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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

MICHAEL A. MINOVITCH, an individual, Plaintiff, V. RICHARD H. BATTIN, an individual, and DOES 1 through 20, inclusive, Defendants.	Case No. BC 224528 VERIFIED COMPLAINT FOR: 1. LIBEL, 2. SLANDER OF TITLE, 3. INTERFERENCE WITH PROSPECTIVE ECONOMIC ADVANTAGE, 4. MISAPPROPRIATION OF RIGHT OF PUBLICITY 5. UNFAIR COMPETITION AND 6. DECLARATORY RELIEF

Plaintiff Michael A. Minovitch ("Minovitch") alleges as follows:

1. Minovitch is an individual resident in the County of Los Angeles.

2. Defendant Richard H. Battin ("Battin") is an individual resident in the State of Massachusetts, but who has been doing business in the State of California by way of having written and seeking to have published two articles and a book which have been published and disseminated throughout the Country and overseas,

including in California. As discussed in detail below, the contents of these publications are the subject of this action.

3. The true names and capacities, whether individual, corporate, or otherwise, of defendants named herein as Does 1 through 20, inclusive, are presently unknown to Minovitch, who therefore sues these defendants by such fictitious names. Minovitch is informed and believes that these fictitiously named defendants are in some manner responsible for the events and happenings referred to herein and caused the damage to Minovitch alleged herein. When Minovitch ascertains the true names and capacities of these defendants, he will seek leave of this Court to amend this complaint by setting forth same.

4. At all times mentioned herein, each of the defendants was and is the agent, servant, partner and or employee of the other defendants, and all of the things alleged to have been done by said defendants was done in the capacity of, and as agent of, the other defendants.

KEY UNDERLYING FACTS

5. This complaint[1] pertains to Dr. Michael A. Minovitch's proprietary right to his discovery of a new method for achieving free-fall multiplanetary trajectories with relatively little launch energy by utilizing the gravitational perturbations of each passing planet as a propulsive force (a "gravity-assist") to

[1] The titles of the exhibits to the complaint are listed in order in a table attached to the end of the complaint. The exhibits themselves are filed separately as two documents entitled "Exhibits to Complaint", Volume 1 and Volume 2.

achieve a significant change in the initial launch trajectory. Previous to this discovery, free-fall multiplanetary trajectories were designed by finding a constant elliptical path that passed close to the orbits of two or more planets just as these planets were passing by. The effects of planetary perturbations were viewed as annoying disturbances that had to be canceled out, or eliminated, to maintain the original launch trajectory in order to achieve the desired planetary encounters.[2,3] As a result, free

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[2] The first free-fall multiplanetary trajectory was proposed in 1956 by Crocco. It was based on an encounter sequence **Earth - Mars - Venus - Earth** designed by using the stronger gravitational influence of Venus to cancel out the effects of the weaker gravitational influence of Mars so that the resulting trajectory was close to the original undisturbed elliptical path. Quoting directly from the abstract of Crocco's paper (Exhibit 1):

> "First of all, the case with no planetary perturbations is taken into consideration, and a possible ideal solution is determined. Subsequently, the perturbation due to Mars by passing at a short distance from it is introduced and the delay attained thereto in the trip time is computed. Then, the perturbation due to Venus is examined, and requirements of flights at a short distance are determined capable of correcting the perturbation due Mars.

[3] Quoting from Section 9.9 on the design of multiplanetary trajectories entitled "Interplanetary Flight Involving Several Planets," from Dr. Krafft Ehricke's 1962 textbook on astrodynamics, *Space Flight II, Dynamics* (Exhibit 2):

> "Perturbations by the planetary encounter are assumed to be corrected, preferably while nearest to the planet so that a heliocentric ellipse closely resembling the original ellipse is resumed by the time the vehicle is sufficiently removed from the planet."

fall multiplanetary trajectories left the earth's orbit at a fairly steep angle and required so much launch energy that they were beyond the reach of chemical rocket propulsion and believed to be impractical.[4] Minovitch's discovery (hereinafter referred to as "the Discovery") is fundamentally important in the history of space travel because it represented a new method for achieving high velocity space travel from planet to planet throughout the entire solar system without using essentially any rocket propulsion beyond the relatively small amount required to reach the first planet. It was the innovation that made it possible to explore the entire solar system with instrumented spacecraft. The Discovery also made it possible to achieve non-stop round-trip reconnaissance missions to Mars with a trip-time of a little more than one year. Previous to the Discovery it was believed

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[4] Quoting directly from Section 5 on the design of free-fall multiplanetary fly-by trajectories connecting Earth, Mars and Venus published in a 180 page "Final Report" on interplanetary round-trip trajectories written for NASA by 10 leading astrodynamicists completed June 1962 (Exhibit 3):

> "At the outset, we are confronted with a paradox: Low-energy transfers to Mars seldom dip appreciably within the Earth's orbit while, on the other hand, low-energy transfers to Venus rarely stray outside the Earth's orbit. These contradictions make it painfully apparent that the trips presently sought will not likely be found among low-energy transfer orbits. Nevertheless, the problem is worth considering not only as an interesting academic pastime, but also because the velocity requirements required in some cases may actually be attainable using presently envisioned nuclear power plants."

that round-trip reconnaissance missions to Mars required a trip time of over three years.

Prior to the Discovery, it was believed that the only technical means for achieving high velocity space travel required to explore the entire solar system with instrumented spacecraft was by developing advanced nuclear-thermal or nuclear-electric propulsion systems.[5,6] Unfortunately, by the mid-1960s it became apparent that these systems were beyond engineering feasibility and consequently, the exploration of most of the solar system

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[5] Quoting directly from a 1958 paper published by Professor Derek Lawden (one of the world's leading theoretical astrodynamicists) entitled, "Interplanetary Orbits" (Exhibit 4):

> "The periods of transit for transfers between the Earth and the outer planets are so great that the cotangential ellipse is unlikely ever to be employed for this purpose. Instead, non-optimal paths involving larger characteristic velocities but shorter periods of transit will have to be followed and, until much higher exhaust velocities become available (e.g., by the harnessing of nuclear energy for rocket motor drives), <u>such journeys will not be possible</u>."

[6] Caltech professor and JPL founder Dr. Theodore von Karman was another leading figure in astronautics and propulsion technology. He was one of the most technically qualified individuals in the field of space travel. After studying the high-energy requirements for reaching most of the Solar System with instrumented spacecraft for several years, he concluded in 1962 (page 4, Exhibit 5) that:

> "It is evident that if we exclude additional propulsion along the trajectory, most of the interplanetary space missions require initial velocities which we are unable to realize by the use of chemical rockets."

appeared to be a technical impossibility. The Discovery made it possible to achieve the very high velocities required for exploring the entire solar system without using any onboard reaction propulsion (i.e., without using any advanced nuclear propulsion systems). The energy required to achieve these high velocities was taken from the inexhaustible orbital energies of the various planets. The Discovery is known generally as "gravity-assist trajectories," "swingby trajectories," or "bi-elliptical trajectories."

6. Basically, the Discovery involved launching a free-fall spacecraft to an easy-to-reach nearby planet using relatively little conventional rocket propulsion, and using the gravitational influence of that planet to change the initial launch trajectory thereby enabling the spacecraft to reach one or more additional planets without using any additional rocket propulsion by repeating the same process. This innovation resulted in radically reducing trip times, and/or the minimum launch energies previously believed to be required for non-stop round-trip trajectories to Mars and for reaching most of the planets in the solar system. Such a breakthrough in space travel was believed to be a physical impossibility because it was contrary to the very foundation of astrodynamics and Hohmann "minimum-energy" trajectories that space travel was based on since its inception. It was the key innovation that broke the classical high-energy barriers and made it possible to explore the entire solar system with instrumented spacecraft.

