

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS

HIGH ENERGY OZONE LLC d/b/a FAR-UV)
STERILRAY and S. EDWARD)
NEISTER,)
)
Plaintiffs,)
)
v.)
)
EDEN PARK ILLUMINATION, INC.)
)
Defendant.)

Civil Action No.

JURY TRIAL DEMANDED

COMPLAINT

Plaintiffs High Energy Ozone LLC d/b/a Far-UV Sterilray (“HEO3”) and Mr. S. Edward Neister (“Mr. Neister”) (collectively, “Plaintiffs”) allege as follows:

INTRODUCTION

1. More than fifteen years ago, physicist S. Edward Neister developed and patented methods for deactivating or destroying harmful microorganisms using a new spectrum of ultraviolet (UV) light. Mr. Neister’s methods included the development and use of Krypton-Chloride excimer lamps that emit a peak wavelength at 222 nm in conjunction with other wavelengths. Unlike the 254 nm UV light—which had been used for decades for sanitization but was dangerous to humans—applying 222 nm UV light does not penetrate human skin or eyes, making it far better and more useful than traditional lamps and methods of use.

2. Mr. Neister’s patented technology became the foundation for the family business. Mr. Neister and his brother John Neister originally founded the company that would become HEO3 in 2005 in a small town in New Hampshire. HEO3 produces and sells lamps designed to perform Mr. Neister’s patented methods of killing harmful microorganisms.

3. The global COVID-19 pandemic took the world by surprise in early 2020, but the hard work of and vision by the Neister brothers anticipated such a crisis. Their Excimer Wave Sterilray™ technology, products, and patented methods positioned HEO3 to be a global leader in UV light disinfection technology, providing sanitization devices to aid in the fight against the disease.

4. As a result of the pandemic, interest in UV light disinfection technology reached new heights. Market entrants sprung forth to capitalize on sanitization using far-UV light in the 222 nm range – including through unauthorized use of HEO3’s patented technology.

5. HEO3’s patented technology asserted in this case includes U.S. Patent Nos. 8,975,605 and 9,700,642, true and correct copies of which are attached hereto as Exhibits 1 and 2, respectively.

6. Defendant Eden Park Illumination, Inc. (“Eden Park”) is one such company trading on HEO3’s patented technology. As described below, Eden Park’s products utilize HEO3’s patented systems and methods.

7. To protect its hard-earned intellectual property rights, HEO3 sent a notice letter to Eden Park in June 2018 to notify them of HEO3’s patents and to offer to open licensing discussions. But still Eden Park refused to cease its infringing activities.

NATURE OF THE ACTION

8. This is an action for infringement of U.S. Patent Nos. 8,975,605 (“the ’605 patent”) and 9,700,642 (“the ’642 patent”) (collectively, the “Asserted Patents”) pursuant to the Patent Laws of the United States of America, 35 U.S.C. §§ 100 *et seq.*

PARTIES

9. Plaintiff HEO3 is a company organized and existing under the laws of the State of New Hampshire with its principal place of business at 30 Centre Road, Suite 6, Somersworth, NH 03878.

10. Plaintiff S. Edward Neister resides and works in the state of New Hampshire. He is the founder of HEO3 and its Chief Technology Officer.

11. On information and belief, Defendant Eden Park is a corporation organized and existing under the laws of the State of Delaware with its principal place of business at 903 N Country Fair Drive, Champaign, IL 61822. Eden Park also has offices in Chicago, IL. See Eden Park's website, https://edenpark.com/#Contact_Section, at "Locations."

JURISDICTION AND VENUE

12. This Court has subject matter jurisdiction over this action under at least 28 U.S.C. §§ 1331, 1338.

13. This Court has personal jurisdiction over Eden Park because it is headquartered in the State of Illinois. Eden Park also maintains a place of business in this District.

14. Venue is proper in this District under 28 U.S.C. §§ 1391(b)-(c) and 1400(b) because Eden Park maintains a place of business in this District and has committed acts of infringement in this District.

FACTUAL BACKGROUND

HEO3's 222 nm UV Technology

15. HEO3 is a leading developer of disinfection equipment using 222 nm UV technology. HEO3's disinfection technology provides a safe and environmentally sound means of disinfection using UV-light to kill bacteria, viruses, mold, and fungi in seconds or less. It has been validated by over 40 third-party labs as having a greater than 99.99% effective kill rate.

