epstein notes that various industries and hobbies are to be avoided--petrochemical, asbestos, steel, smelting and mining industries, and arts and crafts. Id. at 494-98. The fact that these plaintiffs plunged into life by patriotically going to war for the country makes it unlikely that any of them wrapped themselves in a cocoon-like environment free of toxic hazards.

In none of the fifteen cases purportedly analyzed by Dr. Epstein did he realistically assess the effect of the factors identified, not by defendants or their experts, but by Dr. Epstein himself. His deposition revealed that Dr. Epstein failed to apply what he himself recognized as appropriate criteria in any consistent fashion in the fifteen cases. For example, in the Johns case Dr. Epstein failed to consider a genetic etiology for the Hodgkin's disease at issue despite a clear indication in Johns'

I medical records that his disease might have been inherited. Dep. at 174-75. Similarly, in the Knight case, Dr. Epstein rendered an ultimate opinion as to causation despite the fact that he admittedly had no information pre-dating Knight's tour of duty in Vietnam. Dep. at 435-39. In Sweet, Dr. Epstein admitted the lack of scientific evidence relating Agent Orange exposure to cancer of the ileum which is the disease at issue in that case. Dep. at 70. He also failed to account for histories of alcohol and tobacco abuse in a number of the cases.

There is no point in further analyzing each of the fifteen cases Dr. Epstein addresses. It is enough to say that his deposition reveals a pervasive lack of information that he, as a leading scientist, knew he should have obtained. Defendants' withering analysis of his deposition testimony is a part of the record. See Defendants' Supplemental Memorandum in Opposition to Plaintiffs' Motion for Partial Summary Judgment and Reply Memorandum in Further Support of Defendants' Motion to Dismiss And/or for Summary Judgment, at 11, et seq. (April 29, 1985).

4. Rule 403

Rule 403 requires the court to exclude relevant evidence "if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury * * *." A determination to exclude such evidence lies within the trial court's discretion. Jackson v. Johns-Manville Sales Corp., 750 F.2d 1314, 1319 (5th Cir. 1985).

Any decision to allow or to exclude evidence under Rule 403 must be based on a detailed analysis of the specific facts of the case at hand--precedent is of little value. See, e.g., Jackson v. Johns-Manville, supra (letters of asbestos manufacturers discussing dangers of asbestos dust highly probative and danger of unfair prejudice minimal); Ellis v. International Playtex, Inc., 745 F.2d 292, 304-05 (4th Cir. 1984) (trial court correctly concluded that probative value of toxic shock syndrome study high and jury confusion unlikely because statistics straightforwardly presented); Moe v. Avions Marcel Dassault-Breguet Aviation, 727 F.2d 917, 934 (10th Cir.) (no abuse of discretion by trial court in excluding evidence of subsequent remedial efforts as having low probative value and being prejudicial), cert. denied, 105 S.Ct. 176, 83 L.Ed.2d 110 (1984); Kehm v. Proctor & Gamble Manufacturing Co., 724 F.2d

613, 620 (8th Cir. 1983) (CDC epidemiological studies of toxic shock syndrome admissible as not prejudicial under Rule 403); Wilk v. American Medical Association, 719 F.2d 207 (7th Cir. 1983) (in antitrust case against American Medical Association, evidence that chiropractor had arrangement with mattress company probative but unduly prejudicial and should have been excluded), cert. denied, 104 S.Ct. 2398-99, 81 L.Ed.2d 355 (1984); Litton Systems, Inc. v. American Telephone and Telegraph Co., 700 F.2d 785 (2d Cir. 1983) (affirming trial court's decision in antitrust case to exclude evidence of bribery by corporate officials as unduly prejudicial), cert. denied, 104 S.Ct. 984, 79 L.Ed.2d 220 (1984); Securities and Exchange Commission v. Carriba Air, Inc., 681 F.2d 1318 (11th Cir. 1982) (affirming trial court's decision to exclude testimony in an action to enjoin alleged violations of the securities laws).

Trial courts properly are reluctant to exclude relevant evidence unless there is a powerful and compelling reason to do so. See Fed. R. Ev. 102, 401-403; Gold, "Limiting Judicial Discretion to Exclude Prejudicial Evidence," 18 U.C.D. L. Rev. 59 (1984). Obviously, courts will be more likely to exclude evidence whose probative

value is extremely low. See, e.g., Meller v. Heil Co., 745 F.2d 1297 (10th Cir. 1984) (no error to exclude evidence that plaintiff who was crushed in an accident stored hashish pipes in the vehicle; low probative value); see also American Bearing Co., Inc. v. Litton Industries, Inc., 729 F.2d 943, 950 n.14 (3d Cir.) ("[a]s the district court correctly found, the speculation and unfounded assumptions underlying [the expert's] testimony decreased its probative value, perhaps to the level of the gossamer.") (dictum), cert. denied, 105 S.Ct. 178, 83 L.Ed.2d 112 (1984).

Exclusion of evidence of low probative value is particularly appropriate when admission would result in expenditure of substantial trial time and jury confusion. For example, the Court of Appeals for the Second Circuit in City of New York v, Pullman, 662 F.2d 910 (2d Cir. 1981), cert. denied, 454 U.S. 1164, 102 S.Ct. 1038, 71 L.Ed.2d 320 (1982), affirmed the exclusion of an interim report prepared by the staff of the Urban Mass Transit Administration. The court found that even if the report were admissible under the 803(8)(C) hearsay exception, it was properly excluded under Rule 403. The report had been prepared for a different purpose, it was incomplete, based primarily on hearsay, and its admission

> would have been likely to protract an already prolonged trial with an inquiry into collateral issues regarding the accuracy of the report and the methods used in its compilation.

Id. at 915.

In complex and protracted litigation, waste of the trier's time is a particularly telling factor. Thus, in Weit v. Continental Illinois National Bank and Trust Co., 641 F.2d 457 (7th Cir. 1981), cert. denied, 455 U.S. 988, 102 S.Ct. 1610, 71 L.Ed.2d 847 (1982), the Seventh Circuit affirmed the trial court's decision in a complex antitrust case to grant summary judgment after eight years of discovery. Although the lower court concluded that plaintiffs had failed to meet their burden of producing significant probative evidence of the illegal conspiracies alleged, plaintiffs on appeal contended that the evidence excluded below would have met their burden. The Seventh Circuit affirmed the court's exclusion of defendant's lobbying activities under Rule 403, finding that inclusion of such evidence "pose[d] a serious problem of confusion of issues." Id. at 467. The waste-of-time ground for exclusion is particularly persuasive when detailed rebuttal

testimony would be necessary to establish that the proffered evidence lacks probative worth. See, e.g., Kim v. Coppin State College, 662 F.2d 1055, 1066 (4th Cir. 1981).

