

Exploring the Skies

The public viewing sessions will be held at picnic grove No. 16. Members are invited to bring their telescopes to these sessions which are co-sponsored by the NCA and Park board. Meet at the area provided near the Nature Center, off Glover Road in Rock Creek Park. If the weather is cloudy, the Nature center will be used for an appropriate lecture or a planetarium show. The dates and times are as follows: June 21st, 9 PM, July 19th, 9 PM, August 23rd, 9 PM, September 13th, 8:30 PM and October 11th, 8:00 PM.

National Convention Announced

Members are reminded to prepare for the Third Annual Astronomers' Convention at Denver, Colorado, August 20th through 23rd. A number of tours have been planned in the area, including five installations, such as the solar warning system, International Ursogram Union, NORAD and a special show at Gates Planetarium; a high-altitude star party with catered western dinner, etc. The headquarters will be at the U. of Denver and dormitories will be available for family use with meals. July twentieth is the final date for acceptance of abstracts for those who wish to present them; 15 minutes allowed for each presentation. (They will be available in the proceedings if you are not able to attend.) Contact A.R. Gassman, Box 625, Castle Rock, Colorado, 80104, for registration or information.

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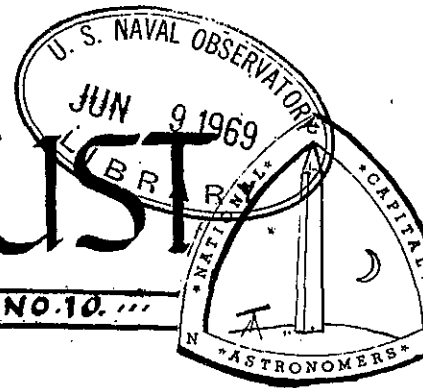
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JUNE 1969 ... VOL. XXVI NO. 10 ...



Planetologist To Speak On Venusian Atmosphere



Robert F. Mueller, Ph.D.

Doctor Robert F. Mueller, who will speak about Venus at the June meeting, comes to us from the Planetology branch at the Goddard Space center at Greenbelt, Maryland. He holds a B.S. and an M.S. degree in geology from the University of Wisconsin. In 1959 he received his Ph.D. from the University of Chicago. From 1959 through 1962 he conducted research at the University of California at San Diego. From 1962 through 1967 he returned to the University of Chicago. He has been at the Goddard Space Flight Center since 1967. His interests lie in the applications of thermodynamics and kinetics to geological and planetary problems. He is also interested in meteorites. He became interested in the Venus problem in 1962 when the probe Mariner II was launched toward the planet. Presently he has authored 35 papers dealing with these subjects and geochemistry.

"LABORATORY PLANET"

The chemical evolution and present state of the planets may be regarded as resulting from the interplay of thermodynamic and kinetic factors. The relative importance of these factors differs greatly from planet to planet. On cool planets, such as Earth and Mars, the kinetic factor is of overriding importance so that the atmosphere of these planets are grossly out of equilibrium with the minerals of the condensed spheres. On Earth, at least, this has had the interesting result of making possible the chemical "super-organization" we call life and which can exist only in the protection of kinetic barriers. Venus, however, presents us with a different case. Since it is clear that the temperature of large parts of the atmosphere and surface of the planet are high, it is likely that many chemical reactions will approach thermodynamic equilibrium on a geologic time scale. Indeed, the detailed chemical characteristics of the planet, as reported by recent planetary probes, strongly supports this idea. Thus, we are faced with a planet with many processes having the immediacy of laboratory experiments. Because of the similarity of the sizes of Earth and Venus, it is likely that the latter planet provides us with another "earth experiment" run at a higher temperature. This result has broad implications for planetology and the future design of planetary probe experiments.

PLEASE OPEN INSIDE FOLD FOR PAGE 2

Post-Apollo Problems Discussed

CALENDAR

FRIDAY, June 6th, 1969

Star party for Juniors of D.C., Prince Georges and Montgomery Counties, at Travilah Elementary School, Travilah and Duffie Mills Road, Gaithersburgh, Maryland. For further information please contact Sheila Duck, 474-5617.

