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UNITED STATES OF AMERICA, Plaintiff v. PRINCE KUMAR ARORA, Defendant**Civil No. PJM 93-1281****UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MARYLAND***860 F. Supp. 1091; 1994 U.S. Dist. LEXIS 12108***August 25, 1994, Decided****LexisNexis (TM) HEADNOTES- Core Concepts:**

compensatory damages and \$5,000.00 in punitive damages.

COUNSEL: [**1] For Plaintiff: Donna C. Sanger, Esquire, Office of U.S. Attorney, Baltimore, MD.

II.

For Defendant: Tom Watson, Esquire, Joseph N. Onek, Esquire, Curtis S. Renner, Esquire, Crowell & Moring, Washington, D.C.

Factual Background

JUDGES: MESSITTE

A) The National Institutes of Health (NIH), part of the United States Department of Health and Human Services, is a world-renowned research and educational facility with extensive laboratories, located in Bethesda, Maryland. NIH conducts research in a number of critical scientific areas. n1

OPINIONBY: PETER J. MESSITTE**OPINION:**

n1 NIH is authorized to conduct, promote, and fund research "relating to the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and impairments of man. . . ." 42 U.S.C. § 241(a).

[*1092] OPINION

I.

Introduction

In this civil suit for conversion and trespass, the United States contends that Doctor Prince Kumar Arora intentionally tampered with and destroyed cells in a research project at the National Institutes of Health in Bethesda, Maryland. Dr. Arora denies tampering and in any case responds that the Government sustained no damages by reason of the cell deaths.

In 1978, after receiving his Ph.D in microbiology from Michigan State University, Prince Kumar Arora joined NIH as a Visiting Fellow in the Laboratory of Immunodiagnosis at the National Cancer Institute. There and [**3] later as a Staff Fellow in the Laboratory of Developmental and Molecular Immunology at the National Institute of Child Health and Development, he conducted research in immunology, collaborated with other scientists, published his research in scientific journals, and supervised and trained younger researchers working in his laboratories. In 1987, Dr. Phil Skolnick, Chief of the Laboratory of Neuroscience in the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), invited Dr. Arora to conduct immunology research at that institute. From approximately 1987 through 1992, Dr. Arora pursued his research at NIDDK, publishing papers, editing articles for scientific journals, collaborating with other scientists, and continuing his supervision of younger scientists working in the laboratory.

The Court, sitting without a jury, received testimony and exhibits over several days and has considered the parties' post-trial briefs. On the basis of the evidence and pleadings, the Court concludes that Dr. Arora did tamper with, destroy, and convert Alpha 1-4 cells; that he is liable for the cost of the flasks and materials associated with the creation of the cells as well as the reasonable value of the time it took a laboratory assistant to re-create the cells; and that, while not liable in compensatory damages for the delay he caused in the completion of the research [**2] project, he must respond in punitive [*1093] damages, as to which the effect his actions had on the research project is a relevant consideration.

B) In 1989, Dr. Arora hired a post-doctoral student from Japan, Dr. Yoshitatsu Sei. Dr. Arora served as Dr. Sei's mentor and together they published several

The Court will award the United States \$450.20 in

papers setting forth the results of their collaborative research. Consistent with laboratory policy, however, Dr. Sei was free to engage in collaborative projects with other researchers without Dr. Arora's involvement. Thus, in December [**4] 1990, Dr. Sei, who had special expertise in cell culturing, joined Dr. Skolnick and Dr. Garry Wong in a pioneering research project designed to study the immune properties of certain cell receptors. n2 The purpose of the project was to attempt to develop, through a complex method, a brand new line of cells which could be transfected into human cells, which could then be cloned into a sufficient number of the newly created cell line. The cell line, if successful, would have significant implications for studies of alcohol, Alzheimer's disease, neurotoxicity, and — in the words of Dr. Wong — "just about anything that has to do with regulation of brain cells."

n2 The project was entitled "Expression and Functional Properties of Type I GABAA Receptor in a Stably Transfected Cell Line." A receptor is a molecular structure within a cell characterized by (1) selective binding of a specific substance and (2) a specific physiologic effect that accompanies the binding. "Transfection" refers to the artificial infection of animal or bacterial cells by nucleic acid isolated from virus or bacteriophages, resulting in the production of mature virus or phage particles. See Dorland, *Illustrated Medical Dictionary* (27th ed. 1988).