A false aura of scientific infallibility, coupled with low probative value, increases resistance to admitting evidence since it multiplies the hazards of misleading a jury. See, e.g., City of New York v. Pullman, Inc., 662 F.2d 910, 915 (2d Cir. 1981), cert. denied, 454 U.S. 1164, 102 S.Ct. 1038, 71 L.Ed.2d 320 (1982); In re Air Crash Disaster at John F. Kennedy International Airport on June 24, 1975, 635 F.2d 67, 73 (2d Cir. 1980); Marx & Co., Inc. v. Diners' Club, Inc., 550 F.2d 505, 511-12 (2d Cir.), cert. denied, 434 U.S. 861, 98 S.Ct. 188, 54 L.Ed.2d 134 (1977).

As established supra, section IV.A.3, "the speculation and unfounded assumptions underlying [the] testimony [of Doctors Singer and Epstein] decrease[] its probative value, perhaps to the level of the gossamer." American Bearing Co., Inc. v. Litton Industries, Inc., 729 F.2d 943, 950 n.14 (3d Cir.), cert. denied, 105 S.Ct. 178, 83 L.Ed.2d 112 (1984). At the same time, the affidavits address highly technical and difficult questions of medical science in a misleading way.

There is a strong probability that the doctors' testimony would mislead and confuse at least some members of the jury. Establishing the low probative value of the affidavits would entail an unwarranted expenditure of time and effort. The introduction of plaintiffs' evidence would protract this prolonged litigation. City of New York v. Pullman, Inc., 662 F.2d 910, 915 (2d Cir. 1981), cert. denied, 454 U.S. 1164, 102 S.Ct. 1038, 71 L.Ed.2d 320 (1982).

In sum, the court finds the expert evidence of Doctors Singer and Epstein inadmissible under Federal Rules of Evidence 703 and 403. The next inquiry is whether without this evidence plaintiffs are capable of establishing the essential material issue of fact--causation.

B. Legal Standard Governing Summary Judgment

The Federal Rules of Civil Procedure require that a party moving for summary judgment show "that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). The initial burden rests on the moving

party to demonstrate the nonexistence of a genuine issue of fact. Adickes v. S. H. Kress and Co., 398 U.S. 144, 157, 90 S.Ct. 1598, 1608, 26 L.Ed.2d 142 (1970). At this point, the party opposing summary judgment must point to evidence that a genuine issue as to *a* material fact does exist. United States v. One Tintoretto Painting Entitled "The Holy Family with Saint Catherine and Honored Donor", 691 F.2d 603, 606 <2d Cir. 1982).

A mere possibility that a fact issue may exist is not enough to defeat the motion. United States v. Potamkin Cadillac Corp., 689 F.2d 379, 381 (2d Cir. 1982). When "a motion for summary judgment is made * * * an adverse party may not rest upon the mere allegations or denials of his pleadings, but his response, by affidavits or as otherwise provided in this Rule, must set forth specific facts showing that there is a genuine issue for trial." Fed. R. Civ. P. 56(e) (emphasis supplied). See also First National Bank of Arizona v. Cities Service Co., 391 U.S. 253, 289, 88 S.Ct. 1575, 1592, 20 L.Ed. 569 (1968).

Despite its generally restrictive attitude towards summary judgment, the Court of Appeals for the Second Circuit has repeatedly indicated that a litigant opposing

summary judgment "'may not rest upon mere conclusory allegations or denials' as a vehicle for obtaining a trial." Quinn v. Syracuse Model Neighborhood Corp., 613 F.2d 438, 445 (2d Cir. 1980). Recently, the Second Circuit, in granting summary judgment in a Title VII case, noted that "the salutary purposes of summary judgment--avoiding protracted, expensive and harassing trials--apply no less to discrimination cases than to commercial or other areas of litigation." Meiri v. Dacon, _____ F.2d _____, _____ (2d Cir. April 2, 1985), slip op. at 2946; see also Attorney General v. Irish Northern Aid Committee, 668 F.2d 159, 162 (2d Cir. 1982) (conclusory allegations as to agency status insufficient to defeat summary judgment) (per curiam); Securities and Exchange Commission v. Research Automation Corp., 585 F.2d 31, 33 (2d Cir. 1978) ("policy favoring efficient resolution of disputes, which is the cornerstone of the summary judgment procedure, would be completely undermined if unsubstantiated assertions were sufficient to compel a trial."); Feick v. Fleener, 653 F.2d 69, 77 (2d Cir. 1981) ("[c]ourts, refusing to exalt form over substance, cannot be awed by procedural spectres, and cannot be swayed by feigned issues"); Friedman v. Beame, 558 F.2d 1107, 1112 n.11 (2d Cir. 1977) (opponent of motion for summary judgment "required to do more than merely rely on

the conclusory allegations contained in the affidavit he submitted"); Donnelly v. Guion, 467 F.2d 290, 293 (2d Cir. 1972) (affidavit containing mere conclusory denials insufficient response to factually detailed affidavit submitted by proponent of summary judgment motion); Applegate v. Top Associates, Inc., 425 F.2d 92, 96 (2d Cir. 1970) ("neither courts nor defendants should be subjected to trials which can be little more than harassment"); Taylor v. Mayone, 574 F.Supp. 609, 612-13 (S.D.N.Y. 1983) ("mere speculation as to the existence of [a genuine issue of fact] is insufficient to defeat a summary judgment motion"); Childers v. High Society Magazine, Inc., 561 F.Supp. 1374, 1375 n.2 (S.D.N.Y. 1983) (Rule 56 was not intended "'to preserve purely speculative issues of fact for trial.'"); Imperial Veal & Lamb Co., Inc. v. Caravan Refrigerated Cargo, Inc., 554 F.Supp. 499, 501 (S.D.N.Y. 1982) (conclusory affidavit insufficient); cf. Richard v. Credit Suisse, 242 N.Y. 346, 350, 152 N.E. 110, 111 (1926) (Cardozo, J.) ("The very object of a motion for summary judgment is to separate what is formal or pretended in denial or averment from what is genuine and substantial, so that only the latter may subject a suitor to the burden of a trial.").

