

Stefan Marinov

THE THORNY WAY OF TRUTH

Part VI

**Documents on the violation of the laws
of conservation**

EST-OVEST
Editrice Internazionale

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УМНЫЙ ЧЕЛОВЕК ОТЛИЧАЕТСЯ ОТ ГЛУПОГО
ТЕМ, ЧТО МОЛЧИТ, КОГДА ЕМУ НЕЧЕГО СКАЗАТЬ.
ЛИСТАЯ СОВРЕМЕННЫЕ ФИЗИЧЕСКИЕ ЖУРНАЛЫ,
Я И ГОВОРЮ СЕБЕ: "БОЖЕ МОЙ, ОДНИ ИДИОТЫ!"

IF OUR CONCEPTS INFLUENCE THE MEASURE-NUMBERS
WHICH ARE TO BE TESTED IN THE LABORATORY, THEY
ARE PHYSICAL CONCEPTS. IF NOT, THEY MAY BE GOOD
OR BAD PHILOSOPHY, BUT THEY ARE NOT PHYSICS.

ICH HAB NOCH NICHT ERLEBT, DASS EINE MASCHINE,
DIE IN DEN SCHRIFTEN DER PHILOSOPHEN PERFEKT
BESCHRIEBEN WIRD, DANN IN DER PRAXIS AUCH
GENAUSO PERFEKT FUNKTIONIERT.

Umberto ECCO (Il nome della rosa)

A MAN WHO HAS BOUGHT A THEORY WILL FIGHT
A VIGOROUS REARGUARD ACTION AGAINST FACTS.

Joseph ALSOP

GIVE ME A SPONSOR, AND I SHALL
OVERTURN THE WORLD.

ARCHIMEDES (287 - 212)

TESLA WAS QUITE RIGHT,
AND ALL THE TEXTBOOKS
IN THE WESTERN WORLD
ARE QUITE WRONG.



Trying to constrain conventional physics to jump through the circle of the violation
of the laws of conservation, OR:

Ты о том, я о сем,
и все равно, кто о чем.

P R E F A C E

The sixth part of the collection of documents THE THORNY WAY OF TRUTH (TWT) is dedicated quite the whole to the problem about the violation of Newton's third law by the help of inertial forces, with a special attention to the centrifugal inertial forces.

At the present time I can affirm *with surety* that Newton's third law can be violated in the domain of electromagnetism as, according to Grassmann's formula which is a direct result of the fundamental Newton-Lorentz equation, the interaction between current elements violates this law. I observed violations of the angular momentum conservation law (thus of Newton's third law) with my Bul-Cub machine without stator (presented in TWT-III) and with my Rotating Ampere Bridge with Displacement Current (RABDC) (presented in TWT-III and TWT-IV), insofar as isolated material systems have been set in rotational motion by the help of internal magnetic forces.

In the domain of mechanics there are many reports about violations of Newton's third law (Dean, Cook, Zorzi+Speri, Reid, Laskowitz, Farrall, Foster, di Bella, Auweele, Novak, Nowlin, Goldschmidt, Matyas, Cuff, Kellogg, Young, Wallace, Lathwaite, Strachan, Kidd). According to my opinion Cook, Lathwaite (whom I met in September 1988 in London) and Kidd have registered experimental successes.

In this book I analyze in detail the Dean, Cook and Zorzi-Speri drives, all of which are based on the fundamental Bühler drive, and I show that all inventors have concentrated their efforts searching for violation of the momentum conservation law but nobody has tried to construct machines which will violate the energy conservation law. Meanwhile momentum is a vectorial (and thus non-dissipative) quantity, while energy is a scalar (and thus dissipative) quantity, and it should be technologically much more easy to violate the energy conservation law by the help of inertial forces.

In the last months rumours go around the world that Sandy Kidd has *definitely* succeeded in violating the momentum conservation law by the help of gyroscopic inertial forces. On the next page I reproduce a part of the letter of my friend George Hathaway from Toronto to my friend Stefan Hartmann from Berlin. Hathaway has recently examined Kidd's drive and here is the transcription of his report:

Dear Stefan,

15 May 1989

.....

Regarding the Searl Effect, there is one company in California which is trying to develop a Searl-Effect power generator, but John Searl himself says that there are still difficulties in working out a deal with them. He is no longer working with companies in levitation but solely in energy production, as far as I know. I do know about Sandy Kidd's devices having met him two weeks ago in Scotland. Yes, they do exhibit several hundred grams of thrust (from a 7 kg machine) and he is working an advanced design for an Australian Company. However, the energy required to make a gyro-propelled device such as his lift itself has been estimated at 10 - 15 kW per 5 kg, and requires masses spinning at 20,000 - 50,000 rpm. This presents many difficulties with bearing design, strength of materials and safety. It appears to me that if this technology is to be developed, it should be primarily for deep-space applications as its usefulness in near-earth a surface applications is greatly limited. Cook's device is not force-precessed gyro device and I do not put any emphasis on non-gyro mechanical devices.

.....

Cheers,

George Hathaway

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May 15, 84

Dear Stefan,

Regarding the Searl Effect, there is one company in California who is trying to develop a Searl-Effect power generator, but John Searl himself says that there are still difficulties in working out a deal with them. He is no longer working with companies on levitation but solely on energy production, as far as I know. I do know about Sandy Kidd's devices, having met him two weeks ago in Scotland. Yes, they do exhibit several hundred ~~grams~~ ^{grams} of thrust (from a 7 kg. machine) and he is working on advanced designs for an Australian company. However, the energy required to make a gyro-propelled device such as his lift itself has been estimated at 10-15 kw per 5 kg. and requires masses spinning at 20 50 000 rpm. This presents many difficulties with bearing design, strength of materials and safety. It appears to me that if this technology is to be developed, it should be primarily for deep-space applications as its usefulness in near-earth or surface applications is greatly limited. Cook's device is not a force-processed gyro device and I do not put any emphasis on non-gyro mechanical devices.

Cheers
Serge Hathaway

This letter shows that people are no more troubled about the problem whether Newton's third law can be violated or not, as this problem is answered positively. Now Kidd is solving the ENGINEERING aspect of the inertial thrust. We thus see again the story with the Wright brothers. The Wrights fly in the sky, meanwhile the scientists affirm that this is not possible. Cook, Lathwaite, Kidd propulse machines with mechanical internal forces, Marinov rotates machines with magnetic internal forces and the scientists all over the world play the fool as these machines do not exist. But in physics it is not the majority which decides what is true and what is wrong, and soon the "established" scientists will recognize that Newton's third law can be violated.

In this volume the book of Dickinson on Cook's drive is reproduced which was kindly sent to me by my USA informant Mr. Henry Palka.

I publish in this volume also two papers on the Dean drive. The Dean drive was unsuccessful but this drive was an important pace which led to the Cook drive and to the Zorzi-Speri drive. These papers are also a precious gift of Mr. Palka.

I publish my description of the fantastic machine of Stefano Ricciardi, a paper published by me in ELECTRONICS AND WIRELESS WORLD on the ball-bearing motor, and an almost forgotten paper of Michelson which shows that Michelson was able to measure the Earth's absolute velocity, as in 1913 he has constructed an experiment for measurement of the two-way light velocity which TECHNICALLY is identical with my interferometric "coupled mirrors" experiment for measurement of the one-way light velocity.

Then I publish (partly) two historical papers of Zamboni on his eternal electromotor. Since 150 years a clock in the Clarendon Laboratory in Oxford is driven by Zamboni's dry batteries but official science suppresses the information on this first perpetuum mobile.

Two papers of my friend Pappas follow. Then I publish the dialogue stimulated by the letter of Claude Sunier in RAUM UND ZEIT on TESTATIKA, my report on TESTATIKA published in RAUM UND ZEIT and the report of Don Kelly.

The final part of the book presents my routine correspondence which came to light after the publication of TWT-V.

Graz, 24 July 1989

Stefan MARINOV



Stefan Marinov in Niederschöckl, 1984

от Стефан Маринов

КАК СЕ ПРОГОНВАТ ПРИЗРАЦИ И ДУХОВЕ

Ако ме попитат, какво правя през свободното си време, отговорът е: чета съветски вестници и списания.

И ако ме попитат, какво трябва сега радио СВОБОДНА ЕВРОПА да излъчва, ще отговоря: Да сложат пред диктора куп съветски вестници и списания и да го оставят да ги чете.

Нима и до това доживяхме, ще възкликне някой. Доживяхме!

Но в този контекст бих искал да предам мнението на един съветски емигрант, който преди месец, след 10-годишно "отказничество" е напуснал Ленинград.

Борбата за окончателното ликвидиране на сталинизма, която се провежда сега в Съюза, ми каза емигрантта, е без съмнение действително радикална и безпощадна. Пълното разкриване не на грешки, изкривявания, неспазване на никакви си норми и идеологически заблуждения, а на 100-процентово злодейство и апокалиптичен сатанизъм е безусловно необходимо за да може да се излезе от блатото, в което съветското общество е затънало. Така че десталинизацията, тоест десатанизацията, на Съветския Съюз може и трябва само да се приветствува. Но това повсеместно думкане на тъпани за да се прогони духа на един злодей, който вече 35 години лежи в гроба, думкане, което със всеки ден не само намалява, но се увеличава, говори, че и след своята трета смърт Сталин отново успява да възкръсне. След своята първа физическа смърт Сталин възкръсна в пория от сълзи, който верноподаникът и напъващ до мозъка на костите си народ, проля. Втори път Сталин умря, когато от стъклени саркофаг хвърлиха трупа му в земята. Този път той възкръсна поглаждайки мустаките си тук-там в някой филм, в спомените на пенсионираните полководци и в писмата на ветераните, молещи да се върне името на града, под чиито ^{рухнали} зидове те са проливали кръвта си. Сега за трети път го погребват. Този път гробът е дълбок, твърде дълбок. Много локати чакат удряйки о камък, много търнокопи се размахват. Но странно! Духът на злодея не само че не напуска просторите на Съюза, но още по-властно и по-повсеместно го обгръща. Духът остава не понеже му неят слава и осанна, а поради неистовите викове "Махни се!".

И наистина, не може един призрак, когото от сутрин до вечер прогонваш и проклинаш, но страхът от когото е в дното на твоята душа, да си отиде. Призраците съществуват само в нашите страхове от тях. Този който няма страхове, нему духове не се присъват, той не се стряска като прелети прилеп или изписка бухал.

Предахте ли ги по телевизията седмте естонски делегата, когато гласунаха "против" във Върховния Съвет? Предахте ли ги, как шахо вдигаха ръцете си, така че при едного от тях даже не беше ясно, дали гласуна "против" или се почесва по главата. Как да умре духът на злодея, когото страхът от него живее във всекия от нас? Как?

Бих миналата година в Москва и уснях да видя филма ЮЖАВИНЕ. Първият филм, който, вярвам, всекия пряк българин е отишъл да види, представява борбата на живите с един трун. Уни, тази борба продължава. И ще продължава до този ден, до като страхът от

злодея живее в душите ни. Не страхът от оня Злодей, с голяма буква "З", който вече 35 години лежи в гроба си, понеже, слава богу, ние сме атеисти и знаем, че мъртавите при нас, живите, вече не могат да се върнат, а страхът от подобни нему живи злодеи или злодейчета. Така че духът на сатанизма, който витае във всяко кътче на нашите страни, ще се пръждоса, не като му викаме "уйди, навязчивая тень!", а като почнем да вдигаме ръцете си при гласуване ясно и недвусмислено.

И трябва да почнем вече да казваме не само за кого гласуваме, а за какво гласуваме. Но дълъг път още ни предстои, за да можем ясно да кажем какво мислим и да разберем, какво искат другите да кажат, понеже страховете в душите ни объркаха и думите в устите ни.

Когато преди 25 века попитали Конфуция, какво би било първото мероприятие, което би провел, ако му дадат власт, отговорът на мъдреца бил следния: Ще върна на думите тяхните първоначални значения.

Първата дума, на която трябва да върнем нейния иманентен смисъл се казва СВОБОДА. Когато тази дума блесне над нашите страни със цялата своя първична сила, сенките на обаяните с кръвта на милионите призрци безследно ще изчезнат.

SOUL MAGAZINE, NOVEMBER-DECEMBER 1986

Prediction: Revolution in Russia in 1988

Editor's Note: A *Soul Magazine* reader from Australia, Mr. Gordon Bridges, wrote to us in July:

"In Sydney's *Catholic Weekly* there recently appeared a statement from Cardinal Lubachivsky that *there is a French prophet in Corsica who predicts the end of Communism in the U.S.S.R. will coincide with the millennium of the Ukrainian Church in 1988.*"

Mr. Bridges suggested that we mention this in *Soul Magazine*. Therefore we wrote to Cardinal Lubachivsky for verification.

On August 15 His Eminence replied:

"...I am sending to you the Ukrainian copy of 'Curious News' which appeared in the *Christian Voice* together with a translation."

Cardinal Lubachivsky is the Archbishop Major and Metropolitan of the Ukrainian Catholics. Stationed in Rome, he is the successor of Cardinal Slipyj who, on behalf of the World Apostolate of Fatima (The Blue Army), presented over two million petitions to Pope Paul VI for the Collegial Consecration of Russia to the Immaculate Heart of Mary.

Following is the article published in the *Christian Voice* under the title "Curious News":

On the island of Corsica there lives a man known throughout the world because of his predictions: Julian Delorm.

In 1931 he predicted the coming to power of Hitler and the subsequent war of Germany against the world, including the fall of France.

At that time people laughed at his prediction. And then in 1938 he said the war will start on September 1, 1939, exactly as it really happened.

From that time the world began to treat the prophecies of Delorm seriously. They were widely published starting in 1950.

He foresaw the coming of the U.S.S.R. armies into Hungary, the death of DeGaulle; the assassination of President Kennedy; the war between Iran and Iraq; and many other world events which came true exactly as he predicted.

Delorm predicts that in 1988 an uprising will take place in the Caucasus and the Ukraine after which all the Federal Socialist Republics will separate from the Soviet empire—one after the other.

PREDICTION: COUNTERREVOLUTION IN RUSSIA IN 1990

Козьма Прутков, починавший в пятом райском кругу, послал издательство ТЕРНОВОГО ПУТИ следующую телеграмму:

Товарищ, знай, пройдет она
эпоха под названием Гласность.
И вот тогда государственность
припомнит наши имена.