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Between December 1990 and the beginning of 1992, working from several cell line possibilities, one of which they dubbed "Alpha 1-4", Drs. Wong and Sei sought to develop a stable cell line. By February 1992, they were successful in creating the Alpha 1-4 cell line and were able to maintain a supply of the line in a deep freeze. What remained, before preparing the manuscript announcing their research to the public and donating the cell line to a national cell bank for use by scientists around the world, were scientific assays, i.e. experiments, to describe the characteristics of the cell line. To perform these assays, multiple flasks, each containing millions of Alpha 1-4 cells, were required.

C) Against this scientific background, however, as often happens in life, human passion slowly began to overtake cool reason. [*1094] Throughout the initial phase of Dr. Sei's involvement in the Alpha 1-4 project, his relationship with Dr. Arora was entirely cordial. In November, 1991, for example, Dr. Sei applied (albeit unsuccessfully) for a teaching position in Japan and Dr. Arora wrote a glowing letter of recommendation.

But, not long after, relations between Dr. Arora and Dr. Sei began to sour. [**6] Dr. Sei became disturbed when he felt Dr. Arora was claiming senior authorship on a paper involving AIDS research that Dr. Sei felt Dr. Arora had not really participated in. His distress increased when Dr. Arora and not Dr. Sei was invited to present the results of the research at an international conference on AIDS. When Dr. Sei confronted Dr. Arora about Dr. Arora's use of Dr. Sei's research materials without permission, Dr. Arora apologized, but relations failed to improve.

Feelings between the two became further strained as a result of Dr. Arora's interaction with a young female research assistant, Abah Saini. Ms. Saini was working at NIH on temporary assignment in connection with her graduate studies, with Dr. Arora serving as her mentor. When, in the fall of 1991, Ms. Saini claimed that Dr. Arora had sexually harassed her and asked that she be assigned another mentor, Dr. Skolnick, without any determination that such harassment had actually occurred, removed Dr. Arora as Ms. Saini's mentor and replaced him with Dr. Sei. Dr. Sei testified that, in consequence of Ms. Saini's problem with Dr. Arora, he "lost trust" in Dr. Arora. Ms. Saini left NIH in the early part of 1992.

D) [**7] Meanwhile Dr. Sei, along with Dr. Wong, kept on with his Alpha 1-4 cell research project. As of late February 1992, Dr. Sei estimated that some six weeks worth of as says remained for completion. At the end of February 1992, however, Dr. Sei and Dr. Wong suddenly observed that a number of the Alpha 1-4 cells as well as other cells were dying or damaged. These deaths, which Dr. Skolnick called "unprecedented," were occurring in an incubator located in Room 104 of Building 8 on the NIH campus, the Neuroimmunology Section of the Laboratory of Neuroscience. Together the researchers spent several hours checking possible sources for cell death, including bacterial contamination, faulty growing media, and a faulty cell incubator. Finding no cause for what they considered "massive cell death", n3 they began to suspect tampering.

n3 As indicated, the Alpha 1-4 cells, as well as other potential cell lines, were kept in several flasks, each flask containing millions of such cells. Dr. Sei noted the death of Alpha 1-4 and related cells on March 1, 8, 17, 20, 27 and 30, 1992. The flasks found on March 17, for instance, were heavily contaminated with bacteria, despite having been fed with three different sources of media, a condition that Dr. Sei testified was "very, very unusual."

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On March 17, Drs. Sei and Wong decided to mark the

caps of approximately 5 Alpha 1-4 cell flasks and 5 HK-293 cell flasks with a black magic marker, setting each black mark at approximately 12:00 on an imaginary clock, in order to determine if the location of the marks changed during the night. The next day, finding that the marks on the caps were indeed out of alignment, and, on March 20 noting further cell death, they reported their concern to Dr. Skolnick. A check of the register of off-hours visitors to Room 104 indicated that Dr. Arora had entered the building on the night of March 18. When, on March 27, more Alpha 1-4 cells were discovered dead or heavily damaged and the entry card key system showed Dr. Arora as an off-hours visitor on March 25, Dr. Skolnick reported the suspected sabotage to the NIH police.