Other circuits concur. See, e.g., Long v. Bureau of Economic Analysis, 646 F.2d 1310 (9th Cir.) (in Freedom of Information Act case, generalized affidavits demonstrating that neither the government planning officer nor the division chief had specific knowledge of any significant risk entailed in releasing the exempted information insufficient to defeat the motion), vacated on other grounds, 454 U.S. 934, 102 S.Ct. 468, 70 L.Ed.2d 242 (1981); State Mutual Life Assurance Co. v. Deer Creek Park, 612 F.2d 259, 264 (6th Cir. 1979) ("Affidavits composed of hearsay and opinion evidence do not satisfy Rule 56(e) and must be disregarded."); id. at 268 (same); Abraham v. United States, 465 F.2d 881, 883 (5th Cir. 1972) (conclusory expert opinion that no mismanagement occurred insufficient to defeat motion for summary judgment).

Courts are particularly indisposed to allowing conclusory allegations to defeat summary judgment after there has been--as here--opportunity for discovery. Weit v. Continental Illinois National Bank & Trust Co., 641 F.2d 457, 464 (7th Cir. 1981), cert. denied, 455 U.S. 988, 102 S.Ct. 1610, 71 L.Ed.2d 847 (1982); see also, e.g., Grumman Allied Industries, Inc. v. Rohr Industries, Inc., 748 F.2d 729, 740 (2d Cir. 1984) (after "extensive and intensive

discovery, spanning a number of years and yielding tens of thousands of pages of * * * documents * * *, the factual development necessary to the principled resolution of this complex dispute was not terminated prematurely" by summary judgment); Schering Corp. v. Home Insurance Co., 712 F.2d 4, 10 (2d Cir. 1983) (summary judgment should not be granted where party opposing it seeks timely discovery of potentially favorable information). While undoubtedly the individual cases of the opt-out plaintiffs warranted further discovery, plaintiffs can hardly complain that they had no opportunity to find out what their medical problems were and what their own life patterns had been.

As Weit, supra, suggests, if no material issue of fact exists and the moving party would be entitled to a directed verdict, then the court should grant summary judgment. American Manufacturers Mutual Insurance Co. v. American Broadcasting-Paramount Theatres, Inc., 388 F.2d 272, 279 (2d Cir. 1967); J. Moore, 6 Part 2 Moore's Federal Practice ¶ 56.15[8] at 56-642. There is no reason to require trial on the off-chance that a presently unobservable disputed fact issue will develop. Wright, Miller & Kane, Federal Practice & Procedure; Civil 2d § 2713.1 at 619 (1983); see also National Industries, Inc.

v. Republic National Life Insurance Co., 677 F.2d 1258, 1265 (9th Cir. 1982) ("summary judgment should be granted when evidence in support of the motion would, if uncontradicted, entitle the moving party to a directed verdict if the case were to proceed to trial."); Neely v. St. Paul Fire and Marine Insurance Company, 584 F.2d 341, 346 (9th Cir. 1978) (affirming grant of summary judgment where "a jury would inevitably have to rely in large part upon surmise and speculation" in determining cause of contamination of engines; directed verdict would be appropriate).

Were trials to go forward in each of the opt-out cases, scores of judge-years would be required. Each of the hundreds of cases would take months to try. On the basis of the evidence submitted by plaintiffs, none could result in a supportable plaintiffs' verdict. There is no excuse for such a squandering of scarce public resources.

The inability to defeat a motion for summary judgment with conclusory allegations extends to use of expert opinion. The leading case in this area, Merit Motors, Inc. v. Chrysler Corp., 569 F.2d 666 (D.C. Cir. 1977) (Skelly Wright, J.), was discussed earlier. Asserting that plaintiff's "position that an expert's opinion that

lacks any credible support creates an issue of 'fact' is clearly untenable," id. at 673 n.27, Judge Wright concluded:

> To hold that Rule 703 prevents a court from granting summary judgment against a party who relies solely on an expert's opinion that has no more basis in or out of the record than [the expert's] theoretical speculations would seriously undermine the policies of Rule 56.

Id. at 673.

In Kern v. Tri-State Insurance Co., 386 F.2d 754 (8th Cir. 1967), plaintiff sought to avoid the statute of limitations by alleging that he became insane and remained so for 10 years after defendant insurance company cancelled his contract. To support this allegation, plaintiff submitted the affidavit of a medical expert who based his opinion on letters of other doctors and summaries of hospital records. Much of his opinion was directly contradicted by other facts of which the trial court took judicial notice. Finding that the trial court "would have been within its rights in rejecting the affidavit as pure speculation and not substantial evidence," the Eighth Circuit affirmed summary judgment and rejected the affidavit. Id. at 756.

Expert evidence was rejected with equal firmness in Springfield Township v. Lewis, 702 F.2d 426 (3rd Cir. 1983). Plaintiffs, environmental groups and local government units, had challenged a federally drafted Environmental Impact Statement in an effort to enjoin construction of an interstate highway segment. Plaintiffs submitted affidavits of their traffic expert, a registered independent engineer, who contended that the New Jersey Department of Transportation's traffic studies and data were derived from inappropriate and inaccurate traffic forecasting methods. The trial court undertook "an exhaustive, paragraph-by-paragraph dissection of [the expert's] affidavits * * * and found in them nothing that impeached the accuracy of [the State's] traffic forecasts"; they were full of "internal contradictions" and "'consist[ed] largely of unsupported opinion.'" Id. at 440-41. The Court of Appeals affirmed the granting of summary judgment.

Courts in New York show a similar unwillingness to allow unacceptable expert affidavits to defeat a motion for summary judgment in all types of cases, including those based on theories of tort. See, e.g., Reinert v. Town of Johnsburg, 99 A.D.2d 572, 471 N.Y.S. 2d 398, 399 (3d Dep't

1984) (conclusory allegations by plaintiff and his counsel insufficient to raise issue of fact regarding constructive notice in negligence action against town and county); Sun Yau Ko v. Lincoln Savings Bank, 99 A.D.2d 943, 473 N.Y.S.2d 397, 399 (1st Dep't) (granting summary judgment to defendants where plaintiffs failed to substantiate with concrete facts claims of negligence in storing gold bars), aff'd, 62 N.Y.2d 938, 479 N.Y.S.2d 213, 468 N.E.2d 51 (1984); Lopez v. Senatore, 97 A.D.2d 787, 468 N.Y.S.2d 527 (2d Dep't 1983) (conclusory allegations contained in affidavit of plaintiff's physician as to permanency of plaintiff's injuries were insufficient as matter of law to establish prima facie case of serious injury, thus entitling defendant to summary judgment on personal injury claim), appeal dismissed, 63 N.Y.2d 602, 469 N.E.2d 102 (1984); Baly v. Chrysler Credit Corp., 94 A.D.2d 781, 463 N.Y.S.2d 233 (2d Dep't 1983) (summary judgment for plaintiffs granted where defendant's affidavits as to contributory negligence in an auto accident were conclusory and speculative, merely alleging that plaintiffs were injured because they failed to wear seat belts); Hanrog Distributing Corp. v. Hanioti, 10 Misc.2d 659, 54 N.Y.S.2d 500, 501 (S.Ct. Special Term, N.Y. Cty. 1945) ("the very nature of the averments contained in defendant's affidavit show that the issue sought to be

created is neither genuine nor substantial"; motion granted).