SCIENTIFIC PAPERS



WITH THE INVENTORS OF THE ZORZI-SPERI DRIVE:

Roberto Monti, Piero Zorzi, Stefan Marinov, Omero Spéri
(Garda, April 1989)

MACHINES VIOLATING NEWTON'S THIRD LAW

Stefan Marinov

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Abstract. I point out that there is a substantial difference between potential forces (gravitational, electric, magnetic) and inertial forces (collisional, centrifugal, Coriolis, gyroscopic). The theory shows that for gravitational and electric forces Newton's third law is preserved, however for magnetic forces it can be violated (my Bul-Cub machine without stator and my Rotating Ampere Bridge with Displacement Current have demonstrated such violations). For collisional forces Newton's third law is also preserved but for centrifugal and gyroscopic forces it can be violated. I analyse in detail the machines of Dean, Cook and Zorzi-Speri and I show that all inventors have tried to violate the momentum conservation law by the help of centrifugal inertial forces, meanwhile it is technologically much more easier to violate the energy conservation law.

1. INTRODUCTION

This article is dedicated to the "anti-gravitational" machines which use inertial centrifugal forces for their drive.

First I set a clear border-line between the potential and inertial forces, as in today's physics, under the pernicious influence of the theory of general relativity, this border has become very blurred. I show that for gravitational and electric (electrostatic) forces Newton's third law is valid, but for magnetic forces it can be violated.

The question is whether Newton's third law can be violated for inertial forces. I show that for collisional forces it cannot be violated and I analyse to which extent was it violated by centrifugal forces. I do not analyse the Coriolis forces and I mention only briefly the last successes of Sandy Kidd in violating this law by the help of gyro forces.

I present the machine of Norman Dean, of which the world has talked very much, then the machine of Robert Cook, of which the world ^{has} talked very little, and finally the machine of my Italian friends, Dr. Piero Zorzi and Prof. Omerò Speri, which is unknown to the world, although it was constructed ten years ago.

I show that the "anti-Newton" inventors have concentrated their attention to the law of

momentum conservation and have searched for ways to set an isolated system in motion by the help of internal forces, i.e., to create "unpaid momentum". Nobody has even posed the question to create "unpaid energy" by the help of internal forces. Meantime the solution of the second task seems to me to be much more easier.

I propose very simple experiments with the Bühler drive (see sect. 8) for producing energy by the help of centrifugal inertial forces.

Momentum is a vectorial quantity, energy is a scalar quantity. Energy can be obtained in a dissipative form (heat) but momentum cannot be obtained in a dissipative form. For this reason, according to me, the way on which the anti-Newton researchers have looked for "wonders" was not the most easy. One must try first to produce "unpaid" energy by the help of internal inertial forces and then to search for ways to produce "unpaid momentum".

The Bühler drive (see sect. 4) is the most simple machine which for half a period imparts momentum and energy to a certain mass by the help of inertial forces and for the other half of the period annihilates these momentum and energy. All researchers have searched for tricks how to change the sign of the imparted momenta during the second parts of the periods but none has tried to change the sign of the energies.

I turn the attention of the inventors exactly to this second convenient possibility.

2. POTENTIAL FORCES AND KINETIC FORCES

As I showed in Ref. 1 and 2, the notion "force" is very complicated and if one wishes to make physics clear, one has to operate with the axiomatic notion "energy", introducing the notion "force" as a mathematically derived quantity from the axiomatic (and undefinable) quantities energy, space (length) and time.

Such is my approach into physics and I strictly adhere to this approach in my fundamental works^{1,2} and in everyone of my papers.

I consider only two physical domains: gravimagnetism and electromagnetism. The potential energies of two particles with masses m_1 , m_2 and electric charges q_1 , q_2 which move with the velocities v_1 , v_2 in absolute space are

$$U_g = - \gamma \frac{m_1 m_2}{r(1 - v_1^2/c^2)^{1/2}(1 - v_2^2/c^2)^{1/2}} \approx - \gamma m_1 m_2 / r, \quad (1)$$

$$W_g = - \gamma \frac{m_1 m_2 \mathbf{v}_1 \cdot \mathbf{v}_2}{c^2 r (1 - v_1^2/c^2)^{1/2} (1 - v_2^2/c^2)^{1/2}} \approx - \gamma \frac{m_1 m_2 \mathbf{v}_1 \cdot \mathbf{v}_2}{c^2 r}, \quad (2)$$

$$U_e = q_1 q_2 / r, \quad (3)$$

$$W_e = q_1 q_2 \mathbf{v}_1 \cdot \mathbf{v}_2 / c^2 r, \quad (4)$$

where U_g , W_g , U_e , W_e are, respectively, their gravitational, magnetic, electric and magnetic energies, c is the velocity of light, γ is the gravitational constant, r is the distance between the particles, and the approximation in (1) and (2) is taken when $v_1^2/c^2 \ll 1$, $v_2^2/c^2 \ll 1$. I introduce the notion "magnetic energy" in my theory hypothetically, in analogy to the quantity "magnetic energy". Taking into account that for gravitational interactions one can assume $v_1/c \ll 1$, $v_2/c \ll 1$, and moreover that the masses are only "positive" and thus the gravitational interaction between them can be not neutralized, as this is possible to do in electromagnetism, where the charges are "positive" and "negative", the manifestation of the magnetic energy can be experimentally not observed (at least at the present state of experimental technique) and one can accept (as I also do) that such an energy does not exist.

Potential of a system of particles at a certain reference point (gravitational, electric or magnetic potential) is the respective potential energy with all particles of the system of a particle with unit mass, m , or unit electric charge, q , or unit electric current, qv/c , placed at this reference point.

As the gravitational potential of the mass of the whole world at any point of cosmic space is⁽²⁾

$$\Phi_w = - \int_V \gamma dm/r = - c^2, \quad (5)$$

where the volume V of integration is the whole world, we see, throwing a look at (1), that the gravitational energy of a mass m with the mass of the whole world is

$$U_w = - mc^2 / (1 - v^2/c^2)^{1/2}, \quad (6)$$

where v is the velocity of this mass. This energy taken with an opposite sign is called by me time energy of the particle. For $v \neq 0$ it is denoted by e_0 and is called proper time energy; for $v = 0$ it is denoted by e and is called universal time energy. Thus

$$e_0 = mc^2 / (1 - v^2/c^2)^{1/2} \approx mc^2 + mv^2/2 = e + e_k, \quad (7)$$

where $e_k = mv^2/2$ is called kinetic time energy (shortly, kinetic energy).

The fundamental axiomatical equation of my theory is the so-called law of energy conservation

$$dU_g + dU_e + dW_e + dU_w = 0, \quad (8)$$

where U_g , U_e , W_e are the gravitational, electric and magnetic energies of the "test" particle with some system of particles and U_w is its world gravitational energy. Obviously U_g can be unified with U_w in one symbol, as we always do when the gravitational energy with the near standing masses is negligible with respect to the electric and magnetic energies of these masses.

Putting (1), (3), (4) and (6) into (8), we obtain by the help of very simple calculations^(1,2) the following fundamental equations of motion in the domains of gravitation and electromagnetism

$$dp_0/dt = - \partial U_g / \partial r, \quad (9)$$

$$\frac{d}{dt}(p_0 + \partial W_e / \partial v) = - \frac{\partial}{\partial r}(U_e - W_e), \quad (10)$$

where the quantities

$$F_g = - \partial U_g / \partial r, \quad F_e = - \partial (U_e - W_e) / \partial r \quad (11)$$

are called, respectively, gravitational and electromagnetic potential forces acting on the particle m from the side of the considered system of particles,

$$p_0 = mv_0 = mv / (1 - v^2/c^2)^{1/2} = p / (1 - v^2/c^2)^{1/2} \quad (12)$$

is called proper momentum, p is called universal momentum, v_0 is called proper velocity, v is called universal velocity, and

$$f = \frac{dp_0}{dt}, \quad \tilde{f} = \frac{dp_0}{dt} + \frac{d}{dt} \left(\frac{\partial W_e}{\partial v} \right) = f + \frac{d}{dt} \left(\frac{\partial W_e}{\partial v} \right) \quad (13)$$

are called simple kinetic force (or shortly only kinetic force) and full kinetic force of the particle m .

I call (9) the Newton equation (i.e., the Newton equation in gravitation) and (10) the Newton-Lorentz equation (i.e., the Newton equation in electromagnetism). If we assume $v/c = 0$, we are in the domain of low-velocity physics and if we assume $v/c \neq 0$,

we are in the domain of high-velocity physics.

We can immediately see^(1,2) that in gravitation the simple kinetic forces of two interacting particles (and consequently of two interacting systems of particles) are equal and oppositely directed, while in electromagnetism only their full kinetic forces are equal and oppositely directed, i.e.,

$$\text{in gravitation: } \mathbf{f}_1 = -\mathbf{f}_2, \quad \text{in electromagnetism: } \tilde{\mathbf{f}}_1 = -\tilde{\mathbf{f}}_2. \quad (14)$$

I call the first equation (14) the simple Newton third law (or shortly Newton's third law) and the second equation (14) the full Newton third law.

It is easy to see that if

$$d(\partial W_e / \partial \mathbf{v}_1) / dt \neq - d(\partial W_e / \partial \mathbf{v}_2) / dt, \quad (15)$$

as it may occur, the simple Newton third law in electromagnetism can be violated.

I was the first who constructed experiments where the simple Newton third law in electromagnetism was violated. Those are my Bul-Cub machine without stator⁽³⁾ and my Rotating Ampere Bridge with Displacement Current⁽³⁾.

However in gravitation, as well as in electricity (i.e., in electrostatics), the simple Newton third law can be not violated. Thus by the help of gravitational and electric (i.e., electrostatic) forces one is unable to put an isolated system into a propulsive or rotating motion as a whole, but with magnetic forces one can, as I have splendidly demonstrated with my above mentioned machines.

The so-called elastic forces are, as a matter of fact, electric forces. Thus for elastic forces Newton's third law is preserved.

3. INERTIAL FORCES

If a particle encounters another particle, because the one moves with a certain constant velocity with respect to the other (we assume that between them there is no potential energy), a change in their momenta, $\mathbf{p}_1, \mathbf{p}_2$, takes place. In this case the kinetic force of the one particle, taken with a negative sign, is the "potential" force acting on the other particle. These forces however have not the physical and mathematical substance of the actual potential forces, which depend on the distance between the particles and on their masses, electric charges and electric currents,

and I call them collision forces. The fundamental equation of motion for collision forces is to be written not in the form (9) but in the form

$$dp_1/dt = - dp_2/dt, \text{ i.e., } f_1 = - f_2, \quad (16)$$

and thus for collision forces Newton's third law is preserved.

Let us now have a system of particles, the distances between which are kept constant by the help of elastic, i.e., electric, energy. If this system is set into rotation about some axis, on the different particles of the system centrifugal forces begin to act. If the particles move on a rotating body, the so-called Coriolis forces appear. And if on a rotating body some external force act, the so-called gyroscopic forces appear.

I call the collision, centrifugal, Coriolis and gyroscopic forces with the common name inertial forces. In this paper I shall pay attention only to the centrifugal-inertial forces.

I repeat, the centrifugal-inertial forces appear not as a result of the existence of some kind of potential energy. It is clear that if a rigid body hits another rigid body or if a rigid body rotates, then the inertial forces manifest themselves through the appearing elastic potential forces of deformation, however the physical essence of the inertial forces comes not from the elastic potential energy inherent to the body's molecules. The appearing elastic potential forces are results but not causes, meanwhile if an apple is attracted by the Earth, the cause for this force is the gravitational potential energy between the apple and the Earth. The cause for the centrifugal forces is the rotation of the body.

The problem concerning the inertial forces is very delicate and although many thinkers, beginning with Galileo and Newton, have tried to clear it, until the present day it remains covered in a heavy fog. A proof that the inertial forces have been not understood by the big physicists offers the fact that none of them has realized that inertial forces can violate Newton's third law and none of them has constructed a machine demonstrating such a violation. Neither has somebody believed that by the help of inertial forces one can violate the energy conservation law.

4. THE CENTRIFUGAL FORCE

A body on which no potential forces act must move with a uniform velocity, as equations (9) and (12) show. This is the assertion of Newton's first law. Newton's second law are equations (9) and (10) and Newton's third law are equations (14). Thus Newton's first and third law are mathematical results of Newton's second law. These laws are valid only for the case when there is potential energy between the particles of the considered system.

If now a body is constrained to move along a circular path, a certain force will act on it, aiming to preserve its uniform motion. The mathematical calculation of this force is very simple (fig. 1): Let us assume that a particle moves with the constant momentum p (we shall work in low-velocity physics). If we wish to keep this particle moving always at the same distance R from a certain point in the plane determined by this point and the particle's momentum, then for a time dt , for which the angle of rotation is Ωdt , where Ω is the angular velocity of rotation, the particle must change its momentum with dp . From the geometry we obtain

$$dp/p = R\Omega dt/R, \quad (17)$$

so that

$$dp/dt = p\Omega = mv\Omega = mv^2/R = mR\Omega^2, \quad (18)$$

and dp is directed always from the particle to the center of rotation. The inertial force with which the particle resists to this change is the centrifugal force which is directed in the opposite direction. Thus the force $f_{cp} = dp/dt$ is caused by the elastic forces of the constraints (say, the elastic forces of the string with which the particle is attached to the point of rotation) and we call it centripetal force, while the force $f_{cf} = -dp/dt$ is the centrifugal force which appears because the particle is not let to move uniformly.

Conventional physics, comparing equations (9), (11) and (18), is inclined to consider the force

$$F = mv^2/R \quad (19)$$

as "potential force". This is a very noxious aberration. The centrifugal force is

not a potential force, as it is not generated by the potential energy of interacting particles. This force is an inertial force and has a completely different physical and mathematical substance. Note that potential forces appear always with a respective energy change, while centrifugal forces appear without.

To make more clear the forces which appear when a mass rotates about an axis, which is rigidly connected to a heavier system of masses, let us consider figs. 2 and 3. We take two synchronously rotating masses, so that the projections of their radius-vectors on the x- and y-axes have always equal magnitudes. Now if choosing the x-axis to be this one along which the projections of the radius-vectors of the masses have always the same sign and the y-axis to be this one along which these projections have always opposite signs, then the net centrifugal force acting on the whole system will be always directed along the x-axis and will have the value

$$F = 2mR\Omega^2 \sin(\Omega t), \quad (20)$$

where m is the mass of anyone of the revolving bodies, R is the radius of rotation, Ω is the angular velocity and for $t = 0$ the rotating bodies lie on the y-axis.

It is clear that when both ice-skaters in fig. 2 swing both heavy balls overhead, they will move for half a period at a certain distance forward and then for the other half of the period at the same distance backwards. Such synchronously rotating masses generating an oscillating motion are known under the name "Bühler drive".