The NIH police thereupon commenced an investigation which culminated on April 1 when Detective Miller of that department, together with Dr. Sei, set up a fake experiment in Room 104. Wearing gloves and wiping each flask clean of fingerprints with an alcohol swab, Dr. Sei placed 5 "Alpha 1-4" flasks as well as 11 other cell flasks in the cell incubator, marking the caps [**9] as before. n4 [**1095] As of the early afternoon, Dr. Sei's flasks were the only ones placed in the incubator. That evening, having been alerted by the NIH security office that Dr. Arora had used his card entry key to enter Room 104, Detective Miller and Dr. Sei returned to the laboratory, encountering Dr. Arora outside the room. Detective Miller and Dr. Sei did not enter Room 104 at that time, but when they returned later in the evening and examined the flasks in the cell incubator, they observed that the caps had again been moved and that latent fingerprints appeared to have been left on the flasks. The flasks were immediately taken up by Detective Miller and preserved in the NIH security office for further examination.

n4 The 16 flasks used by Dr. Sei in the fake experiment, while marked as containing "Alpha 1-4" cells, actually contained "HK 293" cells. This intentional mislabeling was apparently done in order to conserve the supply of Alpha 1-4 cells which was rapidly diminishing by reason of the cell deaths. Four additional flasks, intended to serve as a control for the experiment, had been removed from the lot and placed under incubation in a separate room. The fake experiment was not intended to show that someone had tampered with "Alpha 1-4" cells on that particular day, for clearly they could not do that. What the experiment would tend to show was that someone was tampering with what were believed to be Alpha 1-4 cells and inferrably that the same person had tampered with real Alpha 1-4 cells on previous occasions.

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Shortly thereafter, Miller sent sixteen of the flasks (including at least two control flasks) to James Hudson, an FBI fingerprint analyst. Three other flasks were sent to Dr. Sanford P. Markey, Chief of the Section on Analytical Biochemistry of the Laboratory of Clinical Science at NIH and an expert in analytical mass spectrometry. Within a few days, Mr. Hudson reported that four fingerprints on the flasks in the fake experiment matched those of Dr. Arora. n5 At approximately the same time, Dr. Markey, who had received one flask marked "Suspect," a second marked "New Batch Suspect" and third marked "Control," concluded, based on testing both by smell and mass spectrographic analysis, that the flasks marked "Suspect" and "New Batch Suspect" contained a substance not found in the "Control" flask, which he identified as #2-mercaptoethanol. Dr. Sei testified that he had placed no #2-mercaptoethanol in any flasks prepared for the fake experiment; he also testified that #2-mercaptoethanol, while a common laboratory substance, was in concentrations as low as .01%, capable of killing Alpha 1-4 cells overnight. Detective Miller reported the test results to Dr. Skolnick, and on April 13, 1992, [**11] Detective Miller contacted Dr. Arora and asked him to come in for an interview.

n5 Because he was not involved in the Alpha 1-4 project, Dr. Arora had no particular reason to have been handling the flasks.

At their meeting on April 13, Detective Miller questioned Dr. Arora at length about the laboratory and the problems with cell growth. Although Dr. Arora testified that for most of the interrogation he was not informed why it was taking place, it is undisputed that, at an early point in the encounter, Detective Miller read him Miranda warnings and, although Dr. Arora refused to sign a written waiver of rights, he did agree to be interviewed. n6

n6 At various points in this proceeding, Dr. Arora has argued that he never waived his Miranda rights, with the apparent implication that any "confession" he made might be tainted. See *Miranda v. Arizona*, 384 U.S. 436, 16 L. Ed. 2d 694, 86 S. Ct. 1602 (1966). But no motion to suppress Dr. Arora's statement to Detective Miller was ever made by Dr. Arora, nor did he object at trial to the admissibility of the Detective's testimony regarding his alleged "confession." In any case, the Court is satisfied Dr. Arora intelligently waived whatever right he might have had to remain silent.

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Dr. Arora testified that Detective Miller suddenly began accusing him of killing Dr. Sei's cells, which Dr. Arora said he vigorously denied. Detective Miller, on the other hand, testified that when he asked Dr. Arora how he killed the cells, Dr. Arora answered "with 2-mercaptoethanol."

Following his interview with Dr. Arora, Detective Miller immediately asked his supervisor, Captain Timothy Pickett, to reinterview Dr. Arora out of Miller's presence. Although Dr. Arora denied saying it, Captain Pickett testified that Dr. Arora clearly admitted to him that he had adulterated cell tissues with "2-merca-something," a word Captain Pickett could neither remember nor pronounce. Captain Pickett further testified that Dr. Arora stated in effect that "it was the first time I did it; I'll never do it again."