Prom this review of the relevant law, several clear principles emerge. Although summary judgment is a drastic procedural device, courts in the Second and other Circuits follow the edicts of Rule 56(e) and do not allow mere conclusory allegations that a factual dispute exists to defeat a motion for summary judgment. This general prohibition extends to the use of conclusory allegations by experts.

The numerous epidemiological studies discussed supra III.A-B are sufficient to shift the burden to plaintiffs of showing that a material fact exists as to causation. See Rule 56(e). Plaintiffs attempted to meet their burden through expert affidavits that are wholly conclusory and unfounded in fact. See supra III.A.2.

Ever since the defendants moved for summary judgment over nine months ago, plaintiffs have argued that further evidence would be developed at trial. But no such evidence has been produced and none is in the offing. Courts cannot wait forever. They must decide cases now.

See Neely v. St. Paul Fire and Marine Insurance Co., 584 F.2d 341, 344 (9th Cir. 1978) ("mere hope that further evidence may develop prior to trial" insufficient grounds for denying the motion). The summary judgment procedure enables adjudication without delays and a lengthy trial where no issue of fact exists.

In the instant case, years of discovery and tens of millions of dollars spent by the government and others on research has not yielded any competent evidence indicating a genuine issue of fact as to causation. Plaintiffs have had more than enough time to develop their cases. Moreover, plaintiffs' counsel, when offered the opportunity for additional time to conduct discovery, declined it. Tr. at 39-40 (Apr. 15, 1985). See Schering Corp. v. Home Insurance Co., 712 F.2d 4, 10 (2d Cir. 1983).

The largest possible number of plaintiffs who presently state that they suffer from chloracne is six. Arguably, these plaintiffs might have made out a material issue of fact regarding causation had they furnished medical diagnoses and shown that the condition developed in Vietnam. Even if their condition were established as chloracne, since chloracne is usually transient, it is highly unlikely that

they could establish that the present disease was caused by exposure to Agent Orange more than ten years ago. The government has assumed responsibility for chloracne through legislation. Veterans' Dioxin and Radiation Exposure Compensation Standards Act, Pub. L. No. 98-542, 98 Stat. 2725 (1984). Had plaintiffs been recognized by the government as having had chloracne because of exposure to Agent Orange, this factor would have been brought to the court's attention. The minor chloracne claims--whose bona fides have simply not been established--are not sufficient to warrant allowing this massive case to go forward. See Tr. at 182 (March 5, 1985) ("chloracne without disability is not compensable") (remarks of Plaintiffs' Management Committee member David Dean).

After careful scrutiny of all available evidence in this protracted litigation, there is no doubt that a directed verdict at the close of each of plaintiffs' cases would be required. Such careful scrutiny of proposed evidence is especially appropriate in the toxic tort area. The uncertainty of the evidence in such cases, dependent as it is upon speculative scientific hypotheses and epidemiological studies, creates a special need for robust screening of experts and gatekeeping under Rules 403 and 703

by the court. Cf. Manual for Complex Litigation 2d § 21.4.8 at 21-60-61 & nn. 117-20 (Draft February 1985). As the Seventh Circuit has pointed out in the context of another kind of protracted litigation: "We simply cannot turn our heads and ignore the practical realities of complex * * *litigation." Weit v. Continental Illinois National Bank and Trust Co., 641 F.2d 457, 464 (7th Cir. 1981) (affirming grant of summary judgment where plaintiffs failed to develop any probative evidence after eight years of discovery), cert. denied, 455 U.S. 988, 102 S.Ct. 1610, 71 L.Ed.2d 847 (1982); see also Meiri v. Dacon, ____ F.2d ____, ____ (2d Cir. April 2, 1985), slip op. at 2946 (affirming summary judgment in Title VII case and noting appropriateness of such a result "[g]iven the ease with which these suits may be brought and the energy and expense required to defend such actions * * *."). Such an approach is fully consistent with Rule 102 of the Federal Rules of Evidence. Cf. Kern v. Tri-State Insurance Co., 386 F.2d 754, 757 (8th Cir. 1967) (not consistent with Rule 1 of the Federal Rules of Civil Procedure to allow litigant to put defendants to expense of trial based on conclusory hearsay affidavit).

In the Agent Orange litigation, it is remotely possible that a causal connection may at some time in the

future be proved. As time goes on, proof of connection to Agent Orange becomes less and less likely because the aging Vietnam veterans are continuously exposed to confounding substances and morbidity rises sharply with age from many natural causes. We can say that proof has not been produced in this court sufficient to go to the jury.

C. Law of Causation

Plaintiffs are unable to establish that a material issue of fact exists as to causation. The final inquiry is whether defendants are therefore entitled to judgment as a matter of law. Securities & Exchange Commission v. Research Automation Corp., 585 F.2d 31, 35 (2d Cir. 1978). This court has previously held that national consensus law applies to questions of law in the Agent Orange litigation. See In re "Agent Orange" Product Liability Litigation, 580 F.Supp. 690, 701 (E.D.N.Y. 1984). Arguably, this result would not follow when individual, rather than class action, suits are tried. But whatever jurisdiction's law is applied, under either a strict liability or negligence theory, plaintiffs must establish by a preponderance of the evidence a but-for causal connection between their claimed injuries and exposure to Agent Orange.

As Professor Rosenberg has summarized existing law, courts are divided between "strong" and "weak" versions of the preponderance rule. Rosenberg, "The Causal Connection in Mass Exposure Cases: A 'Public Law' Vision of the Tort System," 97 Harv. L. Rev. 851, 857 (1984). Under the "strong" version, plaintiff must offer both epidemiologic evidence that the probability of causation exceeds fifty percent in the exposed population and "particularistic" proof that the conduct complained of caused him harm individually.

Miller v. National Cabinet Co., 8 N.Y.2d 277, 204 N.Y.S.2d 129, 168 N.E.2d 811 (1960), is illustrative. There, the New York Court of Appeals held that plaintiff failed to establish a causal connection between exposure to benzene contained in varnish removers and development of leukemia. Plaintiff's expert lacked any statistical studies and merely concluded that it was "possible" benzene could cause leukemia--refusing to say whether it had in fact caused plaintiff's death. Id. at 132-33. The Court of Appeals concluded that the expert's uncertainty coupled with the lack of statistical evidence precluded the establishment of causation and dismissed the claim. See also Johnston v.