7. Minovitch was the first person to make the Discovery. His paper disclosing the innovation entitled, "*A Method for Determining Interplanetary Free-Fall Reconnaissance Trajectories*," was completed on August 23, 1961 as Jet Propulsion Laboratory Technical Memorandum #312-130. (Exhibit 6) On pages 38-44, Minovitch described the mathematical details for achieving this new method of space travel for reaching any planet in the solar system and illustrated the method with an example trajectory **Earth-Venus-Mars-Earth-Saturn-Pluto-Jupiter-Earth**. It was a form of "celestial billiards." This was the first documented paper disclosing this new concept for achieving space travel throughout the solar system without rocket propulsion.

8. While the first free-fall multiplanetary trajectory was proposed in 1956 by Crocco, Crocco's multiplanetary trajectory was not a gravity-assist free-fall multiplanetary trajectory achieved by using the planetary gravitational fields to change the initial launch trajectory thereby reducing the required launch energy. As a result, the required launch energy was enormous, and hence, the multiplanetary trajectory was regarded as impractical. (See footnote 4.)

9. The first portion of the example gravity-assist free-fall multiplanetary trajectory given on page 39 of Minovitch's August 23, 1961 JPL paper had the encounter sequence **Earth-Venus-Mars-Earth**. It was the counterpart of Crocco's multiplanetary trajectory with Mars and Venus switched in the encounter sequence. By switching Mars and Venus in the encounter sequence

and using Minovitch's Discovery of gravity-assist multiplanetary trajectories based on changing the launch trajectory, it was possible to achieve a round-trip multiplanetary trajectory passing Venus and Mars with approximately the same one-year trip time but with only 1/10th the launch energy required for Crocco's multiplanetary trajectory thereby making the trajectory a practical possibility. Since Minovitch's August 23, 1961 paper was the first documented paper describing how planetary gravitational perturbations could be used to achieve free-fall multiplanetary trajectories with very little launch energy by changing the initial launch trajectory, he is the person who originated gravity-assist free-fall multiplanetary trajectories commonly known as "gravity-assist trajectories" or "swing-by trajectories."

10. In 1964, Battin published a book entitled *Astronautical Guidance* and described the fundamental difference between Crocco's free-fall Earth-Mars-Venus-Earth multiplanetary trajectory based on a constant elliptical path and a gravity-assist Earth-Venus-Mars-Earth multiplanetary trajectory (using the gravitational influence of Venus to change the launch trajectory) on page 185 by writing (Exhibit 7):

> "The double reconnaissance mission [free-fall multiplanetary trajectory] discussed at the end of Sec. 5.4 was originally suggested by Crocco (19). Unfortunately, the Crocco mission [Earth-Mars-Venus-Earth] requires an excess hyperbolic velocity exceeding 38,000 fps owing principally to the fact that Mars was selected as the first planet to be

> visited. If the order is reversed and the gravitational field of Venus exploited, the mission can be accomplished with an excess velocity of only 15,000 fps."

Thus, as described by Battin himself in 1964, the gravity-assist free-fall multiplanetary trajectory (Minovitch's gravity-assist version of Crocco's trajectory) having the encounter sequence Earth-Venus-Mars-Earth was fundamentally different from Crocco's trajectory (a constant elliptical path) having the encounter sequence Earth-Mars-Venus-Earth with no gravity-assist. It is important to note that Battin did not claim to have discovered or originated the gravity-assist multiplanetary trajectory Earth-Venus-Mars-Earth in 1964 when he published this book even though this trajectory represented a revolutionary discovery because it reduced the required launch energy to only 1/10th required for Crocco's trajectory.

11. However, after waiting for 30 years, Battin wrote a paper in 1994 claiming that he made the Discovery. The paper was entitled "*On Algebraic Compilers and Planetary Fly-By Orbits*," and it was published by the International Astronautical Federation. (Exhibit 8) Therein, Battin claimed the credit for first discovering gravity-assist free-fall Earth-Venus-Mars-Earth multiplanetary trajectories from alleged computer calculations dated January 26, 1961, several months prior to Minovitch's August 23, 1961 JPL paper that introduced his discovery of gravity-assist multiplanetary trajectories. Battin's published statement claiming the credit for the discovery is given in the

footnote below.[7]

Battin reiterated his claim of discovering this trajectory on January 26, 1961 by enlarging and re-publishing his 1994 paper in one of the world's most prestigious archival aerospace journals, *Acta Astronautica*, in 1996. (See p. 900 of the 1996 article. Exhibit 9)

Further, again in 1999, Battin published a revised edition of his 1987 textbook entitled, *An Introduction to the Mathematics and Methods of Astrodynamics*, and repeated his claim of being the first person to have discovered gravity-assist free-fall Earth-

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[7] Quoting directly from page 6 of Battin's 1994 paper:

> "It was very exciting indeed when the double flyby [Earth - Venus - Mars - Earth] finally worked." ... "I sensed the importance of this result and saved the tabulator listing which included the date of the printout - January 26, 1961. Today it is among my most treasured mementos." ... "Although this was the first realistic multiple flyby mission ever designed, it was not the first ever conceived. That distinction goes to General Gaetano Arturo Crocco who was Director of Research of the Air Ministry and a Professor of Aeronautics at the University of Rome, Italy. This paper described an Earth to Mars to Venus to Earth mission of one year duration. The orbits were all co-planar; the velocity requirements were enormous; and the reversed itinerary prevented the best utilization of the gravity assist maneuvers."

Venus-Mars-Earth multiplanetary trajectories.[8]

12. The foregoing claims by Battin contending that he was the first person to make the discovery of gravity-assist free-fall multiplanetary Earth-Venus-Mars-Earth trajectories are categorically false, as evidenced by the following nine pieces of evidence, referenced here as items A through I:

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[8] Quoting directly from page 17 of Battin's 1999 book:

> "One day, when plotting a few of these Venusian reconnaissance trajectories [Earth-Venus-Earth], I was impressed by the proximity of the spacecraft orbit and the Martian orbit resulting from the increased velocity induced during the Venusian flyby. The interesting possibility of a dual contact with both planets seemed feasible [Earth-Venus-Mars-Earth] - a kind of celestial game of billiards." ... "Using trusty "cut and try" methods, I found that ideal circumstances did prevail on June 9, 1972." ... "(At that time, the launch date seemed incredibly far off - twelve whole years!)" ... "Although this was the first realistic multiple flyby mission ever designed, it was not the first ever conceived. That distinction goes to General Gaetano Arturo Crocco who was Director of Research of the Air Ministry and a Professor of Aeronautics at the University of Rome, Italy. This paper described an Earth to Mars to Venus to Earth mission of one year duration. The orbits were all co-planar; the velocity requirements were enormous; and the reversed itinerary prevented the best utilization of the gravity assist maneuvers."

In view of these passages published by Battin in his 1999 book, he claimed to have made the alleged discovery "twelve whole years" prior to the June 9th, 1972 launch date, or around June 1960 -- about a year prior to Minovitch's 1961 JPL paper.