When Dr. Arora left the police interview, he attempted to locate Dr. Skolnick but did not succeed until the following morning. When they finally met, Dr. Skolnick, who had [*1096] already talked to Detective Miller, immediately confronted Dr. Arora with the question:

"Why did you do it?"

to which he testified Dr. Arora replied:

"To teach Yoshi (Dr. Sei) and Abha (Ms. Saini) a lesson,"

[**13]

suggesting that the two of them were

"conspiring against me."

Dr. Skolnick then testified that he went on to say:

"You know you can't work here anymore,"

to which Dr. Arora replied:

"Yes, I know that."

While Dr. Arora does not dispute that this exchange with Dr. Skolnick took place, he argues that it did not constitute an admission of guilt on his part; rather, he says, he understood Dr. Skolnick's question "why did you do it?" to mean why had he (Dr. Arora) accused Dr. Sei and Ms. Saini of "conspiring" against him. n7 Dr. Skolnick, for his part, testified that there was no possibility of misunderstanding that he was referring to the massive cell death and that Dr. Arora was acknowledging his responsibility for that result.

n7 Dr. Arora also told Dr. Skolnick that he was "embarrassed", but did not elaborate why that was so.

Dr. Arora was terminated from his employment at NIH effective April 14, 1992.

E) Drs. Sei and Wong eventually cultured a sufficient number of Alpha 1-4 cells to perform the remaining assays [**14] needed for their project, the project was brought to successful completion, and the results published in a reputable scientific journal. The laboratory also donated the Alpha 1-4 cell line, under the name WSS-1, to the American Type Culture Collection for general distribution to the scientific community for purposes of research. Both Dr. Sei and Dr. Skolnick estimated, however, that, by reason of the cell deaths, the project had been delayed by as much as six weeks. In addition, Dr. Sei testified that the cell deaths occasioned the loss of flasks and related materials in the amount of \$176.68 and that the reasonable value of the services of a laboratory assistant to recreate the lost cells was \$273.52, representing 13 hours of labor at \$21.04 per hour.

Finally, Dr. Skolnick testified that the cell deaths impeded the progress of the research project "quite remarkably," observing that, with the cell deaths, there was always the risk that the basic cell line itself might be lost without any guarantee that it could be recreated within a reasonable time. The importance of the cell line as a research tool would thus have been diminished considerably as would, of course, the prestige [**15] of the laboratory identified with the project.

On May 3, 1993, the United States filed this civil suit against Dr. Arora, claiming compensatory and punitive damages for what it alleged was his conversion of or trespass against its property.

III.

Questions Presented

The Court is faced with four fundamental questions in this case:

- 1) Did Dr. Arora in fact tamper with the Alpha 1-4 cells?
- 2) If so, did the tampering constitute either the tort of conversion or trespass?
- 3) If either such tort was committed, what compensatory damages, if any, should be assessed?
- 4) If either tort was committed, what punitive damages, if any, are appropriate?

IV.

Did Dr. Arora tamper with the cells?

Dr. Arora denies that he adulterated Dr. Sei's cells and suggests that if he touched the flasks, it would only have

been to move them in the course of getting at other flasks in the incubator where the flasks were located. But the evidence to the contrary is considerable. Only Dr. Sei's flasks were in the incubator at the time he placed them inside. Dr. Arora's fingerprints were found on the flasks despite his lack of official authorization [*1097] to handle them. An adulterating substance with a quick toxic [**16] effect, #2-mercaptoethanol, was found in several of the fake experiment flasks, whereas Dr. Sei testified he placed no such chemical in with the "Alpha 1-4" or other cells. Dr. Arora also had a potential animus, which is to say motive, against Dr. Sei — professional rivalry as well as possible resentment over Ms. Saini's shift of allegiance from Dr. Arora to Dr. Sei. Most importantly, three separate witnesses testified that, when confronted with the alleged wrong-doing, Dr. Arora in one fashion or another admitted his culpability. Detective Miller said that Dr. Arora confessed to using #2-mercaptoethanol to kill the cells; Captain Pickett said Dr. Arora admitted that he had adulterated the cells, that it was the first time, and that he would not do it again; and Dr. Skolnick said Dr. Arora conceded he did "it" "to teach (Dr. Sei) and (Ms. Saini) a lesson" because they were "conspiring against me."