16. HEO3's technology permits users to sterilize surfaces without harsh chemicals. Additionally, unlike more commonly used UV sterilization techniques, HEO3's technology is mercury-free and does not produce ozone – a significant advance in terms of safety and environmental impact.

17. HEO3 offers a wide range of products utilizing its 222 nm UV technology. These include, for example: luminaire fixtures; air and surface disinfection units for disinfecting ambient air and surfaces in a room; surface disinfection rails and disinfection wands for disinfecting surfaces and air; pathogen reduction boxes for disinfecting high-touch items (such as handheld medical equipment) that can be placed inside the boxes; and airduct units for disinfecting air passing through HVAC units.

18. HEO3 does business under the tradename Far-UV Sterilray™ and its products feature Mr. Neister's patented Excimer Wave Sterilray™ Technology. Customers across the globe use Excimer Wave Sterilray™ products to create safer work, home, and medical environments.

19. As described on its website, HEO3's goal is to reduce the spread of infections and the burdens of such illnesses on our healthcare system. Over the past year alone, HEO3 has been approached by numerous and diverse organizations—including NFL teams, airlines, and robotic companies that specialize in the disinfection of office spaces, military barracks, public transportation, and hospitals—that have expressed interest in using HEO3's technology to help prevent spread of COVID-19.

20. HEO3's 222 nm UV technology is described and claimed in the Asserted Patents, on which Mr. Neister is the sole inventor. Mr. Neister has worked in the field of laser and UV light technology for over six decades. Mr. Neister drew on his decades of experience to develop HEO3's 222 nm UV technology claimed in the Asserted Patents.

21. Prior to Mr. Neister's inventions, UV disinfection methods typically used light at 254 nm generated by mercury-based lamps. As described in, *e.g.*, the '605 patent, Mr. Neister discovered that single line wavelengths emitted from an "excimer" lamp—a lamp using inert gases to generate photons at wavelengths matching the maximum absorption bands for DNA nitrogenous bases, proteins, amino acids, and other component bonds of microorganisms—could be significantly more effective than standard 254 nm photons for destroying DNA. As described in the '605 patent, "[k]ill action times are reduced from 10's to 100's of seconds to times of 0.1 seconds." Ex. 1 at 4:65-67.

22. One of the wavelengths Mr. Neister found to be particularly useful for disinfection was 222 nm, falling within the "far-UV" range. HEO3's Excimer Wave Sterilray™ products utilize photons at this wavelength, amongst others.

23. Recognizing Mr. Neister's discoveries, the United States Patent and Trademark Office ("USPTO") issued the Asserted Patents. Mr. Neister is the sole inventor of the Asserted Patents and related applications that are currently pending.

Eden Park's Thin 222 nm UV Lamps

24. Eden Park manufactures, sells and uses products that perform Mr. Neister's patented processes for destroying or deactivating the DNA or RNA (*i.e.*, the organic bonds and proteins) of microorganisms on substances or surfaces of the Asserted Patents.

25. Specifically, Eden Park makes, sells and uses thin 222 nm UV lamps (the "Accused Product"). *See generally* <https://edenpark.com/>. Eden Park markets these lamps as a "a way to rapidly kill dangerous virus cells and disinfect densely populated spaces." *Id.* Eden Park's website further promotes the lamps, in view of the COVID-19 pandemic as "a science-backed solution for returning our communities to a new, safer normal." *Id.* Particularly "[i]n the face of threats like

COVID-19,” Eden Park claims, “our work-spaces and meeting places need safe, effective solutions that will allow us to return to a new normal.” *Id.*