United States, 597 F.Supp. 374, 412 (D. Kan. 1984) (statistics showing greater than 50% probability of causation insufficient without more to establish causation to a reasonable degree of medical certainty).

Plaintiffs rely on Ferebee v. Chevron Chemical Co., 736 F.2d 1529 (D.C. Cir.), cert. denied, 105 S.Ct. 545, 83 L.Ed.2d 432 (1984), for the proposition that courts do not require epidemiological and particularistic evidence to establish causation in fact. Ferebee involved the death of an agricultural worker who died of pulmonary fibrosis, allegedly as a result of long-term exposure to paraquat. Plaintiff's treating physicians, eminent specialists in pulmonary medicine, testified that paraquat poisoning caused his death. Id. at 1535. Defendants argued that the views of plaintiff's experts were not yet accepted by the medical community and as such were inadmissible.

The Court of Appeals in Ferebee found this argument--essentially based on Federal Rule of Evidence 702--unpersuasive. The question is not whether the opinion itself is accepted in the relevant community, but instead whether the technique is. Inference from examination and testing, the court found, is clearly an accepted methodology. Id. at 1535-36; see also supra at IV.A.2.(a)-(b) (finding

methodology of Doctors Singer and Epstein acceptable). Thus, the Ferebee court concluded:

> [a]s long as the basic methodology employed to reach such a conclusion is sound, such as use of tissue samples, standard tests, and patient examination, products liability law does not preclude recovery until a 'statistically significant' number of people have been injured or until science has had the time and resources to complete sophisticated laboratory studies of the chemical.

Id. at 1535-36.

This conclusion with respect to Mr. Ferebee's claims is fully consistent with dismissal of the instant plaintiffs' claims. Agent Orange presents an entirely different set of problems. Ferebee did not require epidemiologic studies because, unlike the instant case or Miller, plaintiff presented technically competent, probative evidence by his treating physicians that the chemical in question in fact led to his death. Moreover, while the Ferebee court did not require epidemiologic studies, presumably it would have considered such studies relevant had they existed. In the Agent Orange case, no competent particularistic evidence has been presented and the relevant epidemiologic evidence is negative. Finally, in Ferebee,

plaintiff established long-term, intensive exposure to paraquat. The veterans' exposure to Agent Orange, even were we to grant full force to their inadequate affidavits, was much more attenuated.

In sum, the court does not read Ferebee as espousing a more relaxed version of the preponderance standard for establishing causation-in-fact. In Ferebee, plaintiff's experts were certain of the cause of his disease and no epidemiological proof was necessary. Compare Allen v. United States, 588 F.Supp. 247, 416-43 (D. Utah 1984) (determining whether plaintiffs' injuries were causally connected to radiation exposure based upon overwhelming weight of scientific evidence that such a relationship existed as to certain diseases). Ferebee is thus consistent with the established rule that a plaintiff must offer evidence that causation was more than 50 percent probable.

Two state court nonjury decisions illustrate this requirement. In Meehan v. State, 95 Misc.2d 678, 408 N.Y.S.2d 652 (Ct. Cl. 1978), parents sued the State of New York for their children's injuries, allegedly caused by the Department of Transportation's negligently storing rock salt near plaintiffs' well which led to its contamination. The

Court of Claims found that the salt discovered near the claimants' well originated in the state's salt storage facility. Id. at 656. The remaining issue was whether the level of chlorides and sodium in the well water caused the digestive problems suffered by the children. The state offered expert testimony based on medical records and health department tests concluding unequivocally that the salt contamination of the well did not produce plaintiffs' symptoms. Plaintiffs, on the other hand, offered a medical expert who stated "merely that salt could produce the symptoms exhibited by the children, but was unwilling to state that salt was the competent producing cause of their illnesses." Id. at 657. Concluding that such a remote possibility of causation was insufficient, the court dismissed the case.

In another underground contamination case, Ayers v. Jackson Township, 189 N.J. Super. 561, 461 A.2d 184 (1983), plaintiffs sued for injuries allegedly resulting from groundwater pollution by a municipal landfill. Plaintiffs alleged in part that they suffered an enhanced risk of developing cancer as well as liver and kidney disease. They proffered expert testimony that plaintiffs' well water contained known carcinogens and that individuals

exposed to the contaminated water were at increased risk of developing cancer depending upon dose and duration of exposure and inherent susceptibility. Id. at 186-87. None of the experts, however, could say with "a degree of reasonable medical probability" that any or all of the plaintiffs would suffer from any of the alleged diseases in the future. Without any ability to quantify the enhanced risk or predict whether plaintiffs would contract cancer, the court granted summary judgment for defendants.

State courts in other personal injury situations also require a 50 percent-plus degree of probability of causation. Compare, Cohenour v. Smart, 205 Okla. 668, 240 P.2d 91 (1951) (granting new trial where plaintiff's expert could not rule out possibility that prior automobile accidents caused plaintiff's injury), with Menarde v. Philadelphia Transportation Co., 376 Pa. 497, 103 A.2d 681, 684 (1954) (expert certain accident caused plaintiff's cancer).

The requirement of a reasonable probability assessment in expert testimony on causation is not limited to cases involving personal injury, and is particularly important when establishing causation in a products

liability action. For example, in Lanza v. Poretti, 537 F.Supp. 777 (E.D. Pa. 1982), the district court excluded opinion evidence of a fire inspector because he spoke only in terms of possibilities and was unable to eliminate other potential causes. See also Perkins v. Volkswagen of America, Inc., 596 F.2d 681, 682 (5th Cir. 1979) (affirming entry of directed verdict, where plaintiff's expert not qualified to testify as to automobile design defects and plaintiff failed to establish causation); compare Breidor v. Sears, Roebuck and Co., 722 F.2d 1134, 1138 (3d Cir. 1983) (exclusion of expert testimony abuse of discretion where it was useful in explaining how fire started because expert identified cause of fire in terms of probabilities by eliminating all but one reasonable potential cause).

In the instant case, plaintiffs' experts lack a requisite basis for assessing probabilities as to causation. Even if the testimony of Dr. Singer were admissible, he does not rule out the myriad other possible causes of the veterans' afflictions. He merely concludes that "absent any evidence of pre-existing, intervening, or superseding causes," then Agent Orange caused plaintiffs' difficulties.