The motion of the whole system can be seen more clearly in fig. 3 which is the scheme of the historic Dean's apparatus. But here we shall suppose that the buffers F_1 and F_2 (I have called them also "fingers") are taken away and that the platform P can move in parallel to the x-axis (i.e., to the left and to the right) being attached with the four springs to the walls A and B. The electromotors EM_1 and EM_2 rotate synchronously and now we shall consider the big wagon solid to the laboratory (i.e., solid to the Earth).

I shall show with a very simple experiment that the physical essence of the centrifugal-inertial forces is not clear. Let first the platform P be solid to the wagon, i.e., let us assume that four buffers like F_1 and F_2 are placed on the left and on the right of the platform. We set the masses into rotational motion with a certain angular velocity and switch off the motors. Because of the friction, the rotors will come at rest in a certain time T . If there is no friction, the rotors will

rotate eternally with the same angular velocity.

Let then take away all four buffers, so that the platform can oscillate between the walls A and B pressing and pulling the springs. We set the masses again in rotation with the same angular velocity and switch off the motors. If the springs are ideal, i.e., if there are no heat losses because of the appearing deformations, the rotors will come at rest during the same time T as for the case where the platform was fixed to the wagon. Now I pose the question: If ^{at} the pressing and pulling of the springs they become hot, because they are not ideal, i.e., if the platform will do work during its oscillations, will the rotors come at rest in a shorter time than T (as the energy conservation law should require) or this time will remain equal to T ?

Conventional physics surely will defend the first alternative but I am sure that Nature will demonstrate that the second alternative is the right one.

None in this world has posed this question and consequently none has done such an experiment to see which will be the answer of Nature.

On the other side, the mathematical solution of this problem is so complicated that I think it cannot be carried out. The first step for solving the problem mathematically is to assume that there is no friction and there are no springs. Then, according to the energy conservation law, the rotors must rotate eternally and the platform has to oscillate eternally. The first problem is to find the trajectory of the masses in the laboratory, assuming that the mass of the platform is M . It is easy to see that the trajectory of the rotating masses will be extremely complicated and, according to me, this trajectory can be not found analytically. I pose this problem to the mathematicians, especially to the "computerized" mathematicians but I know that nobody will try to solve it.

I cannot, however, accept the assertion of conventional physics that the time in which the rotating masses will come at rest will depend on the fact whether the springs become hot or not.

Thus the centrifugal-inertial forces in fig. 3 can accelerate some masses which are put on the way of the platform and thus create kinetic energy, but they can bring the platform only in oscillatory motion, i.e., the average kinetic energy which they

transmit to the platform is zero.

Thus, according to me, the oscillatory platform in fig. 3 can violate the energy conservation law, but it cannot violate the momentum conservation law, i.e., Newton's third law. Many scientists (better to say, many "cranks") have tried to find tricks permitting to bring the platform or the whole wagon into a propulsive motion and thus to violate Newton's third law. I shall consider here shortly ~~three~~tricks proposed by Norman Dean, Robert Cook, and Zorzi and Speri.

5. DEAN'S APPARATUS

In the articles of Campbell⁽⁴⁾ and Stine⁽⁵⁾ the reader can find interesting historical information on the Dean's drive, although the technical description (which is the most important) is extremely poor and there are many boring pages. Those are, however, the most authentic presentations of Dean's apparatus (or, better to say, of the story about Dean's apparatus) as in the articles written by second hands in other American and European journals there are many exaggerations and lies.

A relatively good technical description, evaluation and explanation of Dean's apparatus is given by Dickinson⁽⁶⁾ (pp. 47 - 49). One can see Dean's patent in Mielordt's compendium⁽⁷⁾. I must note, however, that in the patent not a self-propulsing apparatus is described, as in Dean's patent during the times when the centrifugal forces act backwards, the wheels of the wagon (see fig. 3) are braked and only during the times when the centrifugal forces act forwards the wagon is free to move; thus it propulses by jerks. Such an apparatus, obviously, does not violate Newton's third law.

Later Dean lanced the idea that the wheels of the wagon can remain free all the time but nevertheless it will propulse from the left to the right. He demonstrated a machine which manifested such a propulsion and put on a balance "lost weight" when set in action, as many witnesses have testified.

Dean's apparatus (fig. 3) thus consists of a platform put on a wagon. The two synchronously rotating masses generate the net centrifugal force (20). The platform cannot move with respect to the wagon to the right, as the buffers F_1 and F_2 block

the rightwards motion. The platform, however, can move to the left and this motion is limited only by the action of the four springs.

Dean supposes that, because of the "hard" contact between platform and wagon rightwards and of the "soft" contact leftwards, the net impulse rightwards will be bigger than the net impulse leftwards. Thus the whole wagon will begin to move rightwards violating Newton's third law.

In fig. 4 I have drawn the acting forces as functions of time. The graph of the centrifugal force acting on the platform (see equation (20)) is shown by a dotted line and the graph of the force acting on the wagon is shown by a thick line. It is obvious that the time during which the platform will push the buffers (and will communicate a rightward momentum to the wagon) will be shorter than half a period and the time during which the platform through the springs will push the wall A and pull the wall B (and will communicate a leftward momentum to the wagon) will be larger than half a period. Thus, although the rightwards forces, F_{right} , are bigger than the leftwards forces, F_{left} , if it will be

$$\int_b^c F_{\text{right}} dt = \int_c^e F_{\text{left}} dt, \quad (21)$$

so that the rightward and leftward momenta acquired by the wagon will be equal, as it must be according to the law of momentum conservation.

Why then Dean and many witnesses have observed a push to the right? - If there is a certain minimum force F_{min} which must be reached before certain mass begins to move (see fig. 4) and if $F_{\text{min}} \geq F_{\text{left}}$, then, obviously, the wagon will move only rightwards. This force F_{min} can depend on the friction and according to conventional physics if the friction is zero, it must be $F_{\text{min}} = 0$. However, I think (see Ref. 2, vol. 1, p. xi - xiv and Ref. 8, p. 103 - 116) that even at friction equal to zero F_{min} will be different from zero.

On the other hand, although I think that equation (21) must be preserved, maybe some slight differences can appear and the integral on the left will be slightly bigger than the integral on the right. The answer whether such differences can appear can be given only by the experiment.

I constructed my "pulse-mobile" (figs. 5 and 6) with the aim to establish whether at "hard" and "soft" pulses there is a difference in the net impulses. An easily moving platform was mounted on a car, exactly as in fig. 3. I put on the platform a heavy anvil (32 kg). By pushing the platform forwards I communicated a "hard" impulse to the car, while by pulling the platform backwards I communicated a "soft" impulse to the car. My experiments (see also Ref. 9, p. 196) have given the answer: the hard and soft impulses were equal.

6. COOK'S APPARATUS

Dickinson has written, with the collaboration of Robert Cook, a whole book⁽⁶⁾ dedicated to Cook's apparatus CIP (Cook Inertial Propulsion). Many pages of the book are written in an excellent style and one becomes delighted by reading them, forgiving to the author the somewhat boring pages. The martyrdom of Cook is typical for all solitary visionaries who search for ways on which nobody of the established scientists ventures to go. I warmly recommend to my readers Dickinson's book.

Cook uses the same two synchronously rotating masses as Dean (see fig. 2 which is taken from Dickinson's book⁽⁶⁾), i.e., the Bühler drive is the kernel also of his machine.

The trick invented by Cook is described in detail on pp. 89-106 of Dickinson's book⁽⁶⁾. The description is not good and there are neither clear principal diagrams nor clear technical diagrams. Thus I shall leave the reader sweat over Dickinson's explanations and drawings and here I shall briefly present only the essence of Cook's trick.

As the excentrically rotating masses give for half a period a forward thrust and for the other half of the period a backward thrust, Cook continuously exchanges these masses between two counter-rotating rods, so that always a forward thrust is produced. Of course, as the masses have inertia, then by exchanging them between the tips

of the two counter-rotating rods, the inevitable collision forces will appear whose impulses will be exactly equal and opposite to the wonned forward impulses due to the "rectified" centrifugal forces. For this reason Cook lets the exchangeable masses perform an additional rotation in planes perpendicular to the counter-rotating rods, so that at the moments of exchanges the relative velocity between the exchangeable mass and the tip of the incoming rotating rod is zero, and thus no collision forces should appear. For a better understanding of this trick see figs. 7 and 8 which are taken from Dickinson's book.

Cook's "trick" is too complicated from a physical point of view and I am unable to give an answer whether by its help one can effectively violate Newton's third law. I believe in Cook's assertions that an inertial thrust has been observed and I kneel before the ingenuity, perseverance and sacrifices of Cook which his American compatriots have not esteemed and venerated.

7. THE APPARATUS OF ZORZI AND SPERI

The Zorzi-Speri drive can be seen in figs. 9 and 10. It consists of the same Bühler's drive which is the core of Dean's and Cook's drives. To obtain a continuous forward centrifugal thrust Zorzi and Speri let the rotors rotate also along two secondary axes going through the centers of the rotors ^{which are} and perpendicular to the primary rotational axes of the excentric masses. In such a case, ^{as Zorzi and Speri think,} the projection of the centrifugal forces on an axis which is perpendicular to both secondary rotational axes will have always the same sign, if the rotating periods about the primary and secondary axes will be equal.

The geometry of the Zorzi-Speri drive is shown in fig. 11. The metal disk D with the mass m on its rim (which I shall call "excentric mass") performs two rotational motions with the same period T. The one rotation is about the axis (zz') which is perpendicular to the plane of the disk and the other rotation is about the axis (xx') which lies in the plane of the disk and goes through its center. Thus the primary rotational axis coincides with the Cartesian axis (zz') only at the initial moment and this primary axis rotates about the axis (xx').

As a result of these two rotations the excentric mass m will describe a space curve which lies the whole above the plane (xy) and of which in fig. 11 only the first half is shown. The second half is symmetric to the first half and thus the curve becomes closed.

If we shall denote the radius of the disk, i.e., the radius of the excentric mass, by R and the angular velocity of rotation by Ω ($\Omega = 2\pi/T$), we shall be able to express the Cartesian coordinates of the excentric mass through R , Ω , and the time t as follows

$$\begin{aligned}x &= R \cos(\Omega t), \\y &= R \sin(\Omega t) \cos(\Omega t), \\z &= R \sin^2(\Omega t).\end{aligned}\tag{22}$$

For the Cartesian components of the velocity of the excentric mass we obtain

$$\begin{aligned}\dot{x} &= -R\Omega \sin(\Omega t), \\\dot{y} &= R\Omega \{\cos^2(\Omega t) - \sin^2(\Omega t)\}, \\\dot{z} &= 2R\Omega \sin(\Omega t) \cos(\Omega t).\end{aligned}\tag{23}$$

For the components of the acceleration (of the centripetal acceleration) we obtain

$$\begin{aligned}\ddot{x} &= -R\Omega^2 \cos(\Omega t), \\\ddot{y} &= -2R\Omega^2 \sin(2\Omega t), \\\ddot{z} &= 2R\Omega^2 \cos(2\Omega t).\end{aligned}\tag{24}$$

Zorzi and Speri expect that the net z -component of the centripetal force (for the time of one period) will be negative and not null, as the requirement of Newton's third law is. The formulas, however, do not show such an effect, as this component is a cosinus-function with a period $T/2$ and thus

$$\overline{F} = \frac{1}{T} \int_0^T F dt = \frac{1}{T} \int_0^T m \ddot{z} dt = \frac{2mR\Omega^2}{T} \int_0^T \cos(2\Omega t) dt = 0.\tag{25}$$

Zorzi and Speri have been impelled from a technical point of view to make every rotor with two disks (see figs. 9, 10 and 12). The secondary axes of their machine were not in the planes of the rotors and they had four rotors and four excentric masses instead of two rotors and two excentric masses, as it must be in the ideal case.

The weight of the machine was about 10 kg. When put on a spring balance, it made small jumps. To make it staying on the balance firm, I added some 20 kg of weight to the machine. Now at rest the whole weight of the machine was 30 kg, while when the rotors were put in action the weight diminished to 20 kg. This difference (which has brought Dean and other people who have replicated his machine to wrong conclusions) was fictitious and depended on the elastic properties of the balance spring. Zorzi and Speri told me that when the machine was suspended on a spring dynamometer, it lost only about 1 kg of weight.

I took the machine in my hands, I could not register a substantial difference in the weights when the rotors were set in action. I must however note that the vibrations of the machine "at action" did not permit to notice a difference of 10% in the weights with surety. Thus I consider MY measurements as inconclusive.

Of all machines which ^{use} the Bühler drive, I consider the machine of Cook as the most interesting. As mentioned above (sect. 6), the calculation of the acting forces in the Cook machine is very complicated and one cannot give a definite theoretical answer. I reproduce in this volume the whole book of Dickinson, so that the reader can form his own opinion about the possibility of "anti-gravitational" effects on grounds of the reported observations.

I should like to give here the last news about the Sandy Kidd machine where gyro-inertial forces are used for generation of an anti-Newtonian drive (I gave already informations on Sandy Kidd in TWT-IV and TWT-V). My friend George Hathaway was in May in Scotland where he met Sandy Kidd and did measurements on his machine. According to Hathaway's letter of the 15 May 1989, a machine of 7 kg weight produced a thrust of some hundreds of grams. Thus the question is no more whether one can violate Newton's third law. The question is how to utilize these violations technologically in order to move our cars, ships, planes and cosmic vehicles.

8. CONCLUSIONS

The essence of this paper consists thus in the following proposal:

The four springs in fig. 3 are to be replaced by four permanent magnets which can move leftwards-rightwards in four coils solid to the car (the car is solid to the laboratory). One has to measure the electric power spent for driving the electromotors EM_1 and EM_2 when the coils are open and then when the coils are closed through certain loads (for the same rate of rotation of the excentric masses). Then one has to measure the electric power delivered to the load. I AM SURE that the input power will be independent of the output power. Thus one can expect that at a convenient technological solution the output power can be made bigger than the input power. Consequently one will be able to build a perpetuum mobile based on the work delivered by inertial forces which have NO potential energies.

Никто, никто, никто
назвать меня не может
тиран и сумасброд,
что к чаю я хочу
хороший бут-т-терброд. Вот!