SATURDAY, June 7th, 1969

6:15 P.M. Dinner with the Speaker at Bassin's Restaurant, 14th and Pa. Avenue, N.W. No reservations are necessary.

8:15 P.M. N.C.A. Meeting at the Department of Commerce at 14th and E Street, N.W. Dr. Robert F. Mueller will speak on the origin of the atmosphere of Venus. The N.C.A. Science Fair Awards will be presented.

TELESCOPE-MAKING CLASSES

Telescope making classes will be conducted at the following areas at the given dates:

The Materials Center, Bladensburg, Maryland. June 3rd 10th, 17th and 24th from 7:30 to 10:00 P.M. by Ted Noble. Phone 301-721-2225.

The Palisades Community Center, Washington, D.C. June 6th, 13th, 20th and 27th from 7:30 to 10:00 P.M. by Jerry Schnall. Phone EM 2-8872, home; 557-3177, office.

FIVE-INCH OBSERVING

Larry White will conduct observations through the Five-inch Clarke refractor at the Naval Observatory from 9:00 through 11:00 P.M. on Fridays the 13th and 27th of June. Summer schedule for the scope as well as mirror-making and telescope-making classes will be distributed later this month.



Treasurer's Report

Income

Dues.....	\$53.75
Sale of Books.....	\$50.00
Handbooks, 5.....	\$ 5.00
Time Tables, 3.....	\$ 1.20
Total Income.....	\$109.95
Balance 3/31/69.....	\$53.70
Total.....	\$653.65
Less Outgo.....	\$139.96
Balance 4/30/69.....	\$513.69

Outgo

Star Dust.....	\$20.10
Sky and Telescope.....	\$13.36
Books (to be sold).....	\$60.00
Astronomical League Dues.....	\$40.00
Stamps (Treasurer).....	\$ 6.00
Total Outgo.....	\$139.96

Treasurer, Jerry Schnall

To whom it may concern:- having been away intermittently, and now back at work, I thought you might be interested in one of the talks aired at the Aerospace Medicine meeting held during the first week of May. Probably the most interesting talk was given by Dr. Courtland D. Perkins of Princeton University, the title of which was, "What Next After Apollo?".

Dr. Perkins began by stating what we all suspect as fact--though rarely stated--that the exploration of space, the solar system, the planets and the moon is based largely on the prestige gained--even though we have benefited considerably as a nation from the technical advances associated with this--and that, at the present, we are in competition with the Russians.

Developing his theme, he stated that the next most likely goal would be the exploration of the solar system after the Apollo series ends. Of all the planets, Mars would be the most likely target for exploration, even though Jupiter may well turn out to be the most interesting planet in the long run. In the ensuing exploration, both manned and especially, unmanned vehicles will be necessary to adequately complete the exploration. He felt that as a result of this, several areas will necessarily undergo further development. These include propulsion, probably nuclear; the development of a permanent, reusable space station; and advances in the maintenance of a stable, long term environment for man. Progress in these areas may be markedly slowed if the program fails to redefine its goals before the protective umbrella of the Apollo program is withdrawn.

BREAKTHROUGHS SOUGHT

Supposing that Mars is the next goal after the moon, several major new breakthroughs will have to occur. At the present, using a minimal energy trajectory, a round trip will take about 920 days. The required change in velocity (ΔV) of 36,600 ft/sec, is barely within our present capabilities. If, instead, we wished to use a minimal time trajectory with an elapsed time of 360 days, a ΔV of 76,000 ft/sec would be needed, which is beyond our present capabilities. We can compare propulsion systems using the concept of the specific impulse (SE). The present liquid hydrogen--oxygen (LHO) system has a SE of 425 sec. This will allow us to reach our moon and return, using a vehicle of seven million lbs. Using a minimal energy trajectory to Mars, an orbiting system weighing one and one-half million lbs. would be necessary or about seven Saturn V rockets to orbit the ship. If, on the other hand, we could use a liquid-core nuclear propulsion system we might have a SE in the order of 825 sec. This would enable us to use a ship weighing about 700,000 pounds and require only five Saturn V rockets to orbit it. If the SE could be increased to 2000 sec. it would be possible for the ship to weigh little enough so that it could take off from earth, orbit, fly to Mars and return without any other stops, and do it in a minimal time trajectory too. Sadly we have nothing in this range and research in nuclear propulsion is moving very slowly. With this and reusable orbiting vehicles it may be possible to decrease the cost of putting one pound in orbit from about \$1,000 to \$10.