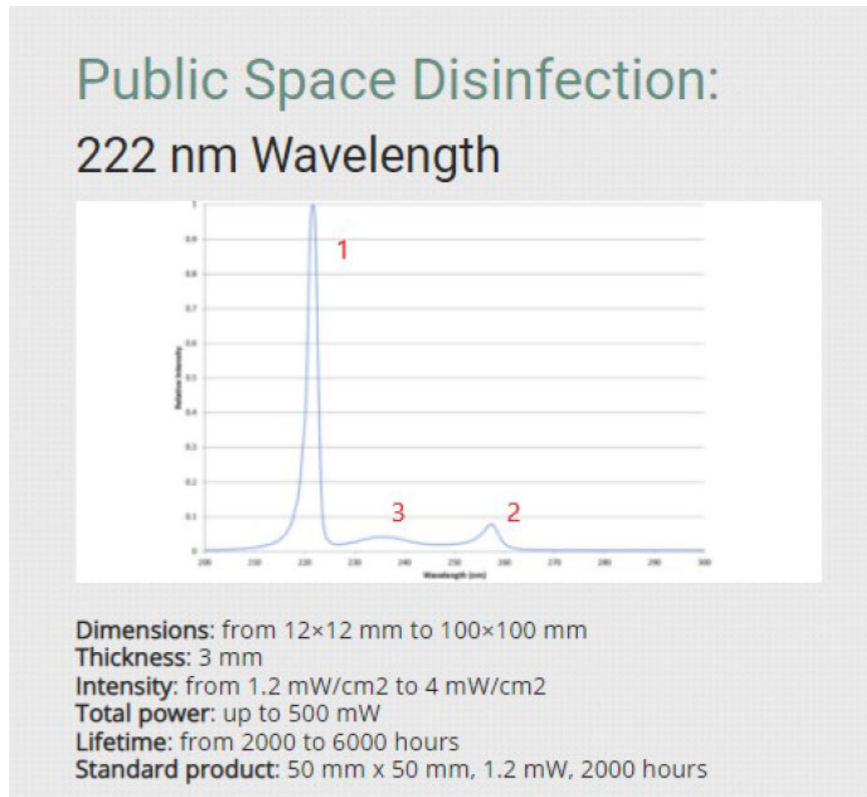
26. Eden Park extorts the benefits of 222 nm wavelength light, stating that “[n]ot all ultraviolet light is created equal.” *Id.* In fact, “UV wavelengths 222 nm and above are effective for killing or destroying bacteria and viruses.” *Id.* Eden Park also remarks, as Mr. Neister already knew, that “222 nm cannot penetrate human skin,” and while “254 nm to 257 nm wavelengths are effective, but they penetrate dangerously deep into human cells.” *Id.*

27. Eden Park advertises that its thin 222 nm lamps may be used “in populated indoor spaces, including factories, submarines, aircraft carriers, planes, waiting rooms, restaurants and more.” *Id.* Eden Park’s lamps are similarly advertised for “public space disinfection.” *Id.*

28. Eden Park further advertises how its 222 nm lamps are used in a variety of applications. *See* <https://edenpark.com/business-applications/>. For example, Eden Park advertises the use of its lamps in various environments with humans present, including shopping, travel, dining, and living. *Id.* These applications, according to Eden Park, are examples of partners using Eden Park lamps “for air and surface disinfection.” *See* <https://edenpark.com/>.

29. Eden Park further promotes the use of its thin 222 nm lamps by citing numerous items of “industry research.” *See* <https://edenpark.com/222nm-uv-safety-efficacy-research/#articles>. For example, Eden Park cites several studies demonstrating the safety and efficacy of using 222 nm light for disinfection, including a 2020 study from Kobe University entitled, “Repetitive irradiation with 222 nm UVC shown to be non-carcinogenic & safe for sterilizing human skin.” *Id.* Eden Park also cites a 2020 scientific report published in Nature demonstrating that “airborne coronavirus inactivation by far-UVC in populated rooms.” *Id.*

30. Eden Park’s website displays a graph that shows multiple UV wavelengths (peaks) are present in light from its 222 nm UV lamps:



See, e.g., <https://edenpark.com/> (annotations added).

Eden Park's Willful Infringement

31. On June 13, 2018, Eden Park President Mr. Cy Herring visited Hepacart booth at the 54th APIC Annual Conference & Technical Exhibit in Minneapolis, MN. While at the booth, Mr. Herring spoke with HEO3 co-founder Mr. John Neister, who displayed to Mr. Herring a sample of Plaintiffs' lamps.