A. Seventeen months after Battin supposedly made his alleged revolutionary January 26, 1961 discovery showing how it was possible to reduce the very long three-year trip times for round-trip missions to Mars to only 1.26 years, by using gravity-assist Earth-Venus-Mars-Earth multiplanetary trajectories, he submitted a paper on round-trip non-stop trajectories to Mars and Venus in June 1962. (Exhibit 11) This paper involved navigation procedures for following the best round-trip trajectories to Mars and Venus (the optimum trajectories to follow for obtaining the most scientific information) which he identified by citing previous investigations of round-trip trajectories at MIT (see page 1681 Exhibit 11). However, the trajectories cited in his 1962 article were the usual single-planet Earth-Mars-Earth and Earth-Venus-Earth trajectories where the Earth-Mars-Earth trajectories required trip times exceeding three years.[9] He made no mention

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[9] In 1959, Battin published a paper entitled "The Determination of Round-Trip Planetary Reconnaissance Trajectories." (Exhibit 12) Therein, he numerically proved that minimum-energy nonstop round-trip trajectories to Mars having the form Earth-Mars-Earth required trip times exceeding three years duration and that these trip times could not be reduced without significantly increasing the required launch energy. (See p. 566 Exhibit 12) These very long trip times were a serious problem because they made nonstop manned reconnaissance missions to this planet virtually impossible and made unmanned missions with instrumented spacecraft very difficult. However, the gravity-assist Earth-Venus-Mars-Earth trajectories which Battin claimed to have discovered on January 26, 1961 only required trip times of 1.26 years with approximately the same launch energies. This was a revolutionary discovery because Battin proved in his 1959 paper that round-trip trajectories to Mars could not be reduced below three years. Mars was the primary planet for exploration.

describing how these long trip-times can be reduced to only 1.26 years) by using his alleged 1961 discovery of gravity-assist Earth-Venus-Mars-Earth trajectories that only required one-third the trip times of Earth-Mars-Earth trajectories and offered the additional spectacular possibility of passing both Mars and Venus in the same mission -- effectively achieving two separate missions for the price of one. (At that time, each separate photo-reconnaissance mission to Mars and Venus would have cost several hundred million dollars.) In Battin's 1994 and 1996 papers claiming the credit for the discovery he indicated that this discovery was one of his most important and was very anxious to publish it. (See page 6, 1994 article and page 900, 1996 article)[10] Since Battin described his alleged January 1961 discovery as one of his most important and anxious to publish, the fact that he made no mention of these revolutionary trajectories in his 1962 paper on navigation for interplanetary round-trip trajectories (where it would be most relevant to the subject matter), proves that he was not aware of their existence when he submitted this paper for publication in early June 1962 -- 17 months after his alleged discovery in January 1961. It

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[10]His exact words were:

> "It was very exciting indeed when the double fly-by finally worked." ... " I sensed the importance of this result and saved the tabulator listing which included the date of the printout - January 26, 1961. Today it is among my most treasured mementos." ... "Needless to say, I was most anxious to publish the result."

would be contrary to his own published statements to suggest that he did not mention them in his June 1962 paper because he believed they were unimportant or irrelevant. But this could be the only answer if he really did make the discovery when he claimed he did. Therefore, the existence of this 1962 paper proves that he did not make the Discovery prior to the time he submitted this paper for publication in June 1962.

B. Battin in fact indirectly learned about the Discovery from Minovitch:

After Minovitch wrote his above-referenced paper, he began the first numerical investigation of gravity-assist trajectories at UCLA on January 18, 1962. (Exhibit 13) In April 1962, Minovitch gave JPL several gravity-assist Earth-Venus-Mars-Earth trajectories for testing to determine if his numerical computation of these trajectories represented a numerical solution to the famous, then unsolved, Three-Body Problem of celestial mechanics for motion through the solar system. (Exhibits 14, 15) The tests were successful and indicated that Minovitch's analytical methods represented the first numerical solution to the unsolved Three-Body Problem of celestial mechanics. A solution to this very difficult mathematical problem was required in order to implement Minovitch's invention of gravity-assist trajectories in an actual mission.

By the end of April 1962, Minovitch had computed thousands of gravity-assist multiplanetary trajectories having the forms Earth-Venus-Mars-Earth (round-trip), Earth-Venus-Mars, Earth-

Venus-Mercury and some preliminary trajectories involving the outer planets. Since Minovitch recognized that these trajectories would have a major impact on NASA's space exploration program, he began shipping them to JPL. (Exhibit 16)

When Minovitch arrived at JPL in June 1962, he showed his former supervisor Victor Clarke Jr. the most important gravity-assist trajectories, including many Earth-Venus-Mars-Earth trajectories, requiring very low launch energies and trip times much shorter than those of Battin's Earth-Mars-Earth trajectories. (Exhibit 17) Minovitch emphasized this important fact by comparing them with Battin's conventional single-planet Earth-Mars-Earth round-trip trajectories requiring trip times exceeding three years that he proved could not be reduced in his 1959 paper. (Exhibit 12) Clarke realized the importance of Minovitch's discoveries and had his UCLA computer program used to numerically calculate the gravity-assist multiplanetary trajectories duplicated for JPL's Computing Facility. Clarke gave special attention to the Earth-Venus-Mars-Earth trajectories. (See page 1 Exhibit 18.) Clarke told Minovitch that his trajectories were indeed important and that he would inform Battin -- who Clarke knew was working on round-trip trajectories to Mars. (See pages 8, 10, 18, and 19 Exhibit 19.) Since Clarke was the supervisor of JPL's trajectory group and aware of new developments, he knew that Minovitch's work represented a fundamentally new discovery in astrodynamics. If Battin's claim of discovering the very important gravity-assist

Earth-Venus-Mars-Earth trajectories in January 1961 were true, he would have communicated this fact to Clarke when Clarke informed him of Minovitch's discoveries, and Clarke would have advised Minovitch. Since Clarke never advised Minovitch regarding Battin's alleged discovery, it can only be concluded that Battin never told Clarke that he had discovered the gravity-assist trajectories before Minovitch. Since there was no reason for Battin to keep his claimed discovery a secret from Clarke, the fact that he did not inform Clarke proves that he was not aware of the existence of these trajectories when Clarke told him about them in June 1962.

C. In May 1963, a graduate student in Battin's Department of Aeronautics and Astronautics at MIT named Walter Hollister completed his Ph.D. dissertation involving interplanetary transfer trajectories to Mars. The innovative basis of this dissertation was Hollister's claim of originating a new trajectory design concept that he called "bi-elliptical" transfer trajectories to Mars having the form Earth-Venus-Mars. It was a trajectory design method for reaching Mars by launching a free-fall vehicle to Venus and letting the gravitational influence of Venus propel the vehicle to Mars. Hollister explicitly claimed credit for the innovation on page 7 of this dissertation by stating (Exhibit 20):

> "Because of the large volume of work on different aspects of a mission to Mars it would be impossible to make reference to all of the literature on the subject. It should be noted, however, that the author has found no mention in the literature of the specific

> missions suggested in this work, namely trips to Mars via bi-elliptical transfer or via a Venus encounter that includes a significant velocity change near Venus."

The possibility of reaching Mars from Earth indirectly by replacing a conventional direct-transfer Earth-Mars trajectory with an indirect Earth-Venus-Mars trajectory (a "bi-elliptical" trajectory) where the gravitational influence of Venus is used to send the vehicle to Mars which Hollister explicitly claimed credit for in this dissertation represented a revolutionary innovation unheard of in astrodynamics in 1962 when Hollister began working on his dissertation project. However, this is exactly what Battin claimed to have been the first to discover in January 1961 before Hollister. (The discovery of gravity-assist Earth-Venus-Mars trajectories is implicit in the discovery of gravity-assist Earth-Venus-Mars-Earth round-trip trajectories. In fact, Earth-Venus-Mars trajectories represent the gravity-assist portion of gravity-assist Earth-Venus-Mars-Earth trajectories because the perturbations from Mars is relatively small.) Since the possibility that Battin kept his alleged January 1961 discovery of gravity-assist Earth-Venus-Mars-Earth trajectories (and hence, gravity-assist Earth-Venus-Mars trajectories) a secret from Hollister is absurd, Battin's claim of being the first to discover these trajectories as claimed in his 1994, 1996, and 1999 publications is false. The fact that Battin's own Department of Aeronautics and Astronautics at MIT recognized Hollister's claimed gravity-assist Earth-Venus-Mars

innovation by approving his dissertation proves that Battin's claim of being the first to discover gravity-assist Earth-Venus-Mars-Earth (and hence Earth-Venus-Mars) gravity-assist trajectories is false. The fact that Battin was aware of and obviously acknowledged Hollister's claimed innovation is demonstrated by the fact that Hollister explicitly identified Battin as providing technical assistance in computing his claimed bi-elliptical (gravity-assist) Earth-Venus-Mars trajectories. (See pages iii and 71 of Hollister's Ph.D. Dissertation.) Quoting directly from page iii of Hollister's Dissertation:

> "The staff of the MIT Instrumentation Laboratory has been extremely helpful. Dr. Richard H. Battin, Dr. James S. Miller, Kenneth Fertig, and John L. Gropper have provided technical advice."