The impression given was not one of unrestrained optimism. It seems that if man is to make himself at home in space, it will have to be economically profitable for someone. The gods of science, astronomy, planetology, and other related space sciences seem to be worshiped by few, while the benefits they reap are soon forgotten or attributed to others.

If anyone would care to comment on this or others in this issue, we would appreciate your letters, hopefully publishing representative ones next time in Star Dust. We also hopefully will try to have at least one summer edition to act as a rally point for activities. We aim to please, but to do this we need more feedback than we are getting at present.

J. Logowik

From The JUNIORS

The Junior Division of the NCA has had quite a successful year. There are three regions of the Junior Division which work both individually and as a group. The main project of the Juniors this year has been preparing for the total eclipse in March of 1970.

One of the projects initiated by the Juniors in preparation for the eclipse is the Messier Object Project. In order to be ready for the eclipse it was felt that we should get practice observing with our telescopes and making drawings and photographs of our observations. The Messier Objects, would be a good thing to practice on. Most of these observations will be done during the summer months when Sagittarius, speckled with nebulae, will be visible. Several drawings made during the winter and spring have been turned in. This project serves a two-fold purpose. It not only helps prepare the juniors for the upcoming eclipse, but also provides us with a nice set of drawings of the Messier Objects as they look through a typical amateur's telescope. Since there does not seem to be any Messier Catalog with such drawings, we are thinking of having our catalog published when it is completed.

Much work has been done with astrophotography this past year, with emphasis on recent months on solar eclipse photography. Several of the fall meetings of the FGC Juniors focused primarily on astrophotography. They discussed different techniques and problems they had encountered. They then went out and tried to apply what they had learned. This resulted in a number of good photographs. Some of the Va.- and Md.-D.C. Juniors have been doing some astrophotography on their own and have brought their results to the meetings and have discussed them.

The Juniors have had several field trips this past year. The Junior Division as a group sponsored a bus trip to Philadelphia in April. The trip proved to be both enjoyable and profitable. We visited Edmund Scientific Co., the Franklin Institute and the Fels Planetarium. Mr. George Hamilton, director of the planetarium, gave us a private showing after the public showing. This trip realized a profit of about \$80. In February the Md.-D.C. Juniors became more familiar with the sky and learned about the co-ordinate systems of the heavens when they went on a trip to the Montgomery Junior College planetarium. Ken Crowley, a Va. Junior, planned a very successful trip to the Naval Observatory, where about 30 members observed the moon and the Orion Nebula through the 26" refractor. In April, the FGC Juniors took a trip to the area Science Fair at the University of Maryland.

A small group of about ten Juniors have been getting together quite regularly and travelling out to the country where they have been doing deep-sky observing. A couple have observed over 100 Messier Objects. Both the Md.-D.C. and the FGC Juniors have done some solar observing at their regular meetings. A group-observing session held by the Md.-D.C. Juniors this spring turned out to be such a success that they planned to hold two more along with the FGC Juniors. The first joint effort wasn't completed because of clouds; the next is scheduled for June 5th. The Va. Juniors have been working on getting key passes to the five-inch Clarke on the grounds of the Naval Observatory.

Darrel Freund, a FGC Junior, has done much research in locating a site for the 1970 eclipse. He travelled to Norfolk in September looking for possible sites near the center of the path of totality. He has been in contact with Mr. Russel Blake at the Chesapeake Planetarium, the headquarters for the Astronomical League Expedition. Darrel has a list of several approved sites, including school grounds, school roof tops, Nike sites, open fields, etc. He also has many photos of the different sites and several maps showing their location and the path of totality.

These are some of the things the NCA Juniors have been doing this past year and their plans for this summer. I feel they have all found it quite enjoyable and educational. We are looking forward to the events scheduled for this summer and a successful year starting next September.