Dr. Epstein purports to eliminate other possible causes of disease in his fifteen individual affidavits. His conclusion that plaintiffs have not been exposed to toxic substances other than Agent Orange is based on plaintiffs' form affidavits. It is evident from his own writings and his deposition that the documents he relied upon would not suffice for a reasonable medical opinion. As already established, these affidavits fail to comply with the requirements of Rule 703.

D. Other Grounds

1. Lack of Proof of Who Was Harmed and Who Caused Harm

Having voluntarily given up the advantages of the class action, each plaintiff is in the position of being unable to prove either (1) that his disease is due to Agent Orange, or (2) that any particular defendant produced the Agent Orange to which he may have been exposed. No case has ever permitted recovery in such a situation. See discussion of "Failure to Determine Who was Harmed and Who Caused

Harm," In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 816-844 (E.D.N.Y. 1984). There is no possible theory of law on which these individual opt-out plaintiffs can recover. Id. at 843.

2. Statutes of Limitation

A number of the individual plaintiffs have difficulties with the statutes of limitation. See In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 800-16, 879 ff. (E.D.N.Y. 1984). There is no point in reviewing each of the hundreds of cases since other grounds for dismissal are clear.

3. Government Contract Defense

Plaintiffs are unable to overcome defendants' government contract defense. See, e.g., In re "Agent Orange" Product Liability Litigation, 534 F.Supp. 1046 (E.D.N.Y. 1982); In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 795-96 (E.D.N.Y. 1984); Koutsoubos, Spiros v. Boeing Vertol., 755 F.2d 352 (3d Cir. 1985). The doctrine has been criticized. See, e.g., Note, "The Essence of the Agent Orange Litigation: The Government

Contract Defense," 12 Hofstra L. Rev. 983 (1984). Yet the defense remains the law of the case. See In re "Agent Orange" Product Liability Litigation, 534 F.Supp. 1046, 1056-58 (E.D.N.Y. 1982); In re "Agent Orange" Product Liability Litigation, 597 F.Supp. 740, 795-99, 843-50 (E.D.N.Y. 1984).

It is clear from the record, in light of all the information received to date, that the government knew as much as, or more than, the defendant chemical companies about the possible adverse health effects of Agent Orange as it was used in Vietnam. There is no substantial basis for believing that further discovery will reveal any persuasive information on this subject. Id. at 795-99.

The information available makes it clear that the government would have concluded that the beneficial saving of American soldiers' lives by defoliating the Vietnamese jungles far outweighed any minimal risks to our own or allied troops posed by exposure to Agent Orange. Such a governmental decision falls within the discretionary function exception to liability under the Federal Tort Claims Act. Dalehite v. United States, 346 U.S. 15, 35-36, 73 S.Ct. 956, 968, 97 L.Ed. 1427 (1953) (Texas City

Disaster); see also Huber, "Safety and the Second Best: The Hazards of Public Risk Management in the Courts," 85 Colum. L. Rev, 277 (1985) (arguing that all technological innovation beneficial to the public involves private risk; courts should defer to agency expertise in determining whether the risk outweighs the benefit).

V. CONCLUSION

The cases of the veterans and any other members of the class who opted out of the class are dismissed. In view of this disposition, there is no need to consider plaintiffs' cross-motion for summary judgment.

This memorandum constitutes a final judgment. The Clerk of the Court will provide counsel with copies.

SO ORDERED.

Chief Judge, U.S.D.C.

DATED: Brooklyn, New York
May 8, 1985

APPENDIX "A"

ATTORNEY'S AFFIDAVIT

Comes now the affiant, John E. Sutter, and hereby states under penalty of perjury that he has personal knowledge of the matters stated herein and is competent "to testify to the same. The information contained in this affidavit was "obtain through a review of the veteran's military and medical records as well as his personal statements to me. I have been retained by the veteran to represent him in regard to his Agent Orange exposure.

Veteran's name: Ronald C. Thaxton

Address: 12408 Applecross Drive
Clinton, Maryland 20735

The veteran served in Vietnam from January, 1968 to November, 1968.

The veteran was exposed to Agent Orange. He was sprayed with Agent Orange, saw spraying of Agent Orange, entered defoliated areas and consumed local food and water.

As a result of his exposure to Agent Orange he is suffering from the symptoms checked on the attached list.

To the best of my knowledge and belief, the veteran did not have the aforementioned symptoms and medical problems until after his exposure to Agent Orange.

I am unaware of any cause other than the veteran's exposure to Agent Orange for the aforementioned symptoms and medical problems.

To the best of my current knowledge and belief there is no history in the veteran's family of the symptoms and medical problems from which the veteran suffers as a result of his exposure to Agent Orange.

The veteran does smoke cigarettes.

It is unknown whether the veteran drinks any alocholic beverages.

To the best of my knowledge and belief, the veteran has not been exposed to any abnormal environmental pollutants, toxic chemicals other than Agent Orange or radiation where he worked, lived or places that he has traveled.

The veteran has taken no abnormal medications.

It is unknown whether the veteran has taken any prescription medication.

It is unknown whether the veteran has taken controlled substances.

It is unknown whether the veteran has ever suffered from liver problems.

The veteran has not suffered from:

a. goiter

b. diabetes

c. malaria

d. venereal disease

The veteran has opted out of the class action and wishes to pursue an individual lawsuit. He believes he is entitled to his day in court to have a jury determine the merits of his claims. This case has been brought in the utmost good faith.

Further saith the affiant not.

1-16-85
Date

John E. Sutter

Renewed Cancer Therapy

CHECKLIST

Symptomology	Yes	No
Fatigue	✓	
Headaches	✓	
Night Sweats	✓	
Fainting spells	✓	
Hearing Problems		
Loss of Smell	✓	
Inability to Taste		
Dramatic Weight Loss (Unexplained)	✓	
Loss of Appetite	✓	
Reduced Tolerance to Alcohol	✓	
Sore Thoats/Glandular Swelling	✓	
Sinus/Allergy		
Spontaneous Nosebleeds	✓	
Kidney or Liver Disorders	✓	
Change in Urine Color	✓	
Dramatic Change in Bowel Habits	✓	
Respiratory Problems	✓	
Pounding in Chest	✓	
Hair Loss	✓	
Loss or Change in Toenails	✓	
Loss or Change in Fingernails	✓	

Skin;		
Rash	✓	
Blisters	✓	
Acne		
Spotty Tanning	✓	
Discoloration		
Peeling	✓	
Increased Sensitivity to Sunlight	✓	