32. On June 19, 2018, Plaintiffs sent a notice letter (attached as Exhibit 3) to Eden Park. The letter identified and attached the asserted patents and stated: "The purpose of this letter is to inform you that your development of what you refer to as "Custom Flat Excimer Lamps" may be infringing at least one of these patents." *Id.* The letter further cited several sections of Eden Park's website, noting that Eden Park's description of its own products characterized them in ways that "are potentially infringing at least" the '642 patent. *Id.* Accordingly, Eden Park has been on notice

of the Asserted Patents, and infringement risks involving its products, by at least as early as June 2018. Eden Park never responded to Plaintiffs' letter.

33. Over the course of 2020, in the wake of the global COVID-19 pandemic, interest in and promotion of UV sterilization technology dramatically increased. HEO3 sought to stop unauthorized use of its 222 nm UV technology. These actions include a lawsuit against Healthe, Inc. ("Healthe") (Case No. 6:20-cv-2233, pending in the Middle District of Florida), where Healthe products are alleged to infringe the Asserted Patents by utilizing Eden Park's 222 nm lamps.

34. Despite the June 2018 letter and more recent enforcement action by HEO3, Eden Park refused to engage in licensing discussions or to cease its infringement. Its willful infringement continues to this day.

COUNT I
(Infringement of U.S. Patent No. 8,975,605)

35. Plaintiffs incorporate by reference the allegations of all previous paragraphs as if fully set forth herein.

36. The '605 patent, entitled "Method and Apparatus for Producing a High Level of Disinfection in Air and Surfaces," was duly and legally issued by the USPTO on March 10, 2015. *See Ex. 1.*

37. Mr. Neister is the owner of all rights, title, and interest in and to the '605 patent and HEO3 is its exclusive licensee. Mr. Neister and HEO3 are entitled to sue for past and future infringement.

38. Eden Park received actual notice of the '605 patent at least as early as the filing of its Complaint, and on information and belief received notice of the '605 patent at least as early as June 2018, when Plaintiffs sent a notice letter to Eden Park.

39. Eden Park has directly infringed—literally and/or under the doctrine of equivalents—the '605 patent by making, using, selling, offering for sale in the United States, and/or importing into the United States UV lamps that practice one or more claims of the '605 patent, including but not limited to the Accused Products.

40. For example, claim 1 of the '605 patent recites:

1. A process for destroying or deactivating the DNA organic bonds and proteins of microorganisms comprising the steps of:

generating photons of at least two single line wavelengths from a non-coherent light source selected from the group consisting of at least two wavelengths being of 222 nm, 254 nm, and 282 nm;

directing the photons to a substance to be disinfected, whereby the photons destroy or deactivate the DNA organic bonds and proteins of microorganisms;

exposing the surface to be disinfected to the generated photons of at least two wavelengths, wherein the exposing achieves a ninety percent kill of microorganisms in a time period of less than one second.

41. Based upon publicly available information, the accused Eden Park thin 222 nm UV lamps practice each limitation of and infringe at least claim 1 of the '605 patent. Eden Park's thin 222 nm UV lamps produce UV light in multiple wavelengths, including 222 nm and 254 nm. *See* ¶ 30, *supra*; *see also* <https://edenpark.com/>.

42. Light from Eden Park's thin 222 nm UV lamps are "direct[ed] ... to a substance to be disinfected, whereby the photons destroy or deactivate the DNA organic bonds and proteins of microorganisms." *See* Ex. 1, '605 patent at claim 1. Eden Park markets them for use "in populated indoor spaces, including factories, submarines, aircraft carriers, planes, waiting rooms, restaurants and more." *See* <https://edenpark.com/>.

43. Exposure to light from Eden Park's 222 nm UV lamps "achieve[] a ninety percent kill of microorganisms in a time period of less than one second." *See* Ex. 1, '605 patent at claim 1. Eden Park markets its thin 222 nm UV lamps as being incorporated in Healthe Space™

products. See <https://edenpark.com/business-applications/>. Healthe advertises its products to “naturally kill up to 99.9% of bacteria and viruses including coronaviruses.” See <https://healtheinc.com/learn/far-uv-222/>. Both Healthe’s and Eden Park’s websites also link to a scientific study published by researchers at Columbia University stating that “[b]ased on the beta-HCoV-OC43 results, continuous far-UVC exposure in occupied public locations at the current regulatory exposure limit (~3 mJ/cm²/hour) would result in ~90% viral inactivation in ~8 minutes, 95% in ~11 minutes, 99% in ~16 minutes and 99.9% inactivation in ~25 minutes,” a true and correct copy of which is attached as Exhibit 4. Buonanno, M., et al., Far-UVC Light (222 nm) Efficiently and Safely Inactivates Airborne Human Coronaviruses; *Sci Rep* 10, 10285 (June 24, 2020) at Abstract.