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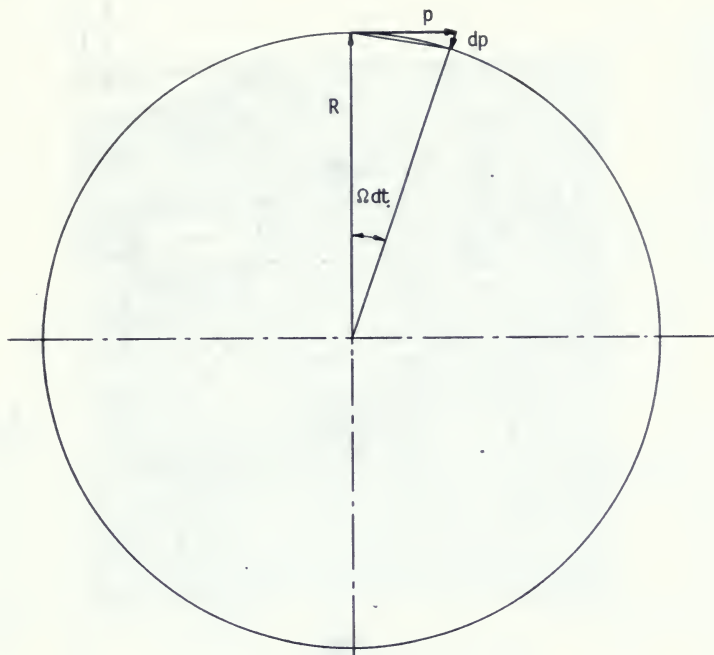


Fig. 1. Calculation of the centrifugal force.

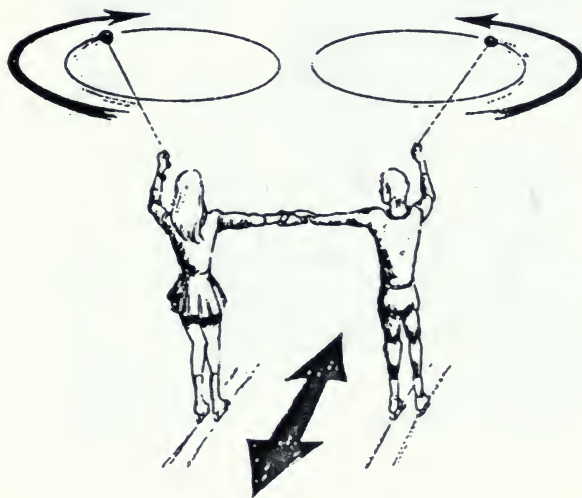


Fig. 2. Two rigidly connected ice-skaters rotating synchronously two heavy balls.

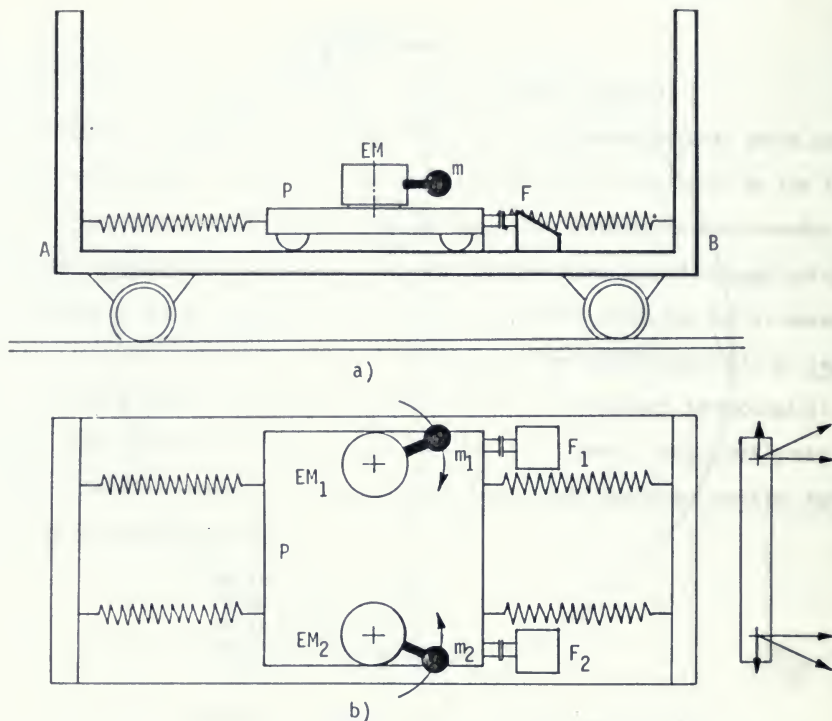


Fig. 3. Dean's apparatus.

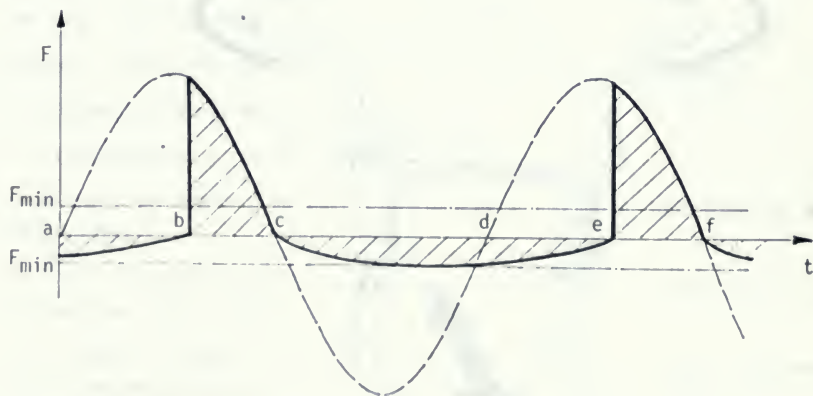


Fig. 4. Graphs of the net centrifugal force acting on the platform (the dotted line) and of the force acting on the wagon (the thick line).

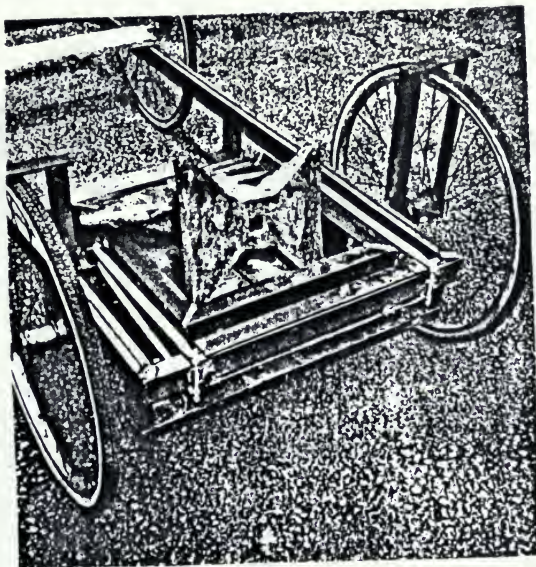


Fig. 5. Marinov's "pulse-mobile" constructed in 1983.

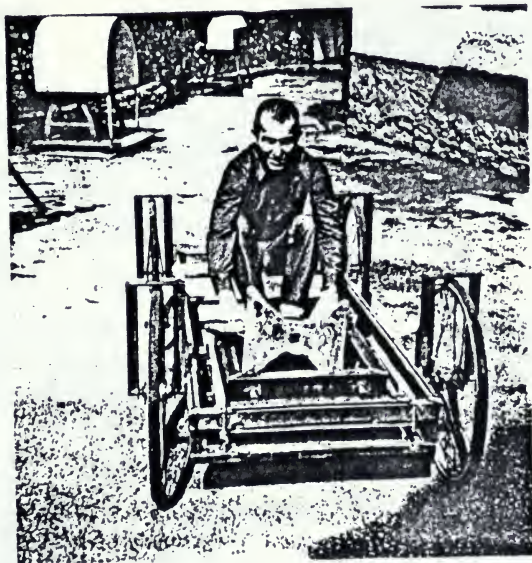


Fig. 6. Marinov on his "pulse-mobile" giving hard pushes forwards and soft pushes backwards.

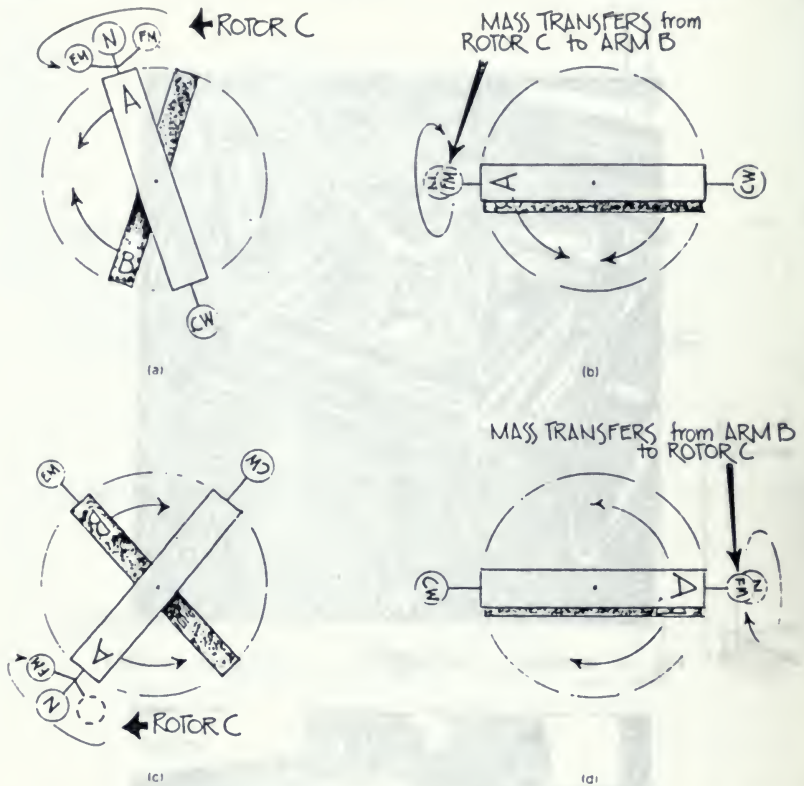


Fig. 7. Exchange of the exchangeable mass (EM) from the rotating rod A to the rotating rod B and vice versa. FM is fixed mass, N is nucleus, CW is counterweight, the rotor C (the masses EM and FM) rotates in a plane perpendicular to A. Marinov's note. The sense of rotor's rotation in b,c,d is wrongly designed oppositely to the sense in a.

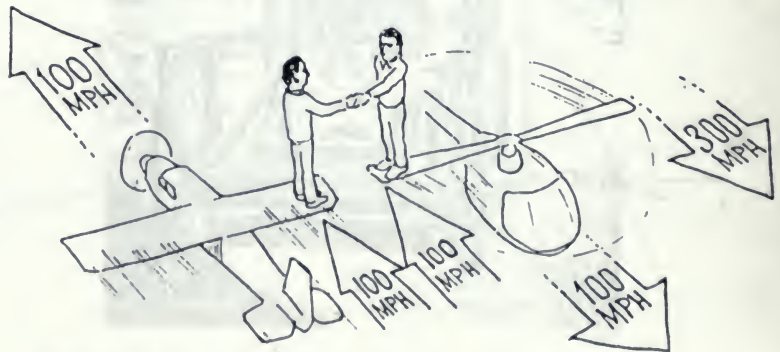


Fig. 8. Exchange of a mass between two oppositely moving vehicles without generating collision forces.