Since Battin recognized Hollister's claim of discovering (originating) the innovation of gravity-assist Earth-Venus-Mars trajectories in 1963, Battin's claim of being the first to discover these trajectories (by virtue of having discovered Earth-Venus-Mars-Earth trajectories) as he asserted in his 1994 and 1996 papers, and in his 1999 book, must be false. It should be emphasized that an innovation claimed and presented in a Ph.D. dissertation at MIT (or any other reputable University) is one of the most thoroughly investigated of all academic work in order to definitely establish originality.

D. During the 1960s, many peer-reviewed papers were published in the professional aerospace literature giving the credit for discovering the revolutionary innovation of replacing

conventional direct-transfer trajectories for reaching a target planet with indirect bi-elliptical trajectories (gravity-assist free-fall multiplanetary trajectories) to Hollister by citing his 1963 Ph.D. Dissertation. (Exhibits 21, 22) No paper, book, or magazine article has ever been published giving the credit to Battin except Battin's own publications. One of the individuals giving the credit to Hollister was Dr. Krafft Ehricke, who was perhaps the world's leading astrodynamicist at that time. (See pages 176 and 247 Exhibit 23.) That Battin also never published any paper correcting the assignment of credit for this fundamentally important innovation to Hollister in the professional literature throughout the 1960s also proves that Battin did not make the Discovery in either 1960 or January, 1961, as he now claims almost 40 years later. Battin could not object to the assignment of credit to Hollister since his name was mentioned by Hollister as providing technical assistance in computing Hollister's claimed gravity-assist trajectories thereby acknowledging Hollister's claim on the innovation and proving that he (Battin) did not make the innovation.

E. In 1970, Hollister, who had joined Battin at MIT after he received his Ph.D. degree, published a paper on gravity-assist trajectories, (with Menning from Lockheed) entitled "*Periodic Swing-By Orbits between Earth and Venus,*" (Exhibit 24) wherein he identified Minovitch as having made the Discovery by citing Minovitch's August 23, 1961 JPL paper. Hollister would have surely identified Battin (his colleague and mentor at MIT) as

the inventor in this 1970 paper if Battin's alleged 1960 or January 1961 discovery, described in his 1999 book, and in the recent 1994 and 1996 papers, respectively, were actually true. Battin would not have kept his alleged discovery a secret from Hollister after all these years. Therefore, this 1970 paper by Hollister provides additional evidence showing that Battin's claim of having made the discovery in 1960 or 1961 prior to Minovitch is false.

F. Battin's later writings also prove that he did not make the Discovery in 1960 or 1961. In 1978, Battin published a paper, entitled "Highlights 1978: Astrodynamics," and stated that Crocco was the first person to exploit the gravity fields of the planets to achieve multiple planetary flybys. (Exhibit 25) As pointed out above (see footnote 2) Crocco achieved his multiple planetary flyby trajectory by finding a constant elliptical path that intercepted the multiple planets and canceling out the effects of planetary perturbations that he regarded as annoying disturbances that would make the multiple planetary interceptions impossible. However, as also pointed out above, in 1964, Battin published a book, *Astronautical Guidance* and pointed out on page 185 that Crocco did not originate the principle of gravity-assist trajectories since his encounter sequence was Earth-Mars-Venus-Earth and not Earth-Venus-Mars-Earth. (Exhibit 7) Regardless of whether Battin did or did not believe Crocco made the Discovery, these publications do prove that Battin himself did not make the Discovery in 1961 because he would have obviously then claimed

the credit for originating gravity-assist trajectories, had he done so, instead of waiting over 26 years to make this claim in his 1987 book (the revised edition of which was published in 1999) and in his 1994 and 1996 papers. Battin did not make the claim in 1964 because he had recognized Hollister as the innovator in 1963. Thus, these 1964 and 1978 publications by Battin (Exhibits 7, 25) represent additional evidence showing that Battin's recent claim of credit for the Discovery is false.

G. In the fall of 1990, Battin was interviewed by William Kosmann, a JPL scientist, who was researching the origin of gravity-assist trajectories. Battin told Kosmann that he discovered gravity-assist Earth-Venus-Mars-Earth trajectories well before January 1961 and gave Kosmann photocopies of a set of 6 dated lantern slides (Exhibit 26) claiming that they described various aspects of Earth-Venus-Mars-Earth gravity-assist trajectories prepared by MIT's Instrumentation Laboratory (now called the Draper Laboratory) during the May-August 1960 time period. Kosmann documented the interview with a notarized affidavit, under penalty of perjury, with the photocopies of the lantern slides that Battin gave him as attachments to this affidavit. (Exhibit 27) These dated lantern slides that Battin gave Kosmann as evidence proving his having made the Discovery prior to 1961 represents further evidence that Battin's new story of making the discovery in January 1961, described in his 1994 and 1996 papers, is false. The photocopies that Battin gave Kosmann that were prepared by Battin's Instrumentation Laboratory

carried index numbers for record keeping purposes that are not published and could have only been obtained from Battin himself.

Battin's 1994 publication describing his alleged discovery of Earth-Venus-Mars-Earth gravity assist trajectories (Exhibit 8) is entirely different from the story he told to Kosmann in 1990 (Exhibit 27). In the new story, Battin claimed to have made the discovery by computer calculations dated January 26, 1961 and cited a computer printout with this date to prove his claim. Quoting directly from Battin's 1994 paper (page 6 Exhibit 8) and from his 1996 paper (page 900 Exhibit 9):

> "I sensed the importance of this result and saved the tabulator listing which included the date of the printout - January 26, 1961. Today it is among my most treasured mementos."

Although Battin stated that he regarded the computer printout as one of his most treasured mementos, he made no reference to any computer printout or tabulator listing in the fall 1990 interview with Kosmann.

Hence, Battin cannot have made the Discovery both prior to 1961 and in 1961. The claims are mutually exclusive where in both the claim of Discovery in 1960 and the claim of Discovery in 1961 the Discovery is tied to particular dates, evidence, and events. Where both cannot be true, the answer is that neither is true. Battin had not made the Discovery prior to Minovitch as claimed in his published books and papers.

H. The first paper Battin wrote describing his alleged Discovery was entitled, "*The Trajectory Problem As It Relates To*

The Mission For Interplanetary Flight." (Exhibit 28) This paper was part of a collection of papers published in a book entitled *Air, Space, and Instruments,* that was published in 1963. In his 1994 and 1996 papers, Battin explained the fact that he claimed to have made his alleged Discovery in January 1961 but the paper was not published until 1963 by asserting that the manuscript of the book was delivered to the publisher (McGraw-Hill) in 1961 but the publisher delayed publishing the book for over one year. Quoting directly from pages 5 and 6 of his 1994 paper and from page 900 of his 1996 paper (Exhibits 8, 9), Battin states:

> "A volume of original contributions titled *Air, Space, and Instruments* was planned to honor Charles Stark Draper on his sixtieth birthday which would occur on October 2, 1961. Hal Laning and I contributed a chapter 17 on our trajectory work for interplanetary missions. Unfortunately, the actual publication of the Draper Anniversary Book was delayed by the publisher and it did not appear until early in 1963. ... Needless to say, I was most anxious to publish the result. Our chapter for the Draper Anniversary Book was already underway and the multiple fly-by orbit would provide a really dramatic climax for our contribution. I would have published it in a separate paper had I known that McGraw-Hill would slip their publication schedule for the Draper volume by more than a year."