44. Eden Park indirectly infringes the ’605 patent as provided by 35 U.S.C. § 271(b) by actively inducing others, including customers who purchase and use the Accused Product, to commit direct infringement of one or more claims of the ’605 patent.

45. Eden Park’s affirmative acts of providing at least the Eden Park website, manuals, training, guides, marketing material, and/or demonstrations induces customers to use the Accused Products in a manner intended by Eden Park to cause direct infringement of the ’605 patent.

46. Eden Park performed the acts that constitute inducement with knowledge or at least willful blindness that the induced acts would constitute infringement. At least through the filing of this Complaint, Eden Park has received actual notice that its customers directly infringe the ’605 patent and that its own acts induce such infringement. On information and belief, Eden Park received actual knowledge that its customers directly infringe the ’605 patent at least as early as June 2018.

47. Eden Park also indirectly infringes the '605 patent as provided by 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '605 patent by others, including Eden Park's customers who purchase and use the Accused Product.

48. Eden Park's affirmative acts of selling infringing products and providing those products to customers contribute to the infringement of the '605 patent. The Accused Product is specially made or adapted for use in infringement of the '605 patent and is not a staple article of commerce suitable for substantial noninfringing use.

49. Eden Park contributed to the infringement of others with knowledge or at least willful blindness that the Accused Product is specially made or adapted for use in an infringement of the '605 patent and is not a staple article of commerce suitable for substantial noninfringing use. At least through the filing of this Complaint, and on information and belief at least as early as June 2018, Eden Park received actual notice that its acts constitute contributory infringement.

50. Eden Park's infringement has been and continues to be willful and in reckless disregard for the '605 patent, without any reasonable basis for believing that it had a right to engage in the infringing conduct.

51. Eden Park's continued infringement of the '605 Patent has damaged and will continue to damage Plaintiffs, who offer directly competing products. Eden Park's acts have caused, and unless restrained and enjoined, will continue to cause, irreparable injury and damage to Plaintiffs for which there is no adequate remedy at law.

COUNT II
(Infringement of U.S. Patent No. 9,700,642)

52. Plaintiffs incorporate by reference the allegations of previous paragraphs as if fully set forth herein.

53. The '642 patent, entitled "Method and Apparatus for Sterilizing and Disinfecting Air and Surfaces and Protecting a Zone from External Microbial Contamination," was duly and legally issued by the USPTO on July 11, 2017. *See* Ex. 2.

54. Mr. Neister is the owner of all rights, title, and interest in and to the '642 patent and HEO3 is its exclusive licensee. Mr. Neister and HEO3 are entitled to sue for past and future infringement.

55. Eden Park received actual notice of the '642 patent at least as early as the filing of its Complaint, and on information and belief received notice of the '642 patent at least as early as June 2018, when Plaintiffs notified Eden Park of their infringement of the '642 patent via letter.

56. Eden Park has directly infringed—literally and/or under the doctrine of equivalents—the '642 patent by making, using, selling, offering for sale in the United States, and/or importing into the United States sanitization equipment that practice one or more claims of the '642 patent, including but not limited to the Accused Product.

57. For example, claim 1 of the '642 patent recites:

1. A process for destroying a DNA or RNA of a microorganism on a substance or surface comprising the steps of:

generating photons of at least one wavelength corresponding to a peak adsorption wavelength of DNA or RNA, the at least one wavelength being at least one of 222 nm and 282 nm;

directing the photons to the substance or surface to be disinfected, whereby the photons are selected to destroy a plurality of chemical bonds within the DNA or RNA of the microorganisms; and

wherein the substance or surface to be disinfected is human or animal skin.

58. Based on publicly available information, the accused thin 222 UV lamps practice each limitation of and infringe at least claim 1 of the '642 patent. Eden Park describes its thin 222 UV lamps as being a 222 nm light source. *See* ¶ 30, *supra*; *see also* <https://edenpark.com/>.