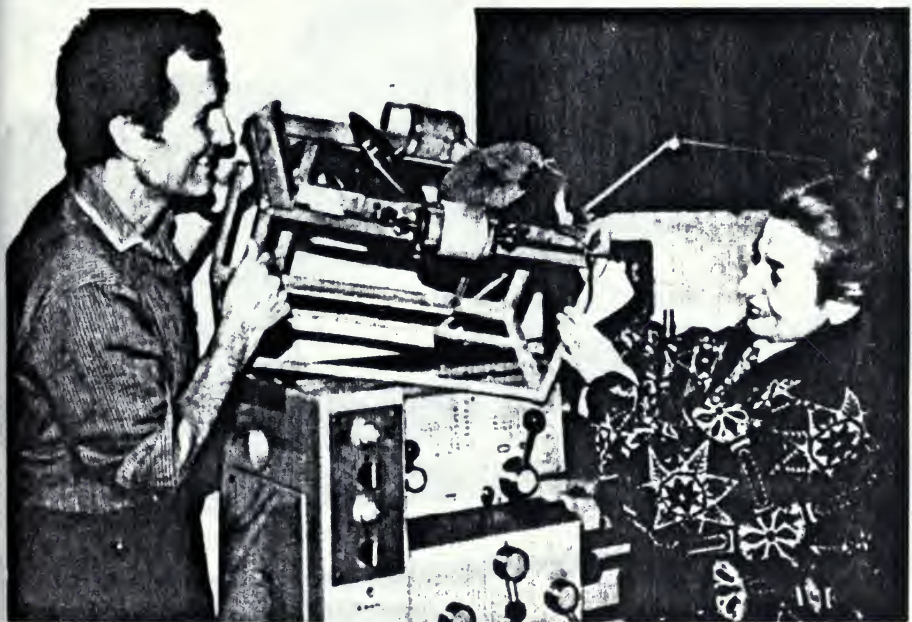
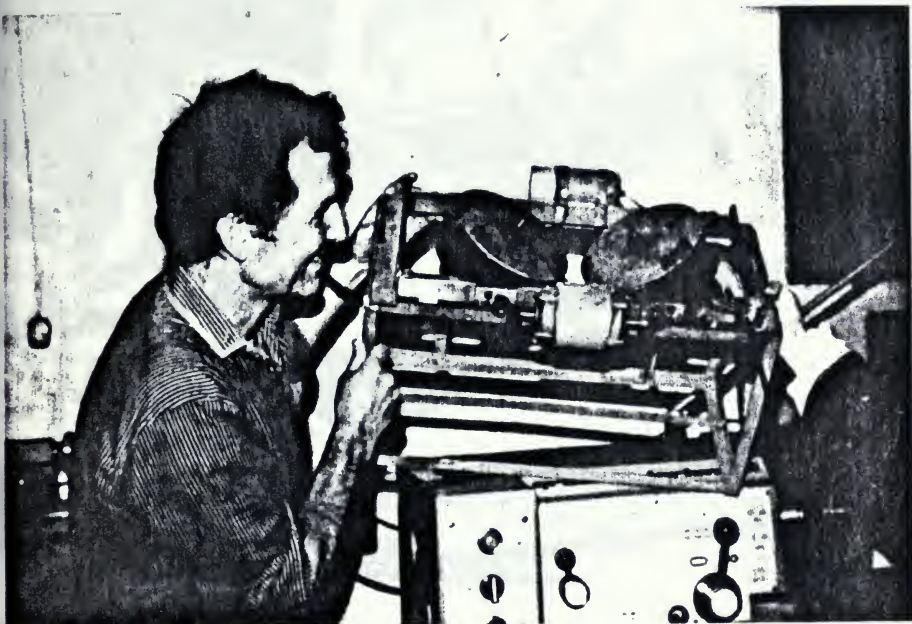
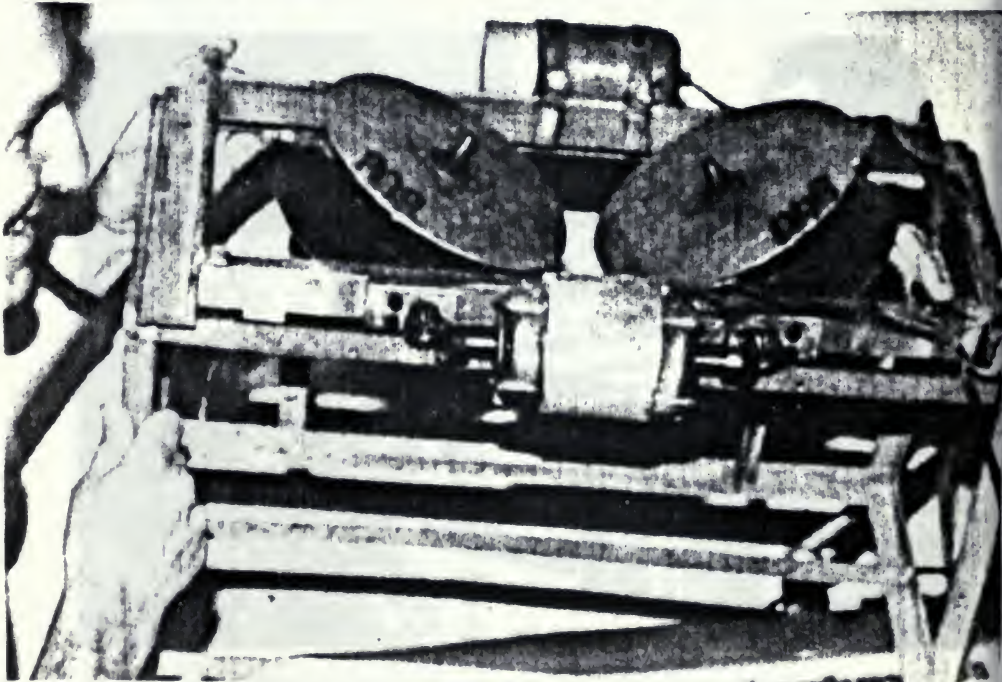
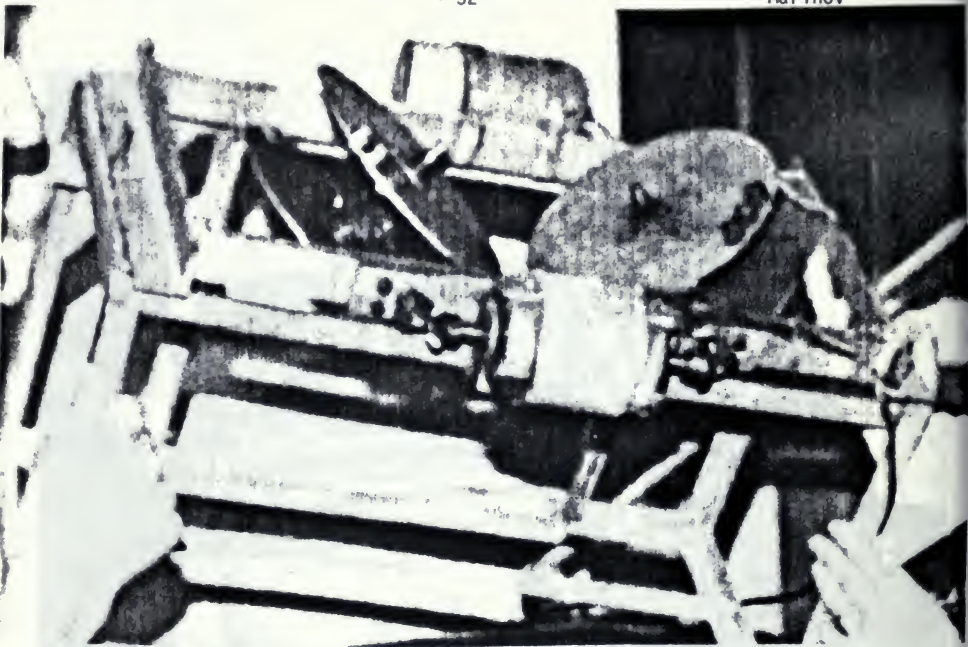


Fig. 9. Mrs. Zorzi and Marinov with the Zorzi-Speri drive.



Figs. 10. The Zorzi-Speri drive.

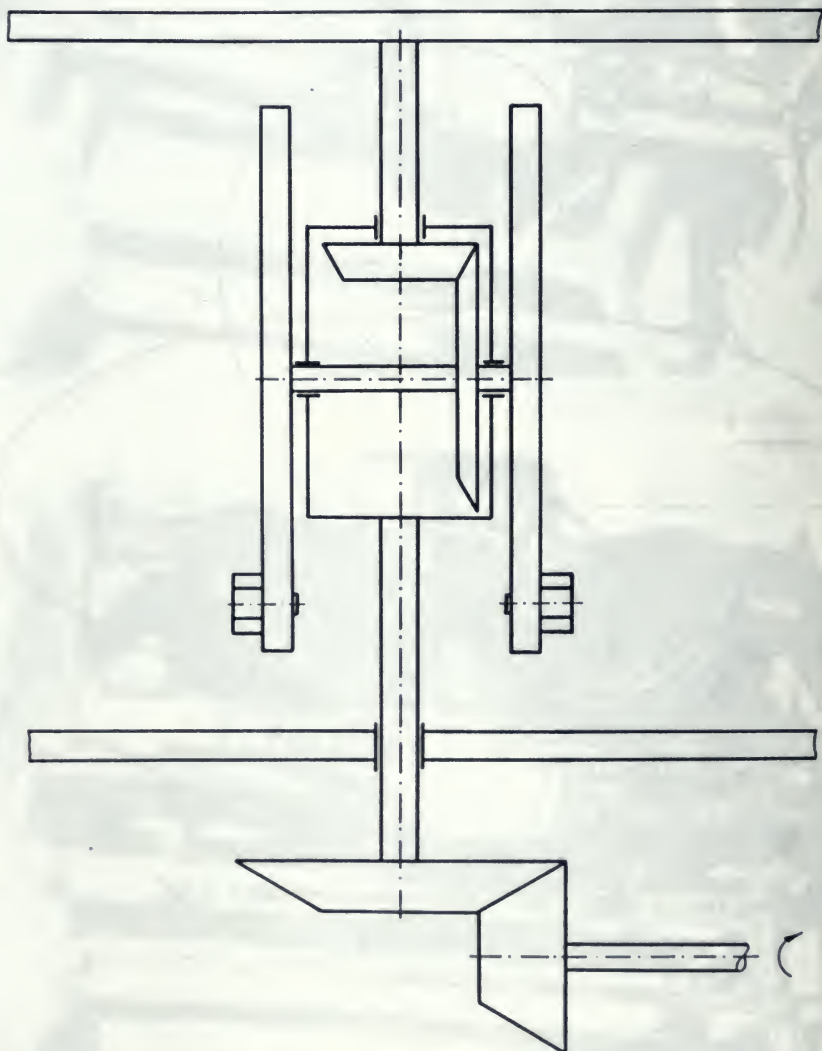
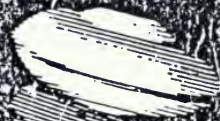


Fig. 12. Mechanism for realization of the double rotation of the excentric mass in the Zorzi-Speri drive.

by Joel Dickinson with Robert Cook

THE DEATH OF ROCKETRY



The story of the first successful
reactionless space drive and how it
uncovered one of the greatest errors
in the history of physics

By Joel Dickinson with Robert Cook

THE DEATH OF ROCKETRY

NOTE TO THE READER

This book depicts true events. They did happen. Some of the names of actual participants, however, have been changed or deleted to assure their privacy.

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Contents

- 1: Introduction 1**
- 2: The Reactionless Drive 3**
- 3: The Controversy 17**
- 4: The Inventor, Robert Cook 27**
- 5: The Failures 37**
- 6: The History (Part I) 51**
- 7: The Principle 89**
- 8: The History (Part II) 107**
- 9: Epilogue 121**

1. Introduction

There now exists a new and unique type of propulsion system capable of profoundly influencing the future of technology. We are talking about an invention that can convert energy to a working force far more efficiently than anything in use today, an invention that has already been tested and validated. This system, first introduced to scientific authorities over 11 years ago, is in essence a *reactionless drive*. In using this phrase we refer to a propulsion system that does not have to react against some other medium or exchange momentum with its environment in order to propel (as conventional systems). Rather, the reactionless drive utilizes *internal* forces generated from within the system itself.

The reactionless drive would, among other wonders, enable us to attain almost unlimited speeds in outer space. Its astounding mechanical implications reach to the core of quantum mechanics, gravity, and magnetism.

We are not raising the idea of a perpetual motion machine here. Energy is needed to create the propulsive effect in the reactionless drive. But the energy requirements for this particular system are comparatively modest and could be provided by, say, a simple solar battery.

The reactionless drive would, among other wonders, enable us to attain almost unlimited speeds in outer space. Its astounding mechanical implications reach to the core of quantum mechanics, gravity, and magnetism. Interpretations of Newton's laws of physics and mechanics, however, hold that such a propulsion system cannot work (especially in outer

space, where Newtonian laws demand the exchange of momentum with the environment in the manner of rockets). This book evidences that a reactionless drive system has in fact been demonstrated to work successfully, thereby signaling the death of rocketry. The 90% plus superefficiency potential of the reactionless drive is extraordinary next to what many experts hold to be the 2% overall efficiency of the rocket.

We will, in the following chapters, establish that certain unrecognized errors in Newton's work have misled the scientific community for almost 300 years. We will show how unquestioning acceptance of these "laws" have prevented the general scientific community from acknowledging an invention that is quite possibly the greatest and timeliest human history. These pages will detail 12 years of research and experiments, display pictures of working models, and present the results of studies undertaken by United Airlines, The National Aeronautics and Space Administration, and individual scientists. As a reader you'll be taken on a fully documented adventure that reveals how the pieces of this intriguing puzzle were finally put together.

The man who has accomplished the so-called impossible is Robert Cook, an inventor of limited formal education who holds one United States patent and will soon receive another for this reactionless drive principle. Accordingly, the system we write about has been named the Cook Inertial Propulsion (CIP) Engine. Cook's achievement involves a synthesis of ideas generated from several acts of insight as well as from many years of experiments. History reveals that the greatest ideas are often the product of solitary mind. And history, too, has shown us that inventions of workable, original ideas have been subjected to ridicule, at a cost not only to such inventors but even perhaps to humanity itself. Changes in conventional ways of thinking have always been difficult to bring about. We believe that Cook's invention will ultimately triumph over this kind of adversity.

Our present world faces an overwhelming energy crisis. This book (the story of Robert Cook and his breakthrough, which is beginning to be recognized by noteworthy experts) provides a solution. The answers are here. We hope the world will listen.

2. The Reactionless Drive

A reactionless drive is a propulsion system that propels by a force generated internally; a force created totally within the system itself. It would propel in any environment where vehicles are in today—it works the same way whether at the bottom of the ocean, on the surface of the earth, or in outer space. All it needs is an energy source. Changing from steam to solar energy may be utilized to increase the propulsive effect.

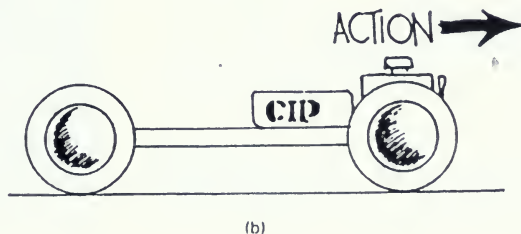
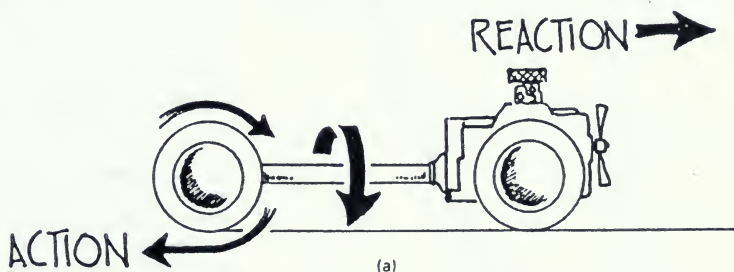
A reactionless drive produces what we call a reactionless force. What is a unidirectional force? Look for a moment at an ordinary car, which has a two-directional force. The engine in an automobile turns the wheels (Force One). The wheels then push the vehicle forward or backward due to the fact they move against the ground (Force Two). (See Fig. 1.) With a unidirectional force, however, the wheels would not be connected to the wheels. Instead,

the engine would produce a thrust *within* the car. In this system, all the wheels do is give the car something to roll on.

Imagine a car using this kind of drive. There would then be no need for a transmission or drive train. You could operate such an auto anywhere on any surface. By directing your force upward you could lift the vehicle as high off the ground as you wished, then let it down fast or gently. Your foot on the accelerator would control the speed in any desired direction.

If you accelerated a reactionless drive vehicle at 1 gravity (g), your passengers would need, not seatbelts, but a strapped-in cocoon. The 1- g acceleration would mean going from a complete stop to about 65 miles per hour (mph) in 3 seconds flat. Or, if you reversed the force, braking in the same 3 seconds, the car would stop (even on the slickest patch of ice) in a distance of about 150 feet.

Reaction drive;
Reactionless drive



But how does an engine like the CIP produce such a powerful force? Consider this illustration: By whirling a stone secured to the end of a rope you can generate a tremendous amount of centrifugal force with a small expenditure of energy. The trouble is, you can't do much with that force; if the stone keeps whirling in the circle these large centrifugal forces balance themselves exactly every revolution. But if you could somehow extract just some of that enormous force and make it go one direction . . . well, look what David did to Goliath with a slingshot.

The beauty of centrifugal force resides in the fact that this force grows at a tremendous rate. Below 100 revolutions per minute (rpm), centrifugal force doesn't do much, but as the rpms increase, the force increases proportionately by the square of the angular velocity (Fig. 2-2). For example, an object traveling in a circle with a radius of 10 centimeters (cm), at the rate of 600 rpm, generates a centrifugal force almost 41 times gravity. Centrifugal force can, without much trouble at all, tear a high-tensile steel wheel into shreds. Supercentrifuges, which operate on this principle, can develop accelerations in the millions of g's.