N.C.A. Awards Science Fair Winners

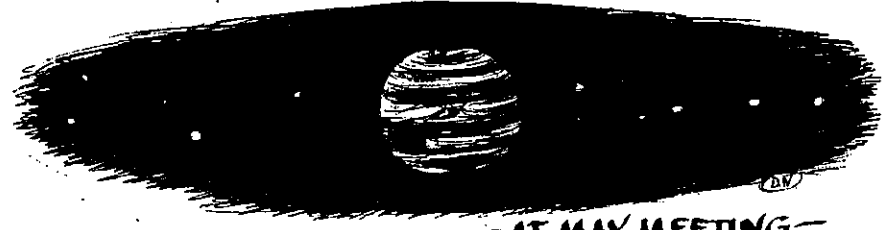
As a result of the recent Science Fair, six students were awarded one year, free memberships in the National Capital Astronomers. The winning entries were selected by Bob Bolster, Bob McCracken, Ted Noble, Jerry Schnell, Larry White and Bill Winkler. They will be presented with the memberships as well as certificates at the June meeting on the 7th of June. During the meeting, the exhibits will be displayed for the members. The winners are:

Princes Georges County
Robert Pariseau - Senior Division
Ronald Griese - Junior Division

District of Columbia
John Donovan - Junior Division
John Couturier - Junior Division, 2nd Place

Fairfax - Prince William Counties
Debbie Meloy* - Senior Division
Robert McAnaw - Junior Division

*Miss Meloy, having previously won an NCA award, receives a commendation but not another membership.



-AT MAY MEETING- Space Probe Mechanics Described

Dr. John Eisele of the Naval Research Laboratory's Cyclotron Branch, spoke on the basic principles of Celestial Orbits, mainly as applied to spacecraft. More than sixty brilliant line-drawings were used to illustrate the mathematics and results of orbits of bodies given various kind of initial launchings. It was pointed out that no single-stage vehicle without a restartable engine could be put into earth orbit. He emphasized that efficiency is gained by launching in such a manner that the earth gives the vehicle an extra "kick" by its rotation. An extensive question period followed and later Dr. Eisele joined some members for more abstract discussion at the Hot Shoppe.

NEW MEMBERS

Susan M. Gissler; 1900 Lyttonsville Road, Apt. 1005, Silver Spring, Md. 20910, 588-2845, Regular membership.

Robert J. Tremblay; 7418 Grumman Place, Alexandria, Virginia, 22306 765-0962, Regular membership.

Ellen Margaret Vartanoff; 6825 Wilson Lane, Bethesda, Maryland 20034, 365-3846, Junior membership.

SPACE corner

-AN EDITOR'S VIEWS-

Still More On UFOs, On Mars, Some Books And Articles

Though to some, UFOs hardly merit the dignity of inclusion in an astronomical journal, even if amateur in standing, I would like to report further on them, with your permission.

We might recall Einstein's reported aloofness from the subject ("These people have seen something: what it is I don't know and I'm not curious to know"). He was rumored to have signed a petition, with some 15 other scientists, as I recall, to protest, in the name of planetary diplomacy and ordinary will to survive, the Air Force's interference with, and reported shooting at, such flying objects when they invaded "our" air space.

There has been some reaction to my reference in previous columns to what I flippantly called "wrong-way" satellites, one astronomer asserting that there never has been any "wrong-way" for satellites, but that probably what have been observed are the boosters of satellites, such as the Discoverer, put into retrograde orbits with inclinations of 120° to 160° , from California in a westward orbit, to avoid land.

As we know, some reports do make exciting reading, especially when embellished a bit in popular, none-too-erudite magazines. And some writers are known for their ability to avoid letting the truth stand between them and a good story. Nevertheless, whether or not the article mentioned last month was merely a fabrication (which may have been at least partly the case) it did have some appeal to the imagination, somewhat in the tradition of Jules Verne and Jonathan Swift. (I consider it possible, judging by reports, or I wouldn't have mentioned it.)