	Yes	No
Skeletal-Muscular Disfunction:		
Numbness and Tingling	✓	
Swelling		
Unusual Stiffness in Joints		
Tightening of Muscles		*
Chest Pain		
Lower Back Pain	✓	
Gastro-Intestinal Disorders 8		
Stomach or Abdominal Cramps	✓	
Difficulty in Digestion	✓	
Vision Difficulties:		
Light Sensitivity	✓	
Change in Vision	✓	
Tumors:		
Non-malignant		
Malignant	✓	
Behavior:		
Memory Loss	✓	
Increased Irritability		
Increased Anger	✓	
Increased Anxiety		
Sleep Patter [sic] Disruption/Ansomnia	✓	
Aggression	✓	
Confusion	✓	
Depression	✓	
Tremors	✓	

	Yes	No
List any other problems you have had since exposure:		

Children:

Miscarriages		
Stillbirths		
Spontaneous Abortions		
Respiratory Problems		
Fevers of Short Duration		
Rashes		
Allergies		
Speech Deficiencies		
Heart Murmurs		
Learning Disabilities		
Birth Defects		

List any other problems you or your children have experienced since exposure:

General Medical Information

	Yes	No
Do you smoke?		
Are you on any medication?		
Have you had any operations?		
Have you ever had the following:		
Sickle Cell Anemia		
Epilepsy		
Venereal Disease		
Hepatitis		
Goiter		
Heart Disease		
High Blood Pressure		
Diabetes		
Malaria - If so, have you taken DAPSONE		
(a small white pill taken every morning?)		

5/9/85

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

In re "AGENT ORANGE" PRODUCT LIABILITY LITIGATION.	MDL No. 381 (JBW)
CLARA FRATICELLI, et al., Plaintiffs, -against- THE DOW CHEMICAL CO., et al., THE UNITED STATES OF AMERICA, etc., Defendants.	Civ. No. 82-1734

MEMORANDUM, ORDER, and JUDGMENT

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Attorneys for Defendants.

WEINSTEIN, Ch. J.:

I. INTRODUCTION

Defendants have moved to dismiss or in the alternative for summary judgment. They are the seven manufacturers of Agent Orange; its purchaser, the United States; and the former Regents of the University of Hawaii which tested the product. Plaintiffs Clara Fraticelli, wife of William Fraticelli (deceased), James K. Oshita, and Masao Takatsuki, sue on behalf of themselves and a class of 35,000 unnamed residents of Kauai County, Hawaii, alleging that they were all harmed by exposure to Agent Orange. Jurisdiction is premised on 28 U.S.C. §§ 1331, 1332, 42 U.S.C. § 1983, and the Federal Tort Claims Act, 28 U.S.C. §§ 1346(b), 2671-80. For the reasons stated below, the motions must be granted.

II. FACTS

Fraticelli, Oshita, and Takatsuki were civilians employed at the University's Kauai Experimental Station for Tropical Agriculture. Fraticelli worked in the fields as an Equipment

Operator from 1946 until his retirement in 1972. Oshita was similarly employed from 1961 to 1982 and Takatsuki from 1961 to 1980.

In 1966 and 1967 the University, pursuant to a contract with the United States Department of Defense, conducted tests by spraying on its fields chemicals including arsenic, benzol, beryllium, zirconium, cadmium, chrome, lead, fluorine, 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD" or "Dioxin") and other herbicides.

All three employees claimed exposure during a 1967 incident. They stood by their tractors, which had been marked with flags as targets for aerial herbicide spraying, and were "drenched" by a substance they believe was Agent Orange manufactured by one or more of the defendants. They also believe they were exposed on two other occasions. No protective clothing or showers had been provided.

Fraticelli died in April 1981 as a result of lung and kidney cancer. He had a history of bladder cancer (which did not recur after surgery), a

metastatic brain tumor, priapism dating back to 1962, and migraine headaches dating back to 1946. He drank "2 to 3 shots of whiskey per day for many years," had family problems to which he attributed his headaches and tensions, and smoked over one pack of cigarettes per day, which his doctors told him was "excessive." (Hospital Record 7/23/73.)

Oshita was diagnosed as having liver dysfunction in 1969. In 1971 he had a kidney stone and was diagnosed as having cancer of the bladder, which has not recurred since surgery at that time. In 1930 chronic hepatitis was present, and he alleged that he also suffered from diabetes, anemia and chloracne at one time or another. He claims he discontinued "moderate" drinking in 1971 and smoked one pack of cigarettes per day for over 30 years. His hospital records indicate no chloracne but do show that he "smokes at least 1-1/2 packs a day and used to drink quite a lot of alcoholic drinks." (Hospital Record 11/23/71.) His father died of stomach cancer at age 60. His maternal grandfather died of cancer, and his two brothers both have histories of kidney trouble.

Takatsuki was diagnosed as having cancer involving the undersurface of the tongue and floor of his mouth in late 1978. He has a 60-80 pack per year history of smoking and also a moderate alcohol intake, "mostly bourbon." (Medical Center Record 10/10/78.) He was treated with radiation therapy and there has been no recurrence as of February, 1985. This plaintiff also claims to suffer from chloracne although there is no mention of this in his medical records supplied to the court.

In none of the extensive medical records of treating physicians and hospitals supplied by plaintiffs' counsel could the court find any reference to Agent Orange. Nevertheless, plaintiffs' expert, Dr. Samuel P. Epstein, had no doubt that plaintiffs' various complaints were caused by Agent Orange even though he had never seen any of the plaintiffs. See Epstein affidavit, March 9, 1985; see also the full discussion of Dr. Epstein's evidence in In re "Agent Orange" Product Liability Litigation, _____ F.Supp. _____ (E.D.N.Y. May 8, 1985). His is the only evidence supporting plaintiffs' case.

The facts in the instant case require rejection of Dr. Epstein's proposed testimony. Id.

All three plaintiffs filed Workers' Compensation claims in which they listed each other as witnesses to the claimed 1967 incident and asserted knowledge of the causal nexus between their illnesses and exposure to chemicals: Fraticelli's claim, filed October 1, 1979, asserts knowledge in September, 1979; Oshita's claim, filed July 12, 1979, asserts knowledge on July 11, 1979; and Takatsuki's claim, filed January 7, 1981, asserts knowledge at an unspecified day in January, 1979. Mrs. Fraticelli filed a Workers' Compensation Death Benefit Claim on May 28, 1981.

In their Workers' Compensation claims plaintiffs characterize their injuries as having been caused by a host of toxic substances:

> latent slow acting diseases from occupational exposure to arsenic and/or benzol, and/or beryllium, and/or zirconium, and/or cadmium, and/or chrome, and/or lead, and/or fluorine, and/or other toxic chemicals <u>including put not limited to</u>

> dibenzo-p-dioxin (TCDD or Dioxin) and other toxic herbicides, <u>including but not limited to</u> phenoxy herbicides.