A careful reading of the various papers published in that book reveal that contrary to what Battin claims, the manuscript could not have been submitted before May 16, 1962. On page 72 of that book a reference was made, *in the past tense*, to a paper that was presented by the author (Herbert Weiss) at a Naval Research Conference during May 14-16, 1962. (Exhibit 29) Quoting directly

from this reference (Ref. 50) that was published on page 72 of the Draper book:

> "Foreseeable Changes in Operations Research Tasks, Techniques and Organizations, paper presented at the 20th Anniversary Conference on Operations Research sponsored by Office of Naval Research, May 14-16, 1962."

This reference proves that the manuscript of the papers for the book was sent to the publisher by the editor (Sidney Lees) *after* this date. This is because the manuscript of the Draper book that contained Battin's paper, as well as all the others, was sent to the publisher (McGraw-Hill) by the editor of that book (Sidney Lees) as one entire manuscript. It was not sent to the publisher one paper at a time from each author. (Papers are typically sent to the editor. The editor collects the papers, and delivers them to the publisher at the same time in the order that they will appear in the published book. This is the job of the editor, not the publisher.) Therefore, references to papers published in 1962 and presented at conferences held in 1962 obviously mean that the manuscript for that book could not have been delivered to the publisher in 1961 as claimed by Battin.

There are other papers in the book citing other articles and books published in 1962. For example, see Ref. 74 page 73, Ref. 4 page 96, and Refs. 4, 5 page 445. (Exhibit 30) Therefore, Battin's claim made in his 1994 and 1996 papers contending that the book containing his paper was sent to the publisher for publication in 1961 is not true.

I. When Battin republished his 1994 paper in 1996, he

added an Addendum containing what he called "proof" to support his claim. This proof consisted of a dated library log from the Instrumentation Laboratory describing drawings of Earth-Venus-Mars- Earth gravity-assist trajectories. (Exhibit 31) A copy of this dated library log was given to Minovitch's previous attorney, Robert Lauson, by Battin in a letter dated August 8, 1999, (Exhibit 32) which was when Minovitch first became aware of the 1996 *Acta Astronautica* article, (Exhibit 9). Battin presented the library log record to Lauson with the statement:

> "The addendum provides evidence not subject to interpretation, which removes all question concerning the authenticity of my claim that the work described took place early in 1961. The two figures, which depict the Earth-Venus-Mars-Earth trajectories, labeled Fig. 26 and Fig. 27 on pages 118 and 119 of the Draper Anniversary Volume Air, Space, and Instruments, edited by Sidney Lees and published by McGraw-Hill Book Company in 1963, were made from negatives numbered and recorded in the librarian's log at the MIT Instrumentation Laboratory (now called the Charles Stark Draper Laboratory) for the date 7 February 1961. A photo-copy of the appropriate page for that log is enclosed. This is conclusive proof that I successfully calculated the Earth-Venus-Mars-Earth trajectories no later than January 1961."

Since the dated library log from the Instrumentation Laboratory is in direct contradiction to the story Battin told Kosmann during the 1990 interview which Battin supported by giving Kosmann photocopies of six dated indexed lantern slides prepared by MIT's Instrumentation Laboratory in 1960 which appeared to represent much stronger evidence (Exhibit 26), Battin's claim is false. Furthermore, on information and belief, the library log

record that Battin gave to Lauson must have been altered. This can be seen by examining the index numbers: As illustrated, the index numbers from the August 1960 lantern slides that Battin gave Kosmann in 1990 (Exhibit 26) had index numbers ranging from 18067 to 18071. However, by examining the library log that Battin gave Lauson dated 2/7/61, a log only five months later, (Exhibit 31) the index numbers range from 18831 to 18836. This is an increase of over 800. Such a jump in such a short period of time is unreasonable and can only be explained by a log date for Battin's slides describing the Earth-Venus-Mars-Earth trajectories much later than 2/7/61. Efforts by Minovitch to obtain these library log records from the Draper Laboratory to make a detailed investigation have been unsuccessful. (Exhibits 33-36)

13. The existence of Battin's 1994, 1996 and 1999 publications has made it impossible for Minovitch to ever receive proper "official credit" for his Discovery. No award can ever be granted to a person for making a discovery if a paper has been previously published in a professional scientific journal, or in a book, giving independent allegedly valid evidence proving that the author made the discovery because the author would obviously be identified as the person making the discovery on the basis of the evidence presented. Therefore, since Battin has introduced evidence that appears to be of an authentic nature, including archival records from an MIT library, allegedly proving that he made the Discovery prior to Minovitch's initial work, it will be

impossible for Minovitch to ever receive the official credit for his fundamentally important innovation of gravity-assist free-fall multiplanetary trajectories (popularly known as "gravity-assist trajectories") which made it possible to explore the entire solar system with instrumented spacecraft, and the official credit will have to be given to Battin. Therefore, by committing serious scientific fraud, Battin has effectively stolen Minovitch's Discovery and claimed it for himself.

14. Efforts to resolve the dispute with Battin out-of-court were unsuccessful. On July 20, 1999 Minovitch's previous attorney, Robert Lauson, presented Battin with the above-mentioned evidence demonstrating that his claims of discovering gravity-assist multiplanetary trajectories prior to Minovitch were not true and requested Battin to cease and desist publishing these claims. (Exhibit 37) Battin responded with a letter dated August 8, 1999, ignored the evidence that Lauson mailed to him, and presented a copy of his 1996 paper with the Addendum which Battin cited as "removing all doubt" that he made the discovery. (Exhibit 32) Lauson responded with a letter dated August 26, 1999 indicating that his response ignored the evidence and that his 1996 paper did not contain verifiable evidence proving his claim. (Exhibit 38) Battin responded with another letter dated September 10, 1999 and insisted that he did make the Discovery prior to Minovitch. (Exhibit 39) What is noteworthy in Battin's September 10, 1999 response (Exhibit 39) is the fact that he continued to ignore his 1962 paper (Exhibit 11) that proves that

he did not make the Discovery in 1961. (If Battin did make the Discovery in 1961, he would have described it in his 1962 paper dealing with navigation for round-trip trajectories to Mars where the three-year trip times made these missions very difficult.)

At this point, it became clear that Battin had no intention of stopping his publications falsely claiming credit for Minovitch's Discovery.

FIRST CAUSE OF ACTION

(LIBEL)

15. Minovitch realleges and incorporates by reference herein each and all of the foregoing allegations.

16. In an article in 1994, then again in a revised version of the article in 1996 (of which Minovitch only became aware in August, 1999), and finally, in a revised book, re-published in 1999, as described above, Battin has stated in writing, and caused to be published, statements to the effect that he was the first person to have made the Discovery of the trajectory design innovation known as "gravity-assist multiplanetary trajectories" (also known as "gravity-assist" or "swingby" trajectories) by virtue of his claim of discovering the first gravity-assist multiplanetary trajectory having the form Earth-Venus-Mars-Earth - in having done so in either 1960 or 1961.

17. Said statements are false in that (a) Minovitch made the Discovery prior to Battin, as proven by Minovitch's having

written a JPL technical paper dated August 23, 1961 describing the innovation -- the first documented paper ever written describing the innovation -- that has been cited and recognized in the professional literature and (b) Battin did not make the Discovery at least until 1962 when he submitted for publication his first paper discussing the Discovery.