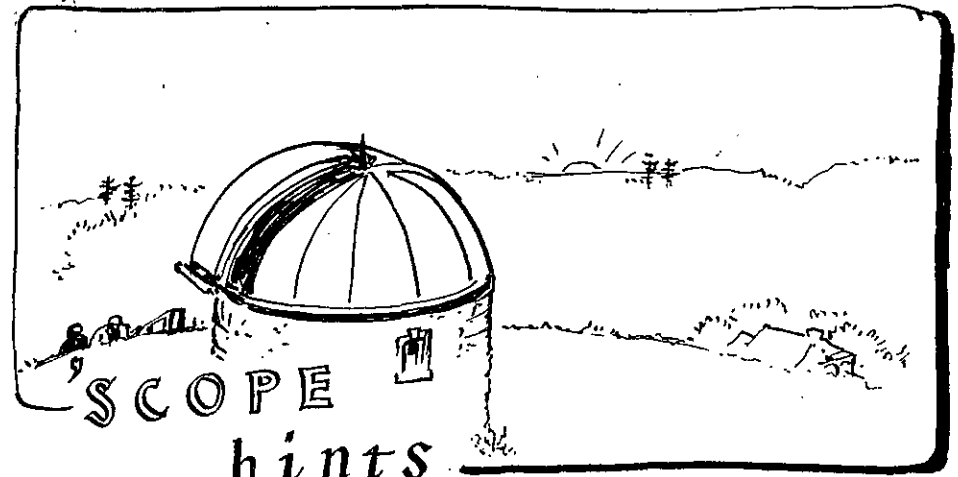
Swift's apparently precognitive identification of the satellites of Mars, brings us to Dr. John Bisele's revelation that Phobos and Deimos don't really travel in opposite directions, but, because of the time difference brought about by their different altitudes and velocities in reaction to the rotation of the planet, would appear to do so from the surface. "I would like to think that Swift was told this by the Martians," Dr. Bisele said, with a smile.



Also, off the cuff, he reported having seen an object about ten to fifteen degrees in diameter in Barstow, California, one night at the end of the academic year of 1964. It looked like the front end of an old-fashioned dirigible, he said, with a nose light shining back over it. It travelled majestically towards the east and he doesn't think it could have been a launch from Vandenberg AFB nor the exhaust configuration of a rocket. Then suddenly it vanished, or perhaps the light went out, concealing it.

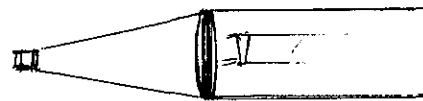
Well, whether or not this stimulates any of you amateurs, senior or juniors, to scan the skies more perceptively, perhaps with a moonwatch or other such project, it is hoped that the mystery might give more incentive, or the desire to affirm or disprove the allegations of some writer that we have been under surveillance for many centuries, on the basis of whatever reports we have been able to glean.

And, as for the raised eyebrows of the more dignified scientific community at the reference to UFO's, consider the usual reaction, some 15 or so years ago, to the mention of space travel, ion engines or other such "fantastic notions".



SIMPLE SPECTROSCOPY

A small 20° prism is placed in front of refractor objective or at opening of a reflector.



Thanks to Bob Wright



Replica grating taped over opening at one end of box: two razor blades separated by paper-thin space at other.

and to Jerry Hudson

An amusing mnemonic device for remembering the spectrographic Startypes: O B A F G K M R N S - Oh, Be A Fine Girl, Kiss Me Right Now - Smack! from Krogdahl's "The Astronomical Universe"

and other sources.

Books And Articles, from 7-4

Smithsonian Exhibits 19th Century Astronomy

You have until January, 1970, to see an artistic exhibit entitled, "Astronomy 200 Years Ago," but don't put it off; you might forget or you might want to see it again and bring friends later. It's at the Smithsonian's National Museum of History and Technology in the Physical Science Lounge, main floor. Summer hours, through September; 10A.M. to 9 P.M., seven days a week. (our thanks to Mabel Sterns - D.N.)