The burden of proof as to liability in this nonjury civil case is a simple preponderance of the evidence, see e.g. *Hirsch v. Upper South Dep't of I.L.G.W.U.*, 167 F. Supp. 531, 534 (D.Md. 1958), n8 the issue of credibility one for the Court. The Court concludes, [**17] in this most unhappy affair, that Dr. Arora did in fact tamper with and cause the death of the Alpha 1-4 cells at the NIH laboratory in Bethesda in the Spring of 1992.

n8 As to punitive damages, however, Maryland law requires proof of actual malice by clear and convincing evidence. See Part VII hereof, *infra*.

V.

Was there a conversion or trespass?

A) It is not necessary to recount here the historical development of the torts of trespass and conversion, a matter more than adequately explored in Prosser and Keeton on The Law of Torts, §§ 14-15 (5th ed. 1984). For present purposes, it suffices to observe that the difference between the two torts is fundamentally one of degree, trespass constituting a lesser interference with another's chattel, conversion a more serious exercise of dominion or control over it. See *Restatement (Second) of Torts*, § 222A, Comment (1965).

Thus a trespass has been defined as an intentional use or intermeddling with the chattel in possession of another,

Restatement (Second) of Torts, [**18] § 217(b), such intermeddling occurring, inter alia, when "the chattel is impaired as to its condition, quality, or value." *Restatement (Second) of Torts*, § 218(b). See also *Walser v. Resthaven Memorial Gardens, Inc.*, 98 Md.App. 371, 395, 633 A.2d 466 (1993).

A "conversion", on the other hand, has been defined as:

An intentional exercise of dominion or control over a chattel which so seriously interferes with the right of another to control it that the actor may justly be required to pay the other the full value of the chattel.

Restatement (Second) of Torts, § 222A(1). See also *Staub v. Staub*, 37 Md.App. 141, 376 A.2d 1129 (1977). Whereas impairing the condition, quality or value of a chattel upon brief interference can constitute a trespass, intentional destruction or material alteration of a chattel will subject the actor to liability for conversion. *Restatement (Second) of Torts*, § 226. See also *Kalb v. Vega*, 56 Md.App. 653, 468 A.2d 676 (1983).

A number of factors are considered in determining whether interference with a [**19] chattel is serious enough to constitute a conversion as opposed to a trespass. These include:

- a) the extent and duration of the actor's exercise of dominion or control;
- b) the actor's intent to assert a right in fact inconsistent with the other's right of control;
- c) the actor's good faith;
- d) the extent and duration of the resulting interference with the other's right of control;
- e) the harm done to the chattel;
- f) the inconvenience and expense caused [*1098] to the other. n9

Staub, 37 Md.App. at 143-144, quoting *Restatement (Second) of Torts*, § 222A(2).

n9 It is inconsequential that the actor may have received no benefit from the act. *Maryland Casualty Co. v. Wolff*, 180 Md. 513, 25 A.2d 665 (1942).

Assuming for the moment that a cell line is a chattel capable of being converted or trespassed upon, it is clear that the United States owned the Alpha 1-4 cell line, n10

and that Dr. Arora's dominion or control it, while brief, [**20] was total. He intended to act inconsistently with Dr. Sei's right to control the cells, he did not act in good faith, and he committed the ultimate harm — he destroyed the cells. While certain easily identifiable expense was caused by Dr. Arora's inappropriate acts, it is also apparent that he caused serious inconvenience to what was a critically important research project. By this analysis, if any tort was committed, it was unquestionably a conversion, not a mere trespass.

n10 Even if, as Defendant contends, a cell line maintained in a national cell registry is dedicated to public use and not subject to any personal property interest, see *Miles, Inc. v. Scripps Clinic & Research Found.*, 810 F. Supp. 1091 (S.D. Cal. 1993), but see *Pasteur v. U.S.*, 814 F.2d 624 (Fed. Cir. 1987), the argument avails little here. All relevant acts in this case occurred after the cell line had been created but before its donation to the national cell depository in 1993.

[**21]

B) But what exactly did Dr. Arora convert? It is undoubtedly fair to conclude that by his wrongful act he caused the loss of the flasks, pipets and other materials used to culture the cells, a total value of \$176.68.

But did he convert the cell line?