18. Said false statements have damaged Minovitch's reputation, within the academic scientific community, as there is now in print claims that the Discovery was made prior to when Minovitch did so, thereby lessening and hurting his reputation in that it will no longer be known that Minovich was the first person to have made the Discovery - as is now his reputation.[11]

---

[11] As pointed out above, during the 1960s, numerous peer-reviewed papers were published by leading astrodynamicists crediting Hollister and his 1963 Ph.D. Dissertation from MIT for making the innovation of "gravity-assist trajectories," also known as "swing-by trajectories" or "bi-elliptical transfers." (Exhibits 21-23) The fact that Hollister published a paper in 1970 and identified Minovitch for making the discovery in 1961 (Exhibit 24) effectively placed Minovitch as the person who made the Discovery among the professionals. Minovitch was also identified as the person making the discovery by his former 1961 JPL supervisor Victor Clarke (Exhibit 40); in various peer-reviewed published professional papers written by JPL researchers (Exhibit 41), including publications from JPL's Director, Dr. William Pickering (Exhibit 42); published interviews with another former JPL Director, Dr. Bruce Murray (Exhibit 43); in official JPL/NASA publications (Exhibit 44); publications made from MIT (Exhibit 24); and in publications made in the popular scientific literature over a period of many years. (Exhibits 45, 46) Minovitch was also recognized as the inventor in various newspaper articles (Exhibits 43, 47-49), TV documentary programs on the history of space travel shown on PBS and throughout the world that was re-shown over a period of several years (Exhibit 50) and in scholarly books on the history of space travel. (Exhibit 51)

19. Minovitch has been damaged by this injury to his reputation in that the information published by Battin in the professional literature claiming credit for discovering gravity-assist free-fall multiplanetary trajectories prior to Minovitch will make it impossible for Minovitch to receive the "official credit" for this fundamentally important innovation, as Minovitch has been seeking to obtain for several years. (Exhibits 52-60) Un-official credit was granted to Minovitch by numerous publications as pointed out above (see footnote 11), but the "official credit" has never been granted. JPL management has indicated that "official credit" will be granted to Minovitch if it can be determined that his discovery was, in fact, new. (Exhibit 55) This determination is made by a "peer review" process of the published professional literature. (Exhibit 55) In 1996, Battin published (in the prestigious professional journal *Acta Astronautica*) what appears to be absolute and irrefutable evidence in an Addendum he added to his 1994 paper proving his claim of discovering gravity-assist trajectories prior to Minovitch - library log records from MIT's Instrumentation Laboratory illustrating his gravity-assist trajectories on slides that he claimed were made at MIT on February 7, 1961. Since a peer reviewer reading this 1996 paper would have to assume that the information published in the Addendum is true, Minovitch would not be given the official credit for this discovery. The fact that this discovery was the key that made it possible to explore the entire solar system with instrumented spacecraft is

demonstrated by the fact that in 1991 Minovitch was officially nominated for the Nobel Prize in physics (for 1992 or for any future date determined by the Nobel Committee) for having made this discovery. (Exhibit 61) At that time, the monetary value of the Nobel Prize in physics was $1,600,000. Battin's fraudulent publications will prevent Minovitch from ever winning this award, or any other prestigious award for having made the discovery/invention/innovation.

It should be noted that receiving a substantial monetary award for an important invention is not speculation, it is a reasonable certainty. The inventor is usually automatically nominated by his institute affiliation, or by the professional societies in which he is a member. Therefore, by publishing his fraudulent claims in the professional literature, Battin has denied Minovitch: (1) the "official credit" for his discovery/invention/innovation, (2) a substantial monetary award that would be granted by receiving "official credit," and (3) the honor and dignity that he would be entitled to for having made a discovery of this importance.

20. Additional damages that Minovitch has suffered as a result of Battin's fraudulent published claims of having made the Discovery prior to Minovitch, is the damage to his health due to significant emotional stress. Since Minovitch became aware of Battin's claim to his Discovery, this has created a sense of severe depression and emotional distress as Minovitch could see his Discovery being stolen from him by Battin in the professional

literature. As a result, Minovitch contacted a doctor specializing in treating severe cases of emotional stress. An examination by this doctor detected extremely large, life-threatening blood clots that are typically induced by emotional stress. This was documented by darkfield photographs of Minovitch's blood taken by his doctor in 1998. (Exhibit 62) A statement from Minovitch's doctor explaining that the cause of these large blood clots is most likely due to severe emotional stress is attached hereto. (Exhibit 63)

21. The value of the foregoing damages Minovitch has suffered as a result of Battin's actions will be proven at time of trial.

22. The Addendum published in *Acta Astronautica* by Battin in his 1996 paper (Exhibit 9) gives a good example showing how Battin is explicitly and overtly attempting to take the credit for the Discovery away from Minovitch. In this Addendum, Battin identifies a paper written by Dave Doody from JPL published in 1995 crediting Minovitch for the Discovery (Exhibit 46) and states essentially (with some frustration for theatrical effect by ending with "Oh well") that Doody was wrong and that he (Battin) was the person who really made the Discovery. Battin presents what appears to be irrefutable evidence proving that he was the person who made the Discovery with preceding remarks by citing the library log record describing slides of his gravity-assist Earth-Venus-Mars-Earth trajectories that were allegedly made by MIT's Instrumentation Laboratory on February 7, 1961. (Exhibit 31) These remarks by Battin allegedly proving that he

made the Discovery, not Minovitch, which he published in the Addendum of his 1996 paper are quoted herein in their entirety (page 901 Exhibit 9):

> "When I began the preparation of my lecture for the IAF Congress in Jerusalem, I showed the original lantern slides of the multiple fly-by orbit to the Draper Laboratory librarian. I asked her if it was possible to determine when these slides had been made. "Certainly" was the answer. "We do keep a log, you know." And there indeed it was. After all those years - the proof was in the log!"
>
> "On 7 February 1961 slides had been made for R.H. Battin described as "6 ORBIT CHARTS (BOTH MARS & VENUS) - APRIL 20, 1966, - SEPT 20, 1966, - SEPT 1, 1967, - AUG 20, 1972, - JAN 25, 1973, - JUNE 18, 1973" and numbered 18831 through 18836. The last three slides illustrate the Earth - Venus - Mars - Earth orbit for the launch date of 9 June 1972. Each slide shows the configuration of the spacecraft and planets for the date cited. In fact, Fig. 26 of the Draper Anniversary volume is the one for 18 June 1973."
>
> "The first three slides are for a multiple fly-by orbit with a launch date of 6 February 1966 which also appeared in the Draper Anniversary volume as Fig. 27. It was for the spacecraft and planet configuration of 1 September 1967."
>
> "At the end of my presentation in Jerusalem during the 45th IAF Congress in October of 1994, I was told of an article in the February/March 1994 issue of *Air & Space/Smithsonian* titled "Gravity's Overdrive" which gave a history of the gravity assist principle with only a parenthetical remark noting that MIT had done some work in that area. More recently, in the April/June 1995 issue of *The Planetary Report*, published by the Planetary Society, is an article by Dave Doody of the Jet Propulsion Laboratory titled "Basics of Spaceflight: Gravity Assist." As a part of the introduction he writes: "Astronomers had

> long known that comets' orbits were altered by encounters with planets, but it was Minovitch who first recognized that the principle could be applied to spacecraft trajectories." - Oh well."

These statements (and others cited above) by Battin claiming that he made the Discovery in January 1961 were made and published recklessly and or with knowledge that they were untrue, in view of all of the foregoing evidence that such discovery could not have been made by Battin prior to Minovitch, and as such they were made with oppression, fraud and malice, within the meaning of Code of Civil Procedure section 3294, thereby entitling Minovitch to punitive damages, in an amount to be determined by the trier of fact.

SECOND CAUSE OF ACTION

(SLANDER OF TITLE)

23. Minovitch realleges and incorporates by reference herein each and all of the foregoing allegations.

24. Battin caused to be published the above-referenced articles and book, which were in fact published, containing the above-referenced false statements therein, which thereby disparaged Minovitch's rights to claim, and the title in, the Discovery and the benefits associated therewith, in that they both put a cloud over whether Minovitch made the Discovery and further preclude a third party, other scientist or anyone conducting a "peer review" from being able to establish Minovitch's rights to title in said

Discovery.