By the way, astronomical space enthusiasts might be interested in a NASA publication; Astronomy in Space, NASA SP-127, 45¢, by Newell Smith and Roman Mueller; Libr. of Congress, 66-6193; call number, QB/136/.A87. And for those interested in a book on UFOs which seems to do the least violence to scientific orthodoxy, I would like to recommend "Identified Flying Saucers," by Robert Loftin.

Dr. Eisele recommends these standard works: "The Astronomical Universe, a college text revised in 1962 (Macmillan); "Principles of Astronomy, by Stanley Wyatt (Allyn Bacon); "Exploration of the Universe, by George Abell (Holt, Rinehart and Winston); also, Otto Struve's Astronomy of the 20th Century, written with Velta Zebergs (Macmillan). Dr. Eisele's own book should be mentioned: Astrodynamics, rockets, Satellites and Space Travel (National Book Co. of America).
D.N.

A recent report, Fourth International Symposium on Bioastronautics and the Exploration of Space, edited by Charles H. Roadman, Hubertus Strughold and Roland B. Michell, and sponsored by the USAF, Aerospace Medical Division, Brooks AFB, is quite interesting. It contains many articles relating to the practical business of space exploration as well as several articles on orbiting observatories and the like. The symposium from which the monograph was published was held in November 1968. Other than in the Library of Congress, copies can be obtained through; Chief, Input Section, GFSTI, Sills Building, 5285 Port Royal Road, Springfield, Va. 22151. J.L.

Some articles found in recent publications;
Scientific American; January 1969; "Mount Wilson and Palomar Observatories; Seyfert Galaxies," by Ray J. Weymann.
December 1968; "Radio Signals from Hydroxyl Radicals" by Alan H. Barrett.
November 1968; "Artificial Plasma Clouds in Space", by Gerhard Haerendel and Reimar List.

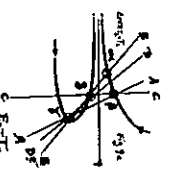
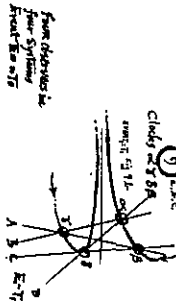
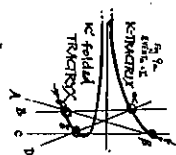
Science; March 1969; "Optical Studies of Pulsar XP 0533, by J.G. Duthie ; Planetary Probes; origin of atmosphere on Venus, by R.F. Mueller of NASA;
14 March, 1969; "Venus Clouds; Tests for Hydrocarbons; Velikovsky refuted;
28 March 1969 ; a discussion of Venus probes by Carl Segan in which he concludes, "The strictures of life at the very poles may be slightly relaxed." D.N.

Where Does The True Vernal Point Lie?

Some astrologers, basing their assumption on old books, say we are living now in the Aquarian age. And modern astronomers, for practical reasons, have fixed the vernal point at 0° in Aries, preserving the cosmic situation that prevailed in the Greek epoch. But are we really living in another period? Has the true vernal point moved into another constellation, perhaps beyond these? Best answer will be published here. Send them to the Editors, Star Dust, 1225 Quincy St. N.E., Wash. DC, 20017 D.N.

Gould's Proof - CONTINUED

Again, examination of my unique model shows that observers A, B, C, D could be on different planets, or even different solar systems and observe clocks (stars) Alpha, Beta, Gamma, Delta moving at apparently varying rates of speeds. Some of these rates because of the angle of observation, would appear to be moving at high speeds approaching the speed of light. In the foregoing manner of illustration, I have satisfied all the conditions Einstein set forth in his Special Theory of Relativity that he admitted could his Special Theory with ordinary Newtonian Celestial mechanics and the Galilean transformation.



Bibliography: David Hilbert & S. Cohn-Vossen, "Geometry and the Imagination," pps 200-214
Differential Geometry, William C. Graustein, pps. 100, 101, 179
Einstein, Essays in Science, Philosophical Library pps 48 through 60
Cundy & Rollett, Mathematical Models pps 50 through 60
Nature Magazine, (Br. Jnl of Science) Vol. 216 No. 5111, pps. 113, 114; 119 through 124.
George E. Gould, paper, "Errors in Higher Mathematics," Astronomical League June 65, Towson, Md.
George E. Gould, paper, "Contra-Oversal Geometry," National Council of Teachers of Mathematics, at McGill University, Montreal, Quebec, Canada 8/21/67
Includes "Gould's Theorem - That Negative Gaussian Curvature within a bounded area is Co-Variant not Invariant, and there is "A Limit of Negative Infinity" within any such bounded area. That all Invariant formulas in 3 dimensions and N Space problems "Fail to include these Co-Variant Forces", which are the cause of minute perturbations in molecular and space orbits."