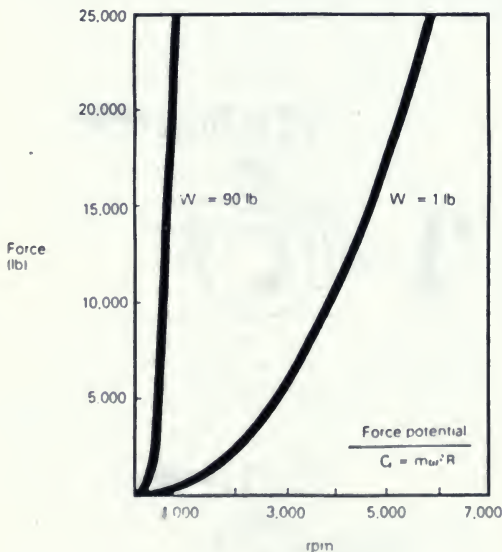


Fig. 2-2

Centrifugal force produced by a 1-lb weight and a 90-lb weight spinning in a 2-ft. radius. Ninety pounds is a typical propellant mass used by the CIP. At 5,000 rpm, the combined propellant mass would produce 1,542,126 lbs of constant force.

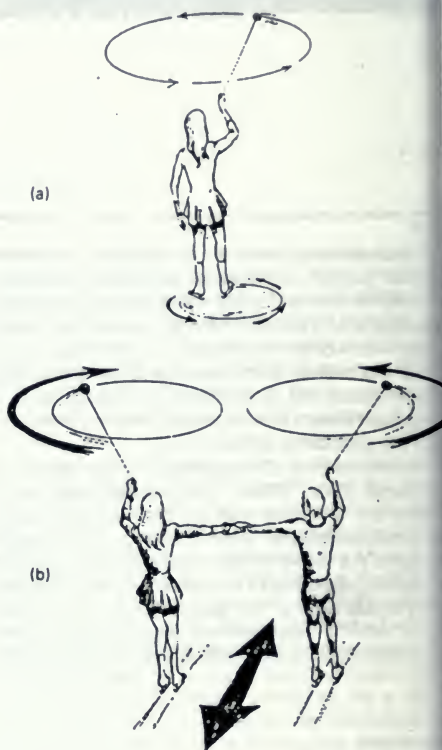
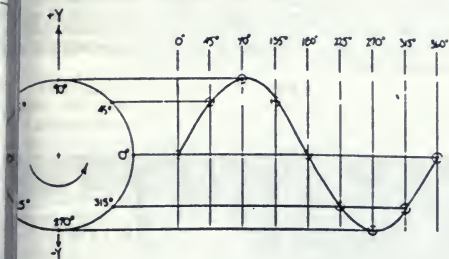


Fig. 2-3

(a) Single mass equals gyration; (b) double mass equals oscillation.

Now picture an ice-skater swinging a heavy ball overhead. The moving ball—at the end of a string—makes the skater gyrate in a circle. Imagine such skaters. Have them lock their free arms, synchronize the spin of the balls (Fig. 2-3). We have a two-directional force, an oscillation.

If the heavy balls on one side move the skaters two feet in one direction, they would then move skaters two feet back to the original position as it came around. In outer space, on the ground, on water, centrifugal force—wherever it is produced—will always affect the motion of an object to a certain degree. In order to propel with centrifugal force, force imbalance must be created, one which does add up to zero over a complete spin cycle. What is required, then, is something identical to the rectifier that converts alternating current (a.c.) into direct current (d.c.). Ordinary a.c. also adds up to zero through a full 360°, but by using a rectifier one can generate output. In like manner, one-half of the centrifugal force



Wave produced by unrectified centrifugal force.

must be neutralized in order to tap the centrifugal force for propulsion. Otherwise, we will always end up with a bounded motion. If the negative 180° of the cycle is prevented from affecting the center, then acceleration is possible in one direction.

When plotted, centrifugal force (generated by counterrotating masses) produces a regular sine wave just as an a.c. waveform (Fig. 2-4). The trick is to "ride off" the trough of the sine wave and only obtain forward thrust. We have found the way to do this. Until now, no one has succeeded in neutralizing one-half cycle of an unbalanced centrifugal force (Fig. 2-5).

The force generated by the overhead whirling of the ice-skaters will, when rectified, produce an intermittent force: positive for 180°; then neutral for 180° (Fig. 2-6a). This 180° of "no force effects" would produce an uneven, pulsating force on the skaters. Because of this factor, in order to smooth out the force in an actual mechanical system we would need to employ three pairs of rotors. These would have to be synchronized and phased at 120° intervals to produce a constant and smooth force (Fig. 2-6b). What we now have is identical to the phasing of a.c. generators. Just as these generate current, our system, the Cook Inert Propulsion Engine—the CIP—generates force.

The CIP would allow a true hovering craft to be practically feasible—it would obviously make airplane technology obsolete. With the CIP system, aircraft (which would no longer be "airborne" but "forceborne") could remain in midair and yet hold altitude, thus opening up possibilities for aviation. For example, to lift approximately 3,000 pounds, a 35-foot wing (roughly) would be needed. With the narrower silhouette made possible by a refined CIP engine, resistance would be much less and the drag coefficient would diminish appreciably. A series of CIP units on the fuselage could easily do the work of a wing.

In a conventional system the propellant that the plane is air. The wing requires a large surface area due to the low density of air. The higher the air density goes, the lower the air density, and the wing



Fig. 2-5

Rectified centrifugal force would propel a skater in one direction.

loses lifting capability. To get additional lift, either the velocity or the area of the wing must be increased. However, if it isn't necessary to react against the air to create lift, these factors become irrelevant. Ultimately, the wing's efficiency is limited—at a certain point the

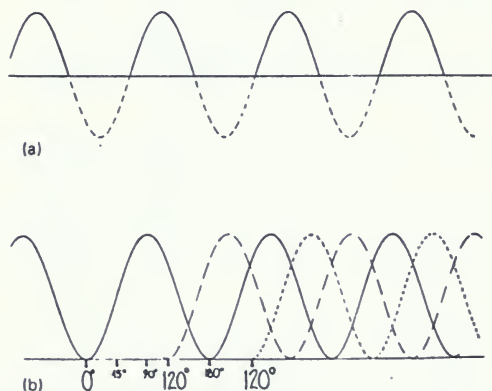


Fig. 2-6

(a) Rectified single phase centrifugal force wave; (b) Three-phase centrifugal force wave.

lift function is lost. With the CIP, however, the higher the altitude, the less the frictional and gravitational effects. This results in the CIP becoming increasingly more efficient.

A true reactionless drive can relegate space rockets to the museum forever. The rocket was abandoned as a serious means of propulsion shortly after its invention by the Chinese around 1214 A.D.¹ Although the rocket has recently been revived by industrialized nations, its extremely low efficiency (2% or less according to many experts) makes it a less-than-satisfactory method of travel, especially in outer space. Clearly, if humankind wishes to advance significantly in the exploration of space, an alternate and more efficient means of propulsion must be developed. A reactionless space drive will do things beyond the

... a true reactionless drive can relegate rockets to the museum forever.

ability of any propulsion system available today. No rocket, for instance, can carry enough reaction-mass to maintain a 1-g acceleration all the way from here to Uranus. Without reaction-mass a rocket can't perform even the minutest maneuvers in space. A rocket's course becomes about as flexible as a glass rod—it can be bent just a little. The advantages of the reactionless drive over the rocket are many:

1. Propulsion techniques. Chemically fueled rockets must exchange momentum with the environment in order to propel. The CIP reactionless drive, on the other hand, would propel without this exchange because (as you will see in Chapter 7) the propellant mass is trapped and recycled.
2. Speed potential. The speed of the conventional rocket is limited by the velocity of the escaping gas. If escaping gases are expelled at 24,000 mph, the forward velocity of the rocket can never exceed this speed unless some other force such as gravity influences it. If a reactionless drive were coasting alongside a rocket at 24,000 mph, a few pounds of positive thrust requiring very little energy would accelerate it past the rocket. To catch up, the rocket would have to expel tremendous amounts of energy and gas at better than 24,000 mph. What would be the speed limit of the reactionless drive in outer space? After 24 hours of acceleration at 1 g such a system would be moving at almost 2 million mph. A rocket cannot even approach this potential. (The reactionless drive does require energy to recycle the propellant mass, but in space solar energy could be tapped to run electric motors for recycling the propellant. In deep space a nuclear reactor could create the same electrical energy. The energy needs of the reactionless drive are exceedingly small. With nuclear energy, its speed potential is whatever the ultimate universal speed limit is. We are not sure the speed of light is the ultimate speed limit.) (See Fig. 2-7)

3. Efficiency. The energy in most chemical rockets derives from an exotic fuel that creates heat, a well-known form of energy. With this process, much efficiency is thrown away. With the CIP drive, however, the propellant mass is recycled, and no energy is not thrown away. (See Table 2-1).

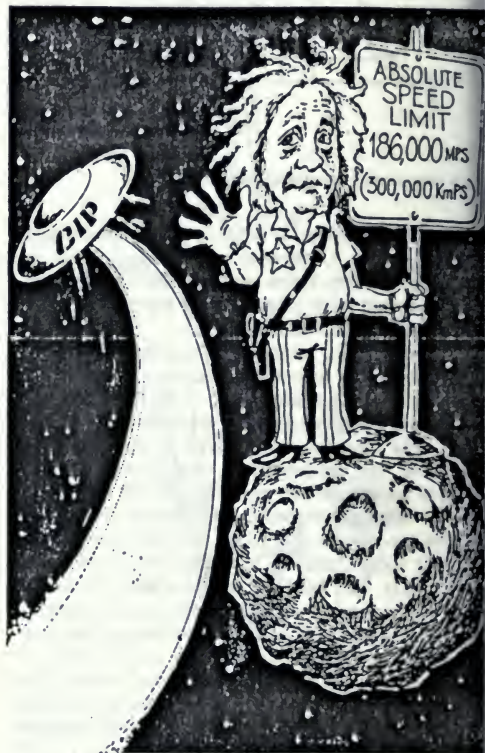


Fig. 2-7

Einstein asserted that the speed of light is the ultimate speed limit (before the CIP). Is this true now? (Going at the speed of light you would travel 11,160,000 miles per minute or 5,869,713,600 miles per year.)

Comparison of Jet and CIP Efficiency

Engine	Power Required (hp)	Thrust (lbs)
Jet *	1	1
CIP	1	600

*Traveling 375 mph at 35,000 feet

Table 2-1

Some far-sighted people such as the late John Campbell, Jr. suggested 20 years ago that a ear-powered submarine would make an ideal onless spaceship. In 1960 he wrote:

The nuclear submarine has already been tested with crews for thirty continuous days out of contact with its atmosphere; their air-cycling equipment is already in and functions perfectly. What difference if the "out of contact" situation involves submersion in water instead of space?

The ship, if it can lift off Earth at all, can generate a free vertical acceleration. Since that acceleration is generated by engines capable of continuous operations months—if not years—at a time, the acceleration can be maintained for the entire run, there would be no need of free-fall for the ship or crew. Therefore, the pressurized structure, equipment, and auxiliary designs would be entirely satisfactory. Also, a sub has various plumbing systems with built-in locks so the equipment can be used in conditions where the external pressure is widely different from the internal.²

Accelerating at approximately 1 g, such a ship would make the trip from Earth to Mars—when Mars is closest—in less than three days. And even when Mars is at its maximum distance from the Earth on the far side of the sun we're still looking at only a five-day trip.

In flight, the ship would simply lift out of the Earth's gravitational field, maintain a constant 1-g acceleration, and once out of the Earth's gravitational field, maintain a constant 1-g acceleration. On the way to Mars it would loop its course and decelerate the rest of the way at the same rate. Insofar as passengers go, passengers could not distinguish between sitting in the ship or relaxing at home in their favorite easy chair because the 1-g acceleration duplicates the effects of gravity. These unusual effects are explained by Einstein's principle of equivalence. It follows: Consider one observer in the gravitational field of Earth and another in the accelerating space ship. If both drop a test body, both will observe it to

accelerate relative to the floor. According to classical theory, the Earth-based observer would attribute the phenomenon to a gravitational force, and the spaceship observer would attribute it to the accelerated floor overtaking the uniformly moving body. Einstein reasoned that the effects are identical, and thus a theory of gravity should provide an equivalent description of the two systems (Fig. 2-8). Einstein made this principle of equivalence the physical cornerstone of general relativity. It states that, on a local scale, the physical effects of a gravitational field are indistinguishable from the physical effects of an accelerated system.

The effects of centrifugal force on the occupants of a rotating space station is also similar to both gravity and the force produced by the accelerating

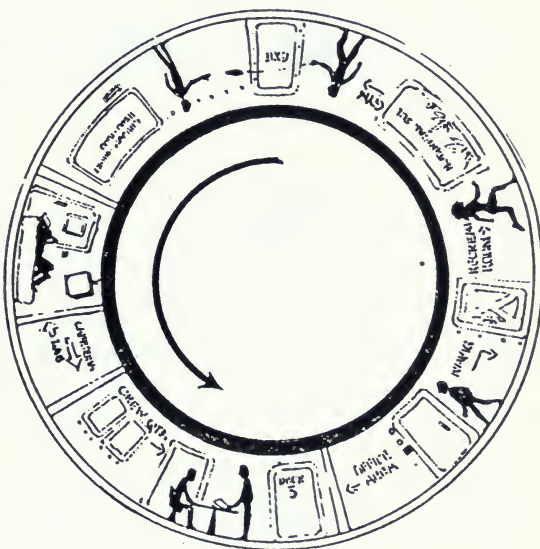
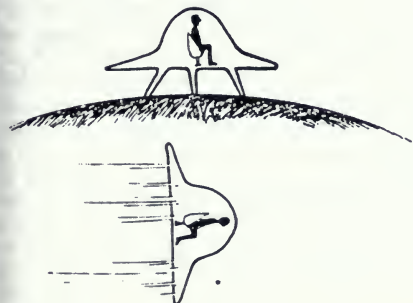


Fig. 2-9

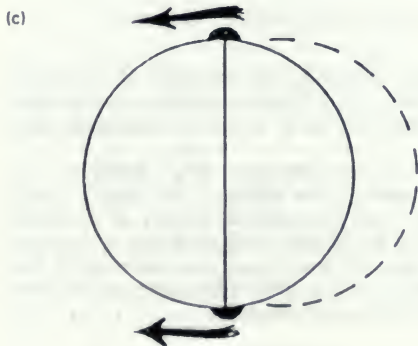
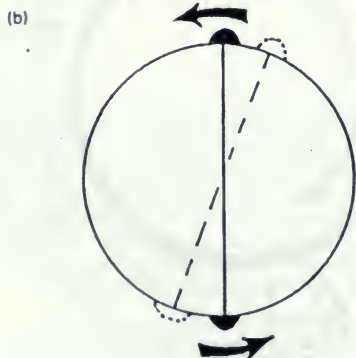
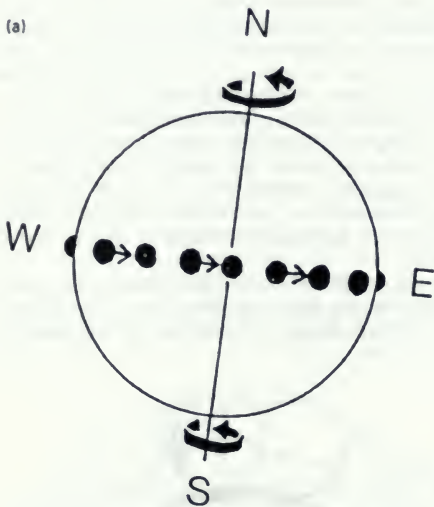
The artificial gravity effects of rotating space station.



spaceship. Essentially, the occupants of the rotating space station (Fig. 2-9) are in a constant state of acceleration (any change of direction constitutes acceleration).