25. Said statements and publications were not justified as the documented archival publications and various other evidence presented herein makes it clear that Battin did not make the Discovery when he said he did.

26. As a direct result of said slander and disparagement of Minovitch's right of title to the Discovery, Minovitch has suffered pecuniary loss, as set forth above in paragraphs 18, 19, and 20.

27. Said statements were made and published recklessly, and or with knowledge that they were untrue, in view of all of the foregoing evidence that such discovery could not have been made at that time, and as such they were made with oppression, fraud and malice, within the meaning of Code of Civil Procedure section 3294, thereby entitling Minovitch to punitive damages, in an amount to be determined by the trier of fact.

THIRD CAUSE OF ACTION

(INTERFERENCE WITH PROSPECTIVE ECONOMIC ADVANTAGE)

28. Minovitch realleges and incorporates by reference herein each and all of the foregoing allegations.

29. By reason of Battin having made the above-referenced false statements and caused those to be published, he has thereby interfered with Minovitch's ability to obtain "official credit" for having made the Discovery in that there is now a competing

claim that Battin made the Discovery prior to Minovitch.

30. Said interference was wrongful where Battin knew or should have known in making said statements that they were untrue - particularly in view of the amount of evidence that he had not made the Discovery when he claimed to have discovered it, and that by reason of such misrepresentations of the historical record, Minovitch would be damaged.

31. As a direct result of said interference with Minovitch's expectancy of prospective economic advantage, Minovitch has suffered pecuniary loss, as set forth above in paragraphs 18 -20.

32. Minovitch is therefore also entitled to injunctive relief, including a preliminary and permanent injunction against Battin prohibiting him, and all of his agents, from further causing to be published any statements representing that Battin made the Discovery.

33. Said statements were made and published recklessly, and or with knowledge that they were untrue, in view of all of the foregoing evidence that such discovery could not have been made at that time, and as such they were made with oppression, fraud and malice, within the meaning of Code of Civil Procedure section 3294, thereby entitling Minovitch to punitive damages, in an amount to be determined by the trier of fact.

FOURTH CAUSE OF ACTION

(MISAPPROPRIATION OF RIGHT OF PUBLICITY)

34. Minovitch realleges and incorporates by reference herein each and all of the foregoing allegations.

35. Battin, without Minovitch's consent, invaded Minovitch's right to privacy by misappropriating his right to publicity, namely, Minovitch's right to exploit his identity as inventor of the Discovery (his "inventorship").

36. Battin's conduct involved the appropriation of Minovitch's inventorship because Battin claimed that he invented the Discovery rather than Minovitch.

37. The appropriation was for Battin's advantage, pecuniary gain and profit, in that deceiving and misleading the public, and in particular, the scientific community, into believing that Battin invented/originated the Discovery tends to significantly enhance Battin's reputation at the expense of Minovitch's inventorship.

38. As a proximate result of the above misappropriation, Minovitch has suffered injury to his identity as the inventor/originator of the Discovery, as referenced above in paragraphs 18 and 19, in an amount according to proof.

39. Minovitch is therefore also entitled to injunctive relief, including a preliminary and permanent injunction against Battin prohibiting him, and all of his agents, from further causing to be published any statements representing that Battin made the Discovery.

40. Said statements were made and published recklessly, and/or with knowledge that they were untrue, in view of all of the

foregoing evidence that such Discovery could not have been made at that time, and as such they were made with oppression, fraud and malice, within the meaning of Code of Civil Procedure Section 3294, thereby entitling Minovitch to punitive damages, in an amount to be determined by the trier of fact.

FIFTH CAUSE OF ACTION

(UNFAIR COMPETITION)

41. Minovitch realleges and incorporates by reference herein each and all of the foregoing allegations.

42. The foregoing conduct of Battin constitutes unfair competition, within the meaning of Business and Professions Code section 17200, et seq., in that the false statements and representations made were likely to deceive the public, including but not limited to the scientific community.

43. As a direct result of said wrongful conduct, Battin has been unjustly enriched and therefore Minovitch is entitled to an order that Battin disgorge all of his ill gotten gains, subject to proof at time of trial.

44. Minovitch is also entitled to injunctive relief, including a preliminary and permanent injunction against Battin prohibiting him and his agents from further causing to be published any statements representing that he made the Discovery.

SIXTH CAUSE OF ACTION

(DECLARATORY RELIEF)

45. Minovitch realleges and incorporates by reference herein each and all of the foregoing allegations.

46. A justiciable controversy has arisen and now exists between the parties, that now needs to be resolved, wherein on the one hand Minovitch claims he first made the Discovery and on the other hand Battin claims he first made the Discovery, and as to which of the parties is entitled to make said claim.

47. Minovitch therefore requests a determination from this Court as to which of the parties is correct, in order that the historical record is correct and that Minovitch might finally obtain the "official credit" he is due from having made this Discovery and the resulting financial rewards.

WHEREFORE, Minovitch prays for a judgment against defendants, and each of them, as follows:

1. For compensatory damages, in an amount, subject to proof at time of trial, in excess of the jurisdictional minimum of this Court;

2. For punitive damages, in an amount to be determined by the trier of fact;

3. For injunctive relief, including a preliminary and permanent injunction prohibiting Battin and his agents from making any

further claims to having made the Discovery;

4. For an order disgorging Battin of all ill gotten gains he has received from having made claim to the Discovery;

5. For a declaration as to the rights of the parties with respect to claiming to having made the Discovery;

6. For attorney's fees incurred herein, to the extent such may be recoverable;

7. For costs of suit; and

8. For such other and further relief as the Court may deem just and proper.

DATED: February 8, 2000

DAVID J. COWAN

By _____
David J. Cowan
Attorney for Plaintiff
Michael A. Minovitch

VERIFICATION

I, Michael A. Minovitch, declare and state as follows:

I am the Plaintiff in the foregoing Complaint. I have read the Complaint. The allegations stated therein are true and correct, except as to those matters alleged on information and belief, and as to those matters, I believe those to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 5 day of February, 2000, at Los Angeles, California.

Michael A. Minovitch

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Attorney for Plaintiff
Michael A. Minovitch

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

MICHAEL A. MINOVITCH, an individual, Plaintiff, V. RICHARD H. BATTIN, an individual, and DOES 1 through 20, inclusive, Defendants.	Case No. B C224528 EXHIBITS TO COMPLAINT (Volume 1)

Plaintiff Michael A. Minovitch attaches hereto Exhibits 1 through 20 to his complaint, filed herewith. A list of the title of the exhibits is also attached hereto.

DATED: February 8, 2000

DAVID J. COWAN

By _____
David J. Cowan
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Michael A. Minovitch

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

B C224528

MICHAEL A. MINOVITCH, an individual, Plaintiff, V. RICHARD H. BATTIN, an individual, and DOES 1 through 20, inclusive, Defendants.	Case No. EXHIBITS TO COMPLAINT (Volume 2)

Plaintiff Michael A. Minovitch attaches hereto Exhibits 21 through 63 to his complaint, filed herewith. A list of the title of the exhibits is also attached hereto.

DATED: February 8, 2000

DAVID J. COWAN

By _____
David J. Cowan
Attorney for Plaintiff
Michael A. Minovitch

EXHIBITS TO COMPLAINT

1. Crocco, G.A., "One-Year Exploration Trip Earth-Mars-Venus-Earth," *Proceedings of the VIIth International Astronomical Congress*, Rome 1956, pp. 227-252.

2. Ehricke, K., "Interplanetary Flight Involving Several Planets," Section 9-9 in *Space Flight II, Dynamics*, D. Van Nostrand Co., Inc., 1962, pp. 1058-1070.

3. Ross, S., "Nonstop Trips Passing Both Mars And Venus: The Interplanetary Grand Tours," Section 5 in *Final Report: A Study of Interplanetary Transportation Systems*, (NAS 8-2469),Lockheed Missiles & Space Company, June 2, 1962, pp. 5-1, 5-2.