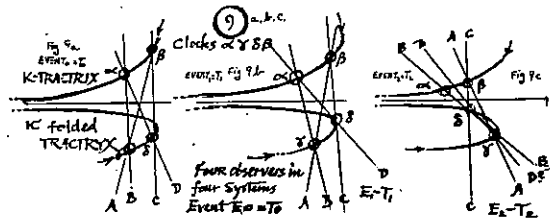
This talk to be presented by President George E. Gould of NCA, before the Middle Atlantic Regional Meeting of the Astronomical League, at Bethlehem, Penna., June 14th, 1969. Your Editor hopes that many NCA members will make this important meeting.

The Astronomical Proof of the Error in Einstein's Special Theory of Relativity
c 1969 By George E. Gould

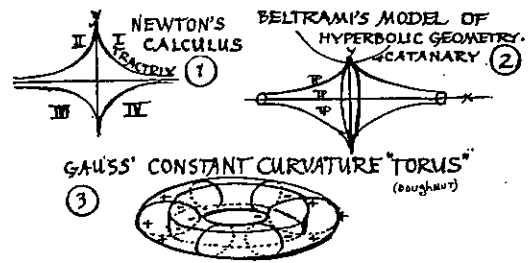
Einstein stated (The Meaning of Relativity, 1954 ed.) pps.25,26, That if (1) Time, (2) Length is absolute, and inertial systems K, K' are parallel, then problems encountered in Special Relativity are solved in ordinary Pre-Relativistic physics, using the Galilean transformations, which are in his words $C0$ -Variant. Einstein used ordinary Euclidean parallel lines.

Einstein also stated, That certain conditions of motions of Stars and Planetary bodies approaching the speed of light are continuations of the Invariant Electromagnetic and Electrostatic formulas of Clerk Maxwell and Lorentz.

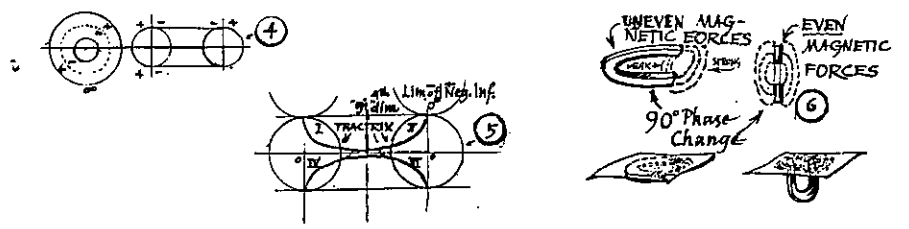
Using Einstein's own description of how the problem could be solved using ordinary Pre-Relativistic Newtonian Celestial Mechanics, I have devised a model using clocks (stars) moving on parallel lines constructed within the framework of Non-Euclidean Hyperbolic Geometry. Inertial system K represents a spacial curve of a Tractrix (Newton's Calculus) and my discovery of the Folded Tractrix designated as inertial system K' . I demonstrate the analogy of the moving clocks and Retrograde Motion of Mars to explain my concepts of the solution of celestial bodies in motion involved in Special Relativity.



I claim that in Hyperbolic Geometry, Negative Curvature is $C0$ -Variant not Invariant, and a Negative Curve is always in the form of a Tractrix and when revolved in a plane of revolution is Asymmetrical not symmetrical. Maxwell's and Lorentz's transformations do not allow for this perturbation in orbit and do not therefore contain any values for such observed perturbations in curves in spacial orbits and are therefore incorrect.