(Here's an interesting idea: Consider a CIP engine hovering a few inches off the earth's surface. The engine has the rotational velocity of the earth's surface. As the rotating earth turns with it, would our engine move off in a tangent into space at the rotational velocity of the earth? If the friction of our atmosphere is discounted, would it?)

8
effect of being at rest in a gravitational field (a) is the same as the effect of being at rest in an accelerated coordinate system (b).



Imagine for a moment that this internal or unidirectional force can be produced. What influence would this have on our planet, and our lives?

The possibilities are phenomenal. All aspects of the human condition would be touched. We would now have the ability to generate tons of force. This discovery allows us to think the previously unthinkable. For example, huge CIP units could be positioned along our planet's equator or at the polar regions (Fig. 2-10). By guiding the force of these units in certain directions over a period of time we could then actually adjust the rotational speed of the earth (or its tilt) for whatever reasons would benefit the world community. Our climate could be modified. The earth's orbit itself—or even the arrangement of heavenly bodies—could someday be adjusted if desired.

Experiments have been conducted with a small cork and a large steel beam. The beam is suspended from a ceiling and is adjacent to a tiny cork hanging from a string. When the cork is bounced off the beam at regular intervals, the steel eventually begins to oscillate. The tiny cork transmits energy to that huge beam. If the CIP units were run constantly they, too, could eventually affect the earth's rotation or tilt in the same way the cork affects the steel beam.

CIP-generated travel near or beyond the speed of light makes the vast, incomprehensible distances between galaxies and quasars navigable. With the use of the reactionless drive in space we may begin colonizing other worlds before the year 2000. Planets would become easily accessible for exploration, mining, and harvesting. (We may find more gold and diamonds out there than we'll know what to do with.)

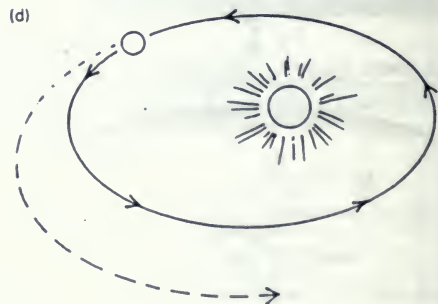
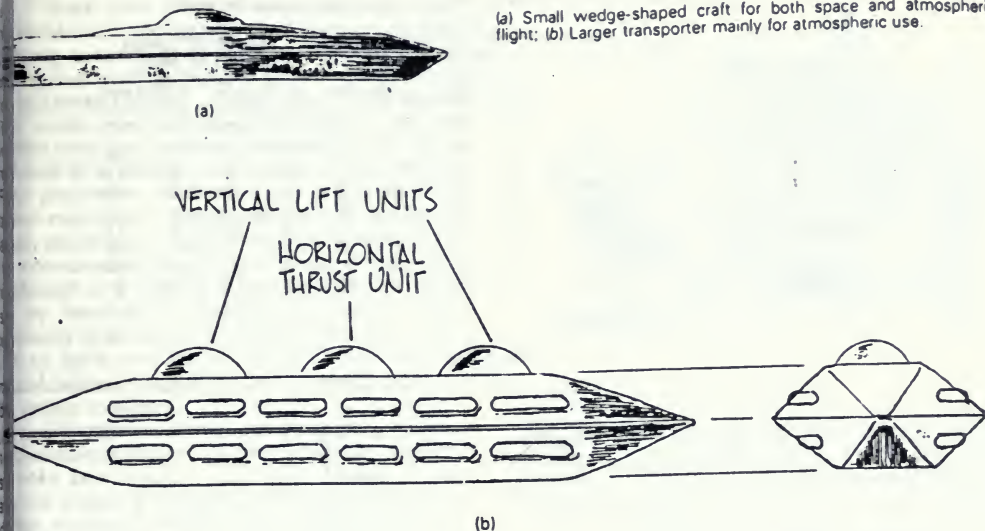


Fig. 2-10

(a) CIP units attached to the equator to increase earth's rotational speed; (b) CIP units attached to the poles to change the angle of the earth's axis; (c) CIP units attached to the poles to increase the earth's orbital speed around the sun; (d) Earth's orbit changes when orbital speed is increased

Fig. 2-11

(a) Small wedge-shaped craft for both space and atmospheric flight; (b) Larger transporter mainly for atmospheric use.



The discovery of a method for producing an actual propulsive force directly raises realistic possibilities for new energy sources. Future units installed in a basement or buried in a special backyard enclosure supply the necessary energy—lighting, heating, to an average home for 20 years. And the source is pollution-free.

The CIP system will most likely cause the use of all wheeled vehicles. (Bridges will be totally unnecessary. They will become historical monuments.) New transportation conveyances will arise. For example, a small, wedge-shaped craft, as that shown in Fig. 2-11a. This craft could meet gently off another in a collision. Passengers will be frightened, but they will live to see another. The ride will be almost perfectly smooth. Flight in CIP-powered craft will be free from the jolting impact of turbulence because air passengers will not be airborne but rather "forceborne" in the air. The gyroscopic action of the propulsive unit will also have a stabilizing effect. The noise pollution generated by jet airlines will be eliminated. In the future, you can expect to fly in a superquiet, supersmooth, and superpowerful craft. A larger craft with additional seating capacity can be built in the shape of a cigar, longer than it is wide (Fig. 2-11b).

Another beautiful facet of the CIP is its maneuverability. A series of controls could instantly change the direction of the propulsive force. To illustrate: envision a huge oil tanker pulling into a port. A number

of CIP units in the stern and bow could, when activated by a switch, actually direct the force so that the ship could dock sideways. (See Fig. 2-12.) In the atmosphere or in deep space a CIP-propelled craft would have almost unlimited possibilities. With a complete combination of force-producing vertical and horizontal units, an astronaut could change directions or stop instantly, hover in space, or perform any maneuver by gradually or abruptly changing the direction of the force.

By storing tremendous amounts of inertia in the spinning propellant mass while the system is in neutral, one could activate the system instantaneously for unbelievable acceleration (Fig. 2-13). Later, we will

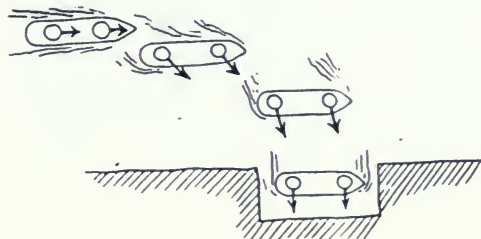


Fig 2-12

Ship berthing without the aid of tugboats.

COMPARISON OF AIR TRAVEL TIME AT CONVENTIONAL AND CIP SPEEDS

	Distance (Air Miles)	Average Conventional Speeds (miles per hour)				Average CIP Speeds (miles per hour)			
		500 mph		1,000 mph		5,000 mph		10,000 mph	
		hr.	min.	hr.	min.	hr.	min.	hr.	min.
Moscow to Chicago	4,987	9	58	4	59	1	0	0	30
Berlin to Cairo	1,797	3	36	1	48	0	22	0	11
Honolulu to Moscow	7,047	14	6	7	3	1	25	0	42
San Francisco to Capetown	10,248	20	30	10	15	2	3	1	1
Caracas to New York	2,120	4	14	2	7	0	25	0	13
Mexico City to London	5,558	11	7	5	33	1	7	0	33
New York to Los Angeles	2,451	4	54	2	27	0	29	0	15
Denver to Omaha	488	0	59	0	29	0	6	0	3*

*Obviously human limitations must be considered.

TABLE 2-2

illustrate precisely how this could be done. The presently unthinkable speeds we could eventually reach in our atmosphere will be limited only by the need for passenger comfort and the craft's ability to withstand heat. (See Table 2-2.)

The cost of a CIP engine would be a fraction of that of the various transport devices of contemporary technology. Putting a pound of payload into earth's orbit by chemical rocket ranges from about \$100 to over \$1,000.³ The CIP engine is cost-effective far beyond any present propulsion system.

There are several basic propulsion techniques currently considered suitable for interplanetary travel. One, of course, is the rocket; that is, rockets in the strict sense of devices that carry and expel their own expulsive material or "working" fluid, which is heated and expanded to a high velocity in a nozzle. Then there are the ion and magnetoplasma devices discussed below. (These do not use thermodynamic expansion of gas to obtain a thrust.) Two classes of nuclear rockets are also under development. One, the fission type, utilizes a uranium-fueled, solid-core reactor that heats a working fluid, usually hydrogen. (The working fluid then accelerates through a nozzle as in the general rocket.) The other type of nuclear rocket uses energy from the decay of radioactive materials. (Such an engine would be primarily suitable for low thrust.) Safety provisions necessary to protect crew, service personnel, and equipment from excessive neutron or gamma rays have caused considerable and expensive delays in nuclear propulsion projects.

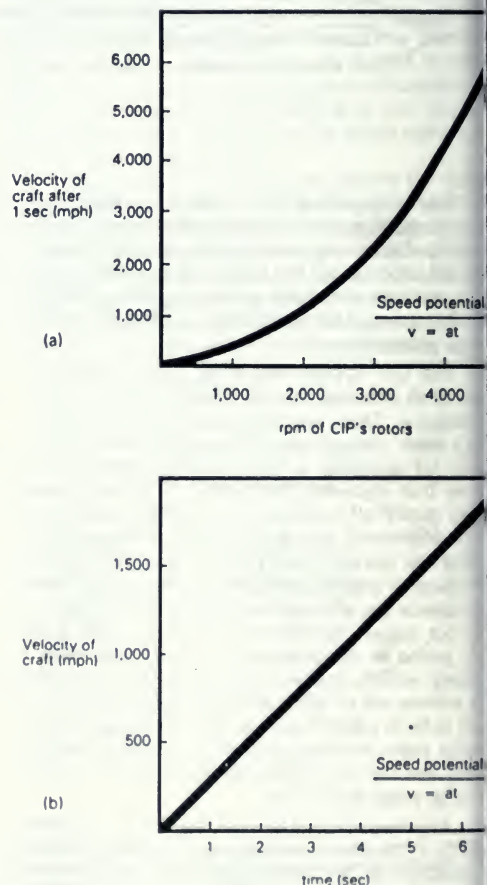


Fig 2-13

(a) Speed that a typical 5,000-lb CIP-powered craft could be traveling after only 1 second (with a 90-lb propellant mass), (b) Speed that a typical 5,000-lb CIP-powered craft would reach with the rotors spinning at a slow 1,000 rpm

Three basic kinds of electrical propulsion—thermochemical, electrostatic, and electromagnetic—are being considered. In thermochemical propulsion a gaseous fluid such as nitrogen or hydrogen is passed over hot metal surfaces and then expanded in a supersonic nozzle. Electromagnetic propulsion for flight vehicles uses motive power produced by high-speed discharge of a plasma fluid. Along with ion (electrostatic) propulsion, electromagnetic propulsion yields several mechanisms capable of attaining specific impulses, exceeding those of thermal propulsion devices by a considerable margin. (Much more power can be transferred to a body of matter by electrical means than by heating.) By increasing the power transfer efficiently to ionize the propellant material, it is possible to apply electric forces and circumvent the thermal barrier. However, each of these drives has its own unique problems.

Still another technique involves using the radiation pressure of photons. With this method, a solar sail functions as a reflector upon which the bouncing of photons creates a reaction force that generates propulsion. A clipper sailing through the heavens!

All these methods, however, relate back to the same basic principle: using reaction-mass to propel. I maintain that this is not the way to go, that present interplanetary propulsion plans are on an evolutionary path leading straight to extinction, that the reactionless drive represents the best possible future. Compared to ion propulsion, the force potential of the reactionless drive is a brute. It's like pitting a gigantic bulldozer against a smoke machine (Fig. 2-14).

The CIP would make commuting fast, smooth, and easy. (Leave the tires behind and forget the bridge tolls.) No need to ride the elevator; park on the 36th floor. Reserve the downtown streets for pedestrians. Delivery vehicles could unload their cargo at any given floor of a skyscraper, simply hovering in space. Strap a lightweight CIP convertible pack on your back and you're "forceborne." (See Fig. 2-15.) You can float with the breeze, glide with birds, drift with clouds.

A reactionless force has other important uses. It will lift anything. Why not employ this new system to perform the world's heavy work? It will provide the replaceable "skyhook" we've been needing for centuries. The same kind of CIP engine that can drive a spacecraft could be used to relocate an entire office building to a new home. Houses could be constructed with special foundations. A towing service with customized lifting craft could hover overhead, attach its equipment to these special foundations, and transport your entire office—family and contents—to just about anywhere you wanted (Fig. 2-16). This opens prospects for several completely new industries. Instead of packing and renting a vacation home, just take your own residence and personal belongings with you. With an appropriate CIP system, large office buildings and

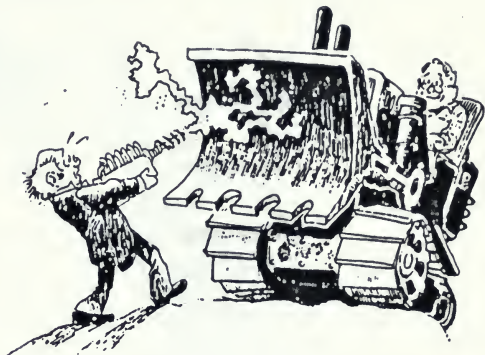


Fig. 2-14

Ion propulsion versus the CIP is like a smoke machine versus a bulldozer.