In what appear to be the only cases in which plaintiffs have sought recovery for conversion of cell lines, courts have in fact held the cause of action does not lie. These cases, however, are easily distinguishable from the present case, if not subject to challenge on their own terms. Thus, in *Moore v. The Regents of the Univ. of California, et al.*, 51 Cal.3d 120, 793 P.2d 479, 271 Cal. Rptr. 146 (1990), plaintiff Moore, while a patient at defendant hospital, had had certain blood products removed by defendant physician, which confirmed a diagnosis of hairy-cell leukemia. Defendants allegedly were aware that these blood products were of great value in a number of commercial and scientific efforts and that access to a patient whose blood contained the substances would provide significant competitive commercial and scientific advantages. Without telling plaintiff this, defendant [**22] physician removed the cells from plaintiff's body and eventually developed them for commercial purposes. Moore's suit was based in part on an alleged conversion of his body materials. In holding that Moore could not recover on a theory of conversion, n11 the court found that Moore no longer had a property interest in the bodily materials. At least two dissenters took sharp issue with that proposition, for reasons which need not be pursued here. What is important

for present purposes, however, is the distinction made by Justice Broussard in the dissenting portion of his opinion:

If, for example, another medical center or drug company had stolen all of the cells in question from the UCLA Medical Center laboratory and had used them for its own benefit, there would be no question but that a cause of action for conversion would properly lie against the thief, and the majority opinion does not suggest otherwise.

51 Cal.3d at 153.

n11 The court did find that Moore had stated a cause of action for breach of the physician's disclosure obligations.

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In the context of the present case, while there is no allegation that Dr. Arora stole a cell line belonging to NIH, there is the equivalent allegation that he substantially interfered with and destroyed or altered its nature.

In *Miles, Inc. v. Scripps Clinic and Research Found.*, 810 F. Supp. 1091 (S.D. Cal. 1993) conversion of a cell line was also involved, more particularly the right to commercialize the cell line, i.e. to make a profit based upon it. Plaintiff pharmaceutical company alleged that a research foundation with whom it was a joint venturer had deprived it [*1099] of the right to participate in the benefits of a cell line that had been developed in the joint venture. Plaintiff contended that defendant had conspired with certain employees to transfer the right to commercialize the cell line to defendant. The Miles court was careful to point out that the conversion claim involved was not as to the cell line itself, but rather to the right to commercialize the cell line. The court in fact found plaintiff did have a property interest in the right to commercialization of the cell line, but concluded that, by virtue of the Moore case, California [**24] had not recognized a cause of action for conversion of that intangible right. n12 The court noted that plaintiff was essentially asserting a breach of contract claim and that contract or patent law would cover the alleged violation.

n12 The Miles court, as a federal court sitting in the State of California, was constrained to apply California law as the State Supreme Court would apply it. See *Erie Railroad v. Tompkins*, 304 U.S. 64, 82 L. Ed. 1188, 58 S. Ct. 817 (1938).

Assuming that Moore was correctly decided and that

Miles is a correct interpretation of Moore, it still remains true that neither contract nor patent law would cover the wrongdoing in the present case. Those areas of the law extend to cases of unauthorized use of the cells, not their intentional destruction.

The fact is that the United States Supreme Court has recognized that a living cell line is a property interest capable of protection. See *Diamond v. Chakrabarty*, 447 U.S. 303, 65 L. Ed. 2d 144, 100 S. Ct. 2204 (1980) [**25] (inventor of a genetically-engineered organism could obtain protection of ownership interests under patent laws). Other courts have likewise acknowledged the cell line's status as property, see e.g. *Pasteur v. United States*, 814 F.2d 624 (Fed. Cir. 1987) (donated cell line assumed to be property but transfer held not subject to Contract Disputes Act). n13 The Court thus sees no reason why a cell line should not be considered a chattel capable of being converted. Indeed, if such a cause of action is not recognized, it is hard to conceive what civil remedy would ever lie to recover a cell line that might be stolen or destroyed, including one with immense potential commercial value, as this one apparently had and has. See generally Catherine M. Valerio Barrad, "Genetic Information and Property Theory," 87 *Nw.U.L.Rev.* 1037 (1992). The Court is satisfied, therefore, under the circumstances of this case, that the Alpha 1-4 cell line was capable of being converted and that in fact Dr. Arora converted it. The more difficult question, perhaps, is how to assess damages, the next question before the Court.

n13 Although microscopic, a cell line is certainly tangible in nature. The Court thus finds of little import Defendant's contention that Maryland law does not recognize a cause of action for conversion of intangible property rights.