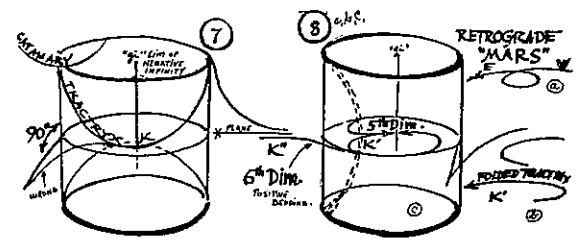


In 1856 Clerk Maxwell made his famous hypothesis of electromagnetic forces. But he didn't know what form it would take. Thirty two years later, Hertz discovered and published his wave theory. But neither Hertz nor any other scientific investigator has published any paper to date showing the analysis of using the Folded Tractrix to explain the perturbations of electromagnetic and electrostatic lines of force in the phase changes in these lines of force. I have discovered by observations (of magnetic lines of force) of an ordinary horseshoe magnet, that a shift of 90° of holding the magnet in relation to a plane sheet, upon which iron filings assume the magnetic lines of force of equal and unequal values. The Invariant transformations do not provide values in these formulas to compensate for these disturbances or perturbations. I claim the discovery of the $C0$ -Variancy of electromagnetic and electrostatic lines of force in phase changes by transmitting and receiving bodies. These phase changes reach a maximum, in a 90° plane of revolution, which always takes the form of an Asymmetrical plane of revolution. This means that there is always a bending or $C0$ -Variancy condition existing and not an Invariant transformation that Einstein claimed as a basis of his Special Theory of Relativity.



Gould's Proof- The following model is offered.

For parallel lines in inertial systems K, K' ; I use the Tractrix K , and my discovery of the Folded Tractrix as K' ; both of these spacial curves are parallel to the asymptote X and are therefore parallel to each other. See Newton's and Beltrami's models. Einstein said that space is a continuum, and he called it "Hyper Space", and alluded to its negative curvatures. He admitted however, that he didn't know what it might look like, or the particular form it occupied. I claim that space could be Elliptical (positive), Hyperbolic (negative) or a combination of both curvatures. I further claim that the three events Einstein postulated as events 0,1,2 are the minimum points in space lying on a plane intersecting curved space. This would be the only way that a Euclidean Plane could solve the problem of time in space. However the purpose of this paper is to demonstrate that Time is not the fourth dimension but may be the 7th or even larger dimension, because I claim the 4th dimension is the limit of Negative Infinity, the 5th dimension is the perturbation of the Folded Tractrix and the 6th dimension is the perturbation of a positive curve that is an exponential in characteristic.



In Fig. 8 a,b,c, the spacial curvature of the Folded Tractrix is similar to half of the apparent retrograde motion orbit of Mars, as we would envision it in space. In Fig. 9a,b,c, I place on each Tractrix, K, K' , one set of clocks (stars) The position of each clock on both inertial systems is so that beta and gamma lie equally distant from the zero end of the Tractrix K and the Folded Tractrix K' ; and in a similar manner clocks alpha and delta are placed equidistant from the previous clocks on their respective inertial systems.

Both sets of clocks (stars) move in a uniform motion towards the exponential end trying to reach their common asymptote X , and thereby demonstrate ordinary Newtonian Celestial Mechanics. Examination of Events 0,1,2 show that four different observers in space will observe four different conjunctions simultaneously. In event 2 (time2) Observer D observes the conjunction of two clocks but doesn't know that the conjunction of gamma and delta lie within One Inertial System K' . For an interesting analogy suppose that the two inertial systems started out as a single Tractrix in the vertical position. Now both sets of clocks would appear as only two clocks on a single space curve. But the time space dimension causes one Tractrix (the Folded Tractrix) to move to the position of a 90° phase change. We would then be observing the length of the Tractrices remaining constant, (4th dimension). The bending of the Folded Tractrix because the zero end must always be touching a zero curvature plane, (and according to Gaussian theory, the zero plane would be a cylinder). It must also bend because it is confined in a constricting area. This then is the 5th dimension. Both of these dimensions are taking place during the concept of world time change of the continuum. I have however placed the distortion of a positive curve as the 6th dimension so that time can be viewed simultaneously with these perturbations taking place.

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