(Emphasis supplied.)

On April 21, 1982 the State of Hawaii Department of Labor issued its decision accepting liability in both Fraticelli claims and awarding his widow compensation in an aggregate amount of slightly more than $73,000. On October 19, 1981, the Department awarded James Oshita slightly more than $23,000 for *a* period of total disability, for permanent partial disability, and for disfigurement from surgical scars. Plaintiff Takatsuki has indicated only that his Workers' Compensation claims were pending; based upon their common exposure and the Department of Labor decision as regards Fraticelli and Oshita, it is assumed, without objection from counsel, that Takatsuki has also obtained Workers' Compensation.

On January 16, 1979 plaintiffs' Hawaiian counsel entered into an agreement with the Agent "Orange Plaintiffs' Management Committee to join in

the Agent Orange Product Liability Litigation, MDL No. 381. Yet plaintiffs did not file their complaint, Civ. No. 82-0021, in the Hawaii district court until January 11, 1982. The Multidistrict Litigation Panel then transferred the Hawaii action to the Eastern District of New York.

All three plaintiffs submitted administrative claims to the United States on January 7, 1981. There is no information indicating that these claims have been acted upon by the government.

III. LAW

A. Class Action

Plaintiffs in this action fail to meet the prerequisites of a class action in any respect save numerosity. Fed. R. Civ. P. 23. The population-at-large of Kauai County, Hawaii cannot make any claim in common with that based on injuries sustained by these employees during experiments at the University of Hawaii. No harm to the residents of Kauai County from contaminated herbicides has been

shown. Plaintiffs have not demonstrated a common interest with the populace relative to their own work experiences at the Experimental Station. Class certification was properly denied.

B. Statute of Limitations

Plaintiffs' claim against the chemical companies and the University's Former Regents is governed by the two-year Hawaii Statute of Limitations for tort actions, which provides:

> Actions for the recovery of compensation for damage or injury to persons or property shall be instituted within two years after the cause of action accrued * * *.

Haw. Rev. Stat. § 657-7 (1976).

The Supreme Court of Hawaii has held that a claim accrues when the plaintiff discovers, or reasonably should have discovered, the "negligent act, the damage, and the causal connection between the former and the latter." Yamaguchi v. Queen's

Medical Center, 65 Haw. 84, 648 P.2d 689, 693-94 (1982).

Plaintiffs Oshita and Takatsuki and plaintiff Fraticelli's husband all knew of the act, the damage and the causal nexus more than two years prior to the filing of this action on January 11, 1982. Oshita filed a Workers' Compensation claim for the injuries on July 12, 1979; he stated that he knew "of his disability resulting from his exposure to" phenoxy herbicides and dioxin on July 11, 1979. Takatsuki filed a Workers' Compensation claim for the injuries on January 7, 1981; he stated that he knew "of his disability resulting from exposure to" phenoxy herbicides and dioxin "in January, 1979." When Fraticelli filed a Workers' Compensation claim on October 1, 1979 for his alleged injuries, he stated that he knew "of his disability, resulting from exposure" to phenoxy herbicides and dioxin "in September 1979."

The latest date on which plaintiffs may be said to have "discovered" the causal connection was September 1979, more than two years prior to

institution of the Hawaii district court action. These are all civilian claims. The certification of veterans' claims as a class action had no effect in tolling the statute of limitations. There was no tolling of the statute by any concealment.

Wrongful death claims must be filed within two years of the date of death. Haw. Rev. Stat. § 663-3. Fraticelli died on April 27, 1981. The wrongful death action was timely filed on January 11, 1982. As indicated below, this claim must be dismissed for other reasons.

Accordingly, all claims of plaintiffs Oshita and Takatsuki against the chemical companies and the Former Regents of the University of Hawaii and all claims of plaintiff Fraticelli, other than for wrongful death, are barred.

The Federal Tort Claims Act requires, as prerequisite to suit against the United States, a filing of an administrative claim within two years of accrual. 28 U.S.C. § 2401(b) (Supp. 1984).

Certified mail receipts show that administrative claim forms were received by the government on January 12, 1981. While the argument of the government that plaintiffs must have known of their claims prior to January 12, 1979 is persuasive, there is no need to decide that factual question now. There is also no point in analyzing the government's contention that plaintiffs have failed to exhaust their administrative remedies. See 28 U.S.C. § 2675(a).

C. Election of Remedies

Plaintiffs' claim against the Former Regents of the University of Hawaii is barred by their receipt of Workers' Compensation funds. Haw. Rev. Stat. § 386-5. The statute provides:

> The rights and remedies herein granted to an employee or his dependents on account of a work injury suffered by him shall exclude all other liability of the employer to the employee, his legal representative, spouse, dependents, next of kin, or anyone else entitled to recover damages from the employer, at common law or otherwise, on account of the injury.

The statutory compensation remedy for workers is exclusive. Evanson v. University of Hawaii, 52 Haw. 595, 483 P.2d 187 (1971). See also Jordan v. Rita, 670 P.2d 457 (S.Ct. Haw. 1983).

D. Causation

Plaintiffs have submitted scientific expert testimony in the form of medical affidavits. These affidavits suffer from the same defects as those discussed at length in the decision dismissing claims of veterans who opted out of the class. In re "Agent Orange" Product Liability Litigation, ____ F.Supp.____._ (E.D.N.Y. May 8, 1985). The same Epstein affidavits already rejected, id. at____, have also been relied upon by plaintiffs in the instant case as their main support for resisting summary judgment.

As with the veteran plaintiffs, there is no admissible evidence that Agent Orange caused plaintiffs' illnesses. Like many veterans, Fraticelli and Oshita smoked and consumed alcohol.

All plaintiffs freely admit exposure to many toxic chemicals other than Agent Orange. There is evidence of family histories of cancer and kidney disease. Some of Fraticelli's symptoms actually predated his alleged exposure to dioxin. As with the veterans who opted out, the expert and other evidence that these plaintiffs rely upon "fail(s) to show how the myriad illnesses at issue are more likely caused by Agent Orange than by something else. Their conclusions are wholly speculative."_____F.Supp. at____.

The motion for summary judgment by all defendnts against all plaintiffs must be granted. The action is dismissed without costs or disbursements. This opinion constitutes a final judgment.

50 ORDERED.

Chief Judge, U.S.D.C.

DATED: Brooklyn, New York
May 9, 1985