4. Lawden, D.F., "Interplanetary Orbits," Chapter 9 in *Space Research and Exploration*, ed. D.R. Bates, William Sloane Associates, New York, 1958, pp. 174-175.

5. Von Karman, T., "Introductory Remarks On Space Propulsion Problems," in *Advances In Astronautical Propulsion*, Casci, C. (ed), Pergamon Press, New York, 1962, pp. 3-10.

6. Minovitch, M.A., "A Method for Determining Interplanetary Free-Fall Reconnaissance Trajectories," JPL, TM 312-130, August 23, 1961, pp. 38-44.

7. Battin, R.H., *Astronautical Guidance*, McGraw-Hill book Co. New York 1964, p.185.

8. Battin, R.H., "On Algebraic Compilers and Planetary Fly-By Orbits," 45th Congress of the International Astronautical Federation, Oct. 9-14, 1994, Paper No. IAA-94-IAA.2.1.618.

9. Battin, R.H., "On Algebraic Compilers and Planetary Fly-By Orbits," *Acta Astronautica*, Vol. 38, No. 12, 1996, pp. 895-902.

10. Battin, R. H., *An Introduction to the Mathematics and Methods of Astrodynamics*, American Institute of Aeronautics and Astronautics, Inc., New York, 1999, pp. 16-19.

11. Battin, R.H., "A Statistical Optimizing Navigation Procedure for Space Flight," *ARS Journal*, Nov. 1962, pp. 1681-1696.

12. Battin, R.H., "The Determination of Round-Trip Planetary Reconnaissance Trajectories," *Journal of The Aero-Space Sciences*, Vol. 26, No. 9, Sept. 1959.

13. "Notice of Approval," for Minovitch's numerical investigation of gravity propelled interplanetary trajectories, Project No. MA-11, UCLA Computing Facility, Jan. 18, 1962.

14. Letter from Gene Bollman (JPL trajectory analyst) to Minovitch, April 16, 1962.

15. Szebehely, V.G.I. "Astrodynamics -- State of the Art - 1962," *Astronautics*, November 1962, pp. 52-55.

16. JPL shipment receipt for the delivery of computing paper from JPL to UCLA's Computing Facility, and the delivery of Minovitch's gravity propelled trajectory computations from UCLA to JPL, May 4, 1962.

17. Computer print-out, Earth-Venus-Mars-Earth gravity propelled trajectories, UCLA Computing Facility Research Project CF-09, June 12, 1962.

18. Clarke, V., "Interplanetary Round-Trip Program," JPL Section 312 RFP No. 71, June 21, 1962.

19. Letter from Minovitch to Professor Norriss Heatherington, June 10, 1974. (This letter was 25 pages long and contained a detailed account of the invention and early development. The information was documented by sending copies to all the JPL engineers whose names were mentioned in the letter as well as others. They included Dr. William Pickering, Dr. C.R. Gates, Dr. William Melbourne, Tom Hamilton, Dr. Harry Lass, William Sjogren, Raoul Roth, Elliott Cutting, Francis Sturms, Jack Lorell, Paul Lahman, James F. Scott, and Carl Solloway. All of these individuals also received copies of Minovitch's letter to Clarke dated June 10, 1974.)

20. Hollister, W.M., *The Mission For A Manned Expedition To Mars*, Ph.D. Dissertation, MIT (Department of Aeronautics and Astronautics), May 1963.

21. Ross, S., "Trajectory Design For Planetary Mission Analysis," AAS/AAAS Special Astronautics Symposium, RECENT DEVELOPMENTS IN SPACE FLIGHT MECHANICS, December 29, 1965, Berkeley, California, AAS Paper No. 65-130, pp. 2,3. (Also in *Recent Developments in Space Flight Mechanics*, AAS Science & Technology Series Vol. 9, 1966, pp. 3-43.)

22. Gillespie, R.W. and Ross, S., "The Venus Swingby Mission Mode And Its Role In The Manned Exploration Of Mars," *Journal of Spacecraft & Rockets*, Vol. 4, No. 2, Feb. 1967, pp. 170-175.

23. Ehricke, K.A., "Solar Transportation," *Space Age in Fiscal Year 2001*, Vol. 10, AAS Science and Technology Series (ed. Eugene B. Konecci, et al), 1967, pp. 171-180, 246-249.

24. Hollister, W.M. and Menning, M.D., "Periodic Swing-By Orbits between Earth and Venus," *Journal of Spacecraft and Rockets*, Vol. 7, No. 10, October 1970, pp. 1193-1199.

25. Battin, R.H., "Highlights 1978 - Astrodynamics," *Astronautics & Aeronautics*, Vol. 16, No. 2, December 1978, p. 36.

26. Six dated and indexed photocopies of lantern slides prepared for Richard Battin by MIT's Instrumentation Laboratory that Battin gave to Kosmann during an investigative interview conducted during the fall of 1990 to support his claim of discovering gravity-assist Earth-Venus-Mars-Earth trajectories prior to 1961.

27. Kosmann, W.J., **"Notarized Affidavit By Declaration Under Penalty Of Perjury,"** September 24, 1999. (A notarized written testimony of Richard Battin's claim of discovering gravity-assist Earth-Venus-Mars-Earth trajectories as told to William Kosmann during an interview with Battin in the Fall of 1990. The affidavit also includes copies of lantern slides Battin gave to Kosmann with dates showing May and August 1960 to support his claim.)

28. Battin, R.H. and Laning Jr., J.H., "The Trajectory Problem As It Relates To The Mission For Interplanetary Flight," in, *Air Space And Instruments*, (Sidney Lees ed.), McGraw-Hill Book Company, Inc., New York, 1963, pp. 97-119.

29. Weiss, H.K., "Influence of the Guidance Designer on Warfare," Reference No. 50, in *Air Space And Instruments*, McGraw-Hill Book Company, Inc., New York, 1963, p. 72

30. *Air Space And Instruments*, (Sidney Lees ed.), McGraw-Hill Book Company, Inc., New York, 1963, pages 73, 96, and 445.

31. Photocopy of one sheet of a library log record from MIT's Instrumentation Laboratory for February 1961 showing the dates corresponding to various slides identified by index numbers ranging from 18823 to 18847.

32. Letter from Richard Battin to Robert Lauson, August 8, 1999.

33. FAX communication from Minovitch to Jacky Bonarrigo (Draper Laboratory) requesting copies of Draper Library Logs from 18000 to 19000, December 30, 1999.

34. FAX communication from Jacky Bonarrigo (Draper Laboratory), to Minovitch with 7 questions as to why he is requesting copies of Draper Library logs, January 5, 2000.

35. FAX communication from Minovitch to Jacky Bonarrigo (Draper Laboratory) giving answers to the 7 questions, January 7, 2000.

36. FAX communication from Jacky Bonarrigo (Draper Laboratory), to Minovitch stating that the Draper Laboratory "declines to provide the materials requested," February 3, 2000.

37. Letter from Robert Lauson to Richard Battin, July 20, 1999.

38. Letter from Robert Lauson to Richard Battin, August 26, 1999.

39. Letter from Richard Battin to Robert Lauson, September 10, 1999.

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61. Professor Mieczyslaw Subotowicz, Institute of Physics, M. Curie-Sklodowska University, "PROPOSAL for AWARD of the NOBEL PRIZE for PHYSICS for 1992 or LATER to Dr. Michael A. MINOVITCH", Nobel Committee for Physics and Chemistry, The Royal Swedish Academy for Sciences, August 21, 1991.

62. Darkfield microscopy photographs of Minovitch's blood taken in 1998 showing very large life-threatening blood clots.

63. Statement by Dr. James R. Privitera, MD., (Minovitch medical doctor) indicating that Minovitch has very large life-threatening blood clots most probably due to emotional stress.