59. Light from the UV lamp product is “direct[ed] . . . to the substance or surface to be disinfected, whereby the photons are selected to destroy a plurality of chemical bonds within the DNA or RNA of the microorganisms.” *See* Ex. 2, '642 patent at claim 1. Eden Park markets the UV lamp product for use “in populated indoor spaces, including factories, submarines, aircraft carriers, planes, waiting rooms, restaurants and more.” *See* <https://edenpark.com/>.

60. These thin 222 nm UV lamps are used “wherein the substance or surface to be disinfected is human or animal skin.” *See* Ex. 2, '642 patent at claim 1. Eden Park markets the thin 222 UV lamps to disinfect areas that are “populated.” *See* <https://edenpark.com/>. Accordingly, when used in “populated” areas as directed on the Eden Park website, the accused thin 222 nm UV lamps direct photons used for disinfection to exposed human skin.

61. Eden Park indirectly infringes the '642 patent as provided by 35 U.S.C. § 271(b) by actively inducing others, including customers who purchase and use the Accused Product, to commit direct infringement of one or more claims of the '642 patent.

62. Eden Park’s affirmative acts of providing at least a website, manuals, training, guides, marketing materials, and/or demonstrations induces customers to use the Accused Product in a manner intended by Eden Park to cause direct infringement of the '642 patent.

63. Eden Park performed the acts that constitute inducement with knowledge or at least willful blindness that the induced acts would constitute infringement. At least through the filing of this Complaint, Eden Park has received actual notice that its customers directly infringe the '642 patent and that its own acts induce such infringement. On information and belief, Eden Park

received actual knowledge that its customers directly infringe the '642 patent at least as early as June 2018.

64. Eden Park also indirectly infringes the '642 patent as provided by 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '642 patent by others, including Eden Park's customers who purchase and use the Accused Products.

65. Eden Park's affirmative acts of selling infringing thin 222 nm UV lamps and providing them to customers contribute to the infringement of the '642 patent. The Accused Product is specially made or adapted for use in infringement of the '642 patent and is not a staple article of commerce suitable for substantial noninfringing use.

66. Eden Park contributed to the infringement of others with knowledge or at least willful blindness that the Accused Product is specially made or adapted for use in an infringement of the '642 patent and is not a staple article of commerce suitable for substantial noninfringing use. At least due to Plaintiffs' June 2018 letter, Eden Park received actual notice that its acts constitute contributory infringement.

67. Eden Park's infringement has been and continues to be willful and in reckless disregard for the '642 patent, without any reasonable basis for believing that it had a right to engage in the infringing conduct.

68. Eden Park's continued infringement of the '642 patent has damaged and will continue to damage Plaintiffs, who offer directly competing products. Eden Park's acts have caused, and unless restrained and enjoined, will continue to cause, irreparable injury and damage to Plaintiffs for which there is no adequate remedy at law.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully request the following relief:

- a) For entry of judgment by this Court against Eden Park and in favor of Plaintiffs in all respects, including that:
 - 1. Eden Park has and continues to directly infringe and/or indirectly infringe, by way of inducement and/or contributory infringement, the Asserted Patents;
 - 2. Eden Park's infringement of the Asserted Patents was and continues to be willful;
- b) An Order permanently enjoining Eden Park, its officers, agents, servants, employee, and attorneys, all parent, subsidiary, and affiliate corporations and other related business entities, and all other persons or entities acting in concert, participation, or in privy with one or more of them, and their successors and assigns, from infringing, contributing to the infringement of, or inducing others to infringe the Asserted Patents;
- c) For damages arising from Eden Park's infringement of the Asserted Patents, together with pre-judgment and post-judgment interest, and that such damages be trebled as provided by 35 U.S.C. § 284;
- d) An Order declaring that Plaintiffs are the prevailing parties and that this is an exceptional case, awarding Plaintiffs their costs, expenses, disbursements, and reasonable attorney fees under 35 U.S.C. § 285 and all other applicable statutes, rules, and common law; and
- e) Such other and further relief as this Court may deem just and proper.

DEMAND FOR JURY TRIAL

Plaintiffs respectfully request a trial by jury on all issues triable thereby.

Dated: May 20, 2021

Respectfully submitted,

By: /s/ Brent P. Ray

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