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VI.

What compensatory damages, if any, should be assessed?

A) The Government claims a broad array of damages by reason of Defendant's acts, including the costs of the flasks, materials and supplies used to create the cells, the reasonable value of the wages paid to the laboratory assistant who cultured the cells, and a sizeable amount for the delay in the research project occasioned by the conversion. Defendant, in sharp contrast, maintains that the Government has sustained no damage at all; indeed he has sought throughout to dismiss these proceedings by reason of that alleged fact. n14

n14 Defendant's Motion for Summary

Judgment on this ground was denied shortly before trial.

The conventional rule in cases of conversion, it is true, fixes damages for a totally destroyed chattel at the market value as of the date of the conversion, plus interest to the date of judgment. See *Checkpoint Foreign Car Service, Inc. v. Sweeney*, 250 Md. 251, 242 A.2d 148 (1968). To the extent [**27] that the chattel is a discrete tangible item of discernible market value, the calculation is fairly straightforward and presents little problem. The matter becomes more difficult when property of limited extrinsic or uncertain market value is involved. See generally [**100] Dan B. Dobbs, *Law of Remedies*, § 5.13(1) (2nd ed. 1993).

But mere difficulty in ascertaining damages is not a basis for denying them. While the market value measure is the traditional rule in conversion cases, it is also the case, as stated by the Maryland Court of Appeals in *Staub v. Staub* that:

as in other tort actions, additional damages adequate to compensate an owner for other injurious consequences which result in a loss greater than the diminished or market value of the chattel at the time of the trespass or conversion may be allowed unless such claimed damages are so speculative as to create a danger of injustice to the opposite party.

37 *Md.App.* at 145-146.

See also *Restatement (Second) of Torts*, § 927(2) (owner of converted chattel, in addition to diminished value, may recover "any further pecuniary loss of which the deprivation has been a legal [**28] cause"); *Amstar Corp. v. M/V Alexandros T*, 472 F. Supp. 1289 (D.Md. 1979) (awarding expenses of handling and testing damaged cargo of sugar, as well as loss of value of cargo). As observed by the United States District Court for the Eastern District of Pennsylvania in *American East India Corp. v. Ideal Shoe Co.*, 400 F. Supp. 141 (E.D.Pa. 1975):

the general purpose of damages in conversion is to provide indemnity for all actual losses or injuries sustained as a natural and proximate result of the converter's wrong. The measure of damages, generally employed, is the value of the property, with interest from the time of conversion, at the time and place of the conversion. However, it is appropriate to use

whatever measure of damages accomplishes the general objective of indemnity under the particular circumstances. (Citations omitted)

400 F. Supp. at 169.

For this reason, in a number of cases involving chattels of limited extrinsic or market value, courts have allowed as damages the original or replacement cost or cost of repair of the chattel. See generally Dobbs at § 5.13(1); see [**29] also *Lakewood Engineering and Manufacturing Co. v. Quinn*, 91 Md.App. 375, 604 A.2d 535 (1992) (allowing replacement value of household items lost in fire). And, where, as here, the converted chattel is essentially a product of creative effort as to which no original or replacement cost can fairly be assigned — for example, manuscripts or professional drawings — courts have also fixed damages based upon the value of the time that it took or would take to create the chattel. See e.g. *Wood v. Cunard*, 192 F. 293 (2d Cir. 1911) (taking into account the value of two years of intermittent labor required to reproduce lost manuscript); *Rajkovich v. Alfred Mossner Co.*, 199 Ill.App.3d 655, 557 N.E.2d 496, 145 Ill. Dec. 726 (1990) (compensating for 172 hours of architectural time at specified rate necessary to redo damaged architectural drawings); see also *Redwine v. Fitzhugh*, 78 Wyo. 407, 329 P.2d 257, 72 A.L.R.2d 664, reh. den., 78 Wyo. 426, 330 P.2d 112 (1958) [**30] (allowing recovery for value of seed and for labor expended in sowing and cultivating seed where seed destroyed in the ground).

B) These principles find relatively easy application in the present case. The tangible chattels converted consist of the Alpha 1–4 cells and the flasks and related materials which contained them. The latter have a market value of some \$176.68, while the value of the former is essentially unascertainable. But the evidence in the record also establishes the cost of creating or recreating the Alpha 1–4 cells at \$273.52, the amount attributable to the services of a laboratory assistant necessary to culture the cells. The total of these two sums, \$450.20, while modest, is nevertheless nontrivial. It is an amount properly awardable in this case and the Court has determined to award it.

On the other hand, the Court acknowledges the caveat of Staub that consequential damages may not be "so speculative as to create a danger of injustice." 37 Md.App. at 146. The Court, therefore, is inclined to agree with Defendant that any effort to quantify with precision damages for delay in the research project would run counter [**31] to that principle. Nonetheless, while damages for delay in the research project may remain too speculative to be counted as an item of compensatory damages, as the following discussion suggests, the fact that [*1101] delay resulted by reason of Dr. Arora's action does not

entirely disappear from the case.

VII.

What punitive damages, if any, should be assessed?

Maryland law provides that punitive damages may be recovered in cases of conversion. *McClung-Logan Equip. Co., Inc. v. Thomas*, 226 Md. 136, 172 A.2d 494 (1961); *Kaplan v. Bach*, 36 Md.App. 152, 373 A.2d 71 (1977). They are awarded to punish evil, rancorous or ill-motivated acts and to serve as a deterrent in the future. *Owens-Illinois v. Zenobia*, 325 Md. 420, 601 A.2d 633 (1992). To the extent that Dr. Arora has been found to have deliberately interfered with or destroyed the research project, the delay that resulted from such act may obviously be taken into account at the punitive damages stage, where the Court is not held to a standard of precise quantification or even necessarily to a rule [**32] of proportionality vis-a-vis the underlying compensatory award. See *Trandes Corp. v. Guy F. Atkinson Co.*, 798 F. Supp. 284, 290 (D.Md. 1992). All that is required is that the Court's award be fair and just under all the circumstances.

Maryland law holds that punitive damages are awardable only if there is clear and convincing evidence of actual malice. *Owens*, 325 Md. 420, 601 A.2d 633. The Court is satisfied to that degree that Dr. Arora did act with an evil and rancorous intent against Dr. Sei. His intentional actions, moreover, not only delayed a vitally important research project; they were obviously calculated to diminish the reputation of the entire laboratory involved with the project. Beyond that, Dr. Arora had to know that his actions might deprive the scientific community of the benefits of the research involving the Alpha 1–4 cell line for some period of time, possibly forever. Finally — and here perhaps the deterrent effect of a punitive award comes most into play — his actions undermined the honor system that exists among the community of scientists, a system which is ultimately based on "truthfulness, [**33] both as a moral imperative and as a fundamental operational principle in the scientific research process." n15 Taking all these considerations into account, the Court has determined that a punitive damage award in the amount of \$5,000.00 would be fair and just.

n15 Panel on Scientific Responsibility and the Conduct of Research, Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, Institute of Medicine, Responsible Science, Ensuring the Integrity of the Research Process, p.17 (1992), cited in Elizabeth Howard, Note, "Science Misconduct and Due Process: A Case of Process Due," 45 *Hastings L.J.* 309 (1994).

VIII.

Conclusion

The Court, therefore, will enter judgment on Count I, the conversion count, in favor of the United States, in the sum of \$450.20 compensatory damages and \$5,000.00 punitive damages and Defendant will also be directed to pay court costs. In light of the Court's judgment as to Count I, the Court [**34] will dismiss Count II, in trespass, as moot.

A separate Final Order of Judgment will be entered.

August 25, 1994

PETER J. MESSITTE

UNITED STATES DISTRICT JUDGE

FINAL ORDER OF JUDGMENT

Trial having been held in the captioned case and the written submissions of the party having been considered, it is, for the reasons set forth in the Court's Opinion of even date, this 25th day of August, 1994

ORDERED that judgment on Count I of the Complaint (Conversion) is hereby entered in favor of Plaintiff United States of America and against the Defendant Prince Kumar Arora in the sum of \$450.20 compensatory damages and \$5,000.00 punitive damages, a total of \$5,450.20, plus costs of suit; and it is further

ORDERED that Count II of the said Complaint (Trespass) is hereby dismissed as MOOT.

PETER J. MESSITTE

UNITED STATES DISTRICT JUDGE