... present interplanetary propulsion plans are on an evolutionary path leading straight to extinction ... the reactionless drive represents the best possible future.



Fig. 2-15

Commuting by CIP.

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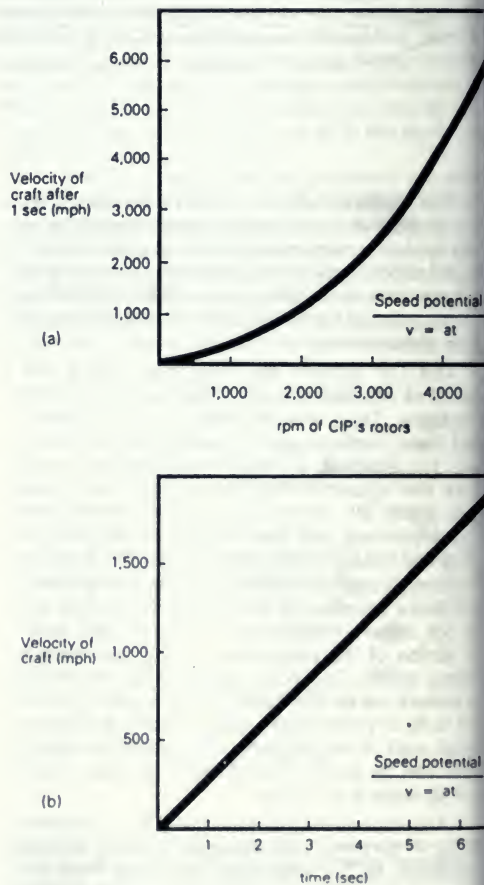


Fig 2-13

(a) Speed that a typical 5,000-lb CIP-powered craft could be traveling after only 1 second (with a 90-lb propellant mass). (b) Speed that a typical 5,000-lb CIP-powered craft would reach with the rotors spinning at a slow 1,000 rpm

Three basic kinds of electrical propulsion—electrothermal, electrostatic, and electromagnetic—are being considered. In electrothermal propulsion a working fluid such as nitrogen or hydrogen is passed over hot metal surfaces and then expanded in a supersonic nozzle. Electromagnetic propulsion for flight vehicles uses motive power produced by high-speed discharge of a plasma fluid. Along with ion (electrostatic) propulsion, electromagnetic propulsion yields several mechanisms capable of attaining specific impulses, exceeding those of thermal propulsion devices by a considerable margin. (Much more power can be transferred to a body of matter by electrical means than by heating.) By increasing the power transfer efficiently to ionize the propellant material, it is possible to apply electric forces and circumvent the thermal barrier. However, each of these drives has its own unique problems.

Still another technique involves using the radiation pressure of photons. With this method, a solar sail is used as a reflector upon which the bouncing of photons creates a reaction force that generates propulsion. A clipper sailing through the heavens!

All these methods, however, relate back to the basic principle: using reaction-mass to propel. I maintain that this is not the way to go, that present interplanetary propulsion plans are on an evolutionary path leading straight to extinction, that the reactionless drive represents the best possible future. Compared to ion propulsion, the force potential of the reactionless drive is a brute. It's like pitting a gigantic bulldozer against a smoke machine (Fig. 2-14).

The CIP would make commuting fast, smooth, and easy. (Leave the tires behind and forget the bridge tolls.) No need to ride the elevator; park on the 36th floor. Reserve the downtown streets for pedestrians. Every vehicle could unload their cargo at any given point of a skyscraper, simply hovering in space. Strap a lightweight CIP convertible pack on your back and you are "forceborne." (See Fig. 2-15.) You can float with the breeze, glide with birds, drift with clouds.

A reactionless force has other important uses. It will lift anything. Why not employ this new system to perform the world's heavy work? It will provide the ideal "skyhook" we've been needing for centuries. The same kind of CIP engine that can drive a spacecraft could be used to relocate an entire office building to a new home. Houses could be constructed with specialized foundations. A towing service with customized hovering craft could hover overhead, attach its equipment to these special foundations, and transport your entire office—family and contents—to just about anywhere you wanted (Fig. 2-16). This opens prospects for several completely new industries. Instead of packing and renting a vacation home, just take your own residence and personal belongings with you. With an appropriate CIP system, large office buildings and

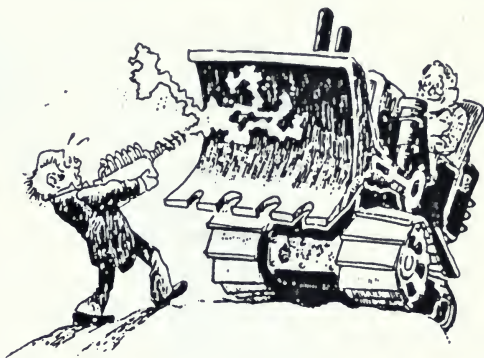


Fig. 2-14

Ion propulsion versus the CIP is like a smoke machine versus a bulldozer.

... present interplanetary propulsion plans are on an evolutionary path leading straight to extinction ... the reactionless drive represents the best possible future.



Fig. 2-15

Commuting by CIP.

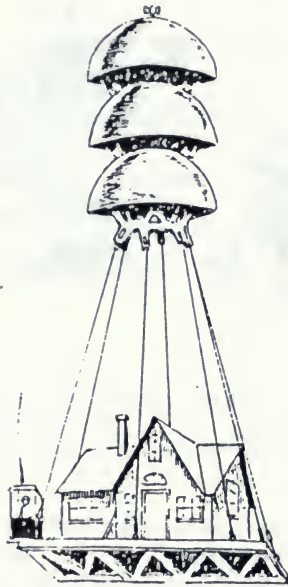


Fig. 2-16
House moving by CIP made easy

skyscrapers could be built outside of the city and then moved into place, thereby eliminating urban construction site clogging and noise.

Platforms mounted under CIP units could hover close to buildings for painting, changing light bulbs, or washing windows. Fire, police, and medical personnel could more effectively provide emergency services with their new vehicles (Fig. 2-17a and b). During an earthquake, powerful CIP units could hold buildings in place, or future edifices could be constructed with the potential to be lifted until danger passes. CIP spotter craft could carefully monitor gigantic storms, typhoons, tornadoes, and hurricanes for improved meteorological warnings. A portable CIP unit could pull down any tree without exerting force on the person using it. Similarly, the walls of buildings could be knocked over by a mere push. (We may have to be very careful who has access to these units.)



Fig. 2-17
(a) Firefighters will adapt the CIP to their use. (b) Emergency rescue facilitated by CIP

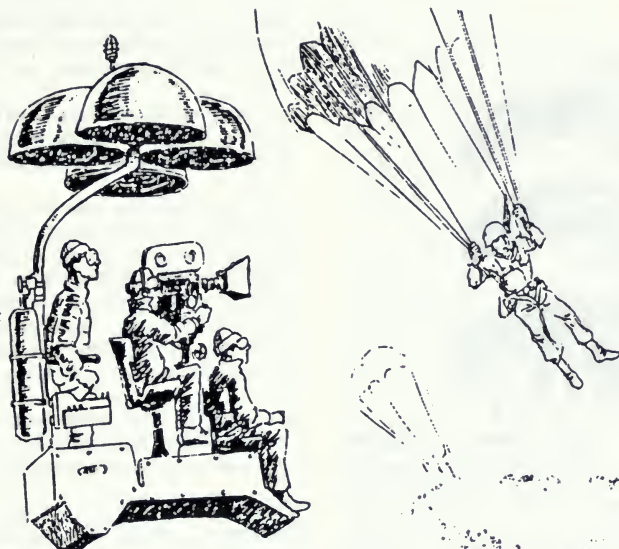


Fig. 2-18
 Making will be revolutionized by the CIP.

Portable floodlights could be flown in to light construction projects, sporting events, movie sets, emergencies. Camera crews could get fantastic vantage points riding special units or using remote control units (Fig. 2-18).

Skiers could be transported up mountains in flying shuttle buses. Small units could slow down "out-of-control" skiers or lift them over rapidly approaching obstacles. Traveling adventurers, hunters, photographers, and so forth could easily reach isolated locations with portable backpack units. Fishing enthusiasts could drop in on some virgin lake to make that lucky cast of the evening. Golf carts could float on the grass instead of following surface golf paths (Fig. 2-19).

Our world would never be the same. Transporting emergency food, water, or health supplies would be a swift and simple matter. We would no longer need conventional cargo ships. With powerful



Fig. 2-19

Transporting golfers by CIP will be easy although it may not improve their game.

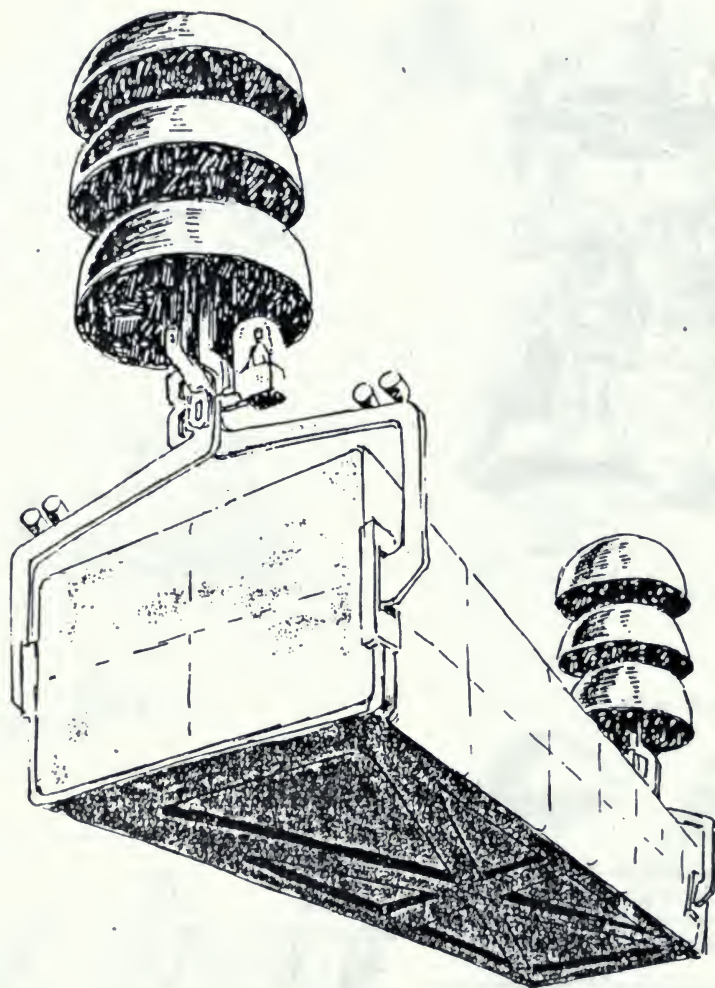


Fig 2-20

CIP transports goods quickly, efficiently, and quietly.

ying units, gigantic containers could be transported quickly through the air to deliver goods interplanally (Fig. 2-20). All transportation costs would

Icebergs could be towed through our oceans to remote locations. Remote units could glide over performing fire-prevention duties. The possibilities are endless.

And consider all the new employment opportunities. Some existing transportation systems would be converted to the CIP engine, a process involving the creation of an untold number of jobs. Factories would be built to manufacture the latest production models and to experiment on new applications. Exotic jobs would come into being. How would we like to be a tour guide on excursion trips around the solar system?

Moreover, access to the solar system and beyond would open up countless positions in exploration, research, and mining. We would again have new worlds to develop.

The cost of flying would decrease, enabling more and more people to afford travel, which would not only be cheaper but faster, easier, supersafe, and infinitely more enjoyable. There is no end to the possibilities.

CIP spacecraft would be able to dispose of our nuclear wastes by putting them on a collision course with the sun or other massive star.

Does the human race have the maturity and character to take advantage of the potential utopia we could have here on earth? The question is a difficult one. Obviously, there are serious military implications of the CIP. Imagine the new weapons that could be developed. Satellites overseeing our defenses would make us vulnerable. They could be plucked out of the

sky or tampered with. New safeguards would have to be found; new laws written and enforced.

Hopefully, the excitement of developing a new frontier will unite the human race. The availability of unlimited territory should ease pressure on territorial disputes and land acquisition. Vital natural resources could become abundant. The opportunities opened up by the CIP could have deeply inspirational effects on humankind.

Clearly, an invention as revolutionary as the CIP collides with vested interest groups with a great deal to lose. But history has shown that all great inventions and changes leave some losers in their wake. Can we not view matters differently this time? When the curtains of the CIP-based future have been fully opened there would be no real losers. Every single human being would benefit.

With such incredible rewards at stake it would seem that science would make equally incredible efforts at researching and developing a unidirectional force system. This hasn't happened. In fact, hardly anyone in the scientific community has taken an interest. Throughout the history of science this has remained a painfully neglected area. Why? The next chapter examines the amazing controversy created by the CIP, and looks into the injustice that has been inflicted on the peoples of our world by the suppression of this invention.

Citations, Chapter 2

1. *World Book Encyclopedia*, 1980 ed., s.v. "Rockets."
2. John W. Campbell, Jr., "Space Drive Problem," *Astounding* (June 1960), pp. 104-5.
3. *McGraw-Hill Encyclopedia of Science and Technology*, 4th ed., s.v. "Astronautical Engineering."

3. The Controversy

- 52 -

Newton's laws of motion are not totally correct. This shocking statement really staggers the mind when one comes to fully realize that the basis of physics and mechanics are ill-founded. Why do we say this? Because of one simple fact that involves a proven *internal force principle*. The three laws of Isaac Newton dealing with inertia, acceleration, and reaction leave no room for internal forces to affect an object's motion.

The existence of an *internal force* that influences motion *has been proven*. A working model demonstrating this fact has been built. The patent has been issued. We document the details in this book. Repercussions from this invention should echo throughout science when the false foundation of mechanics is exposed.

Unfortunately, in this day and age, the ability of educated people to detect important breakthrough discoveries leaves much to be desired. Einstein himself said it: "It is little short of a miracle that modern methods of instruction have not already completely strangled the holy curiosity of inquiry, because what this delicate little plant needs most, apart from initial stimulation, is freedom; without that it is surely destroyed. I believe that one could even deprive a healthy beast of prey of its voraciousness, if one could force it with a whip to eat continuously whether it were hungry or not."

Carl Sagan reminds us that Einstein's remarks should be sobering to those engaged in higher education in science: "I wonder how many potential Einsteins have been permanently discouraged through competitive examinations and the forced feeding of curricula. . . . It is clear that Albert Einstein became a scientist in spite of, not because of, his schooling."²

Let's examine the controversy that has been created by the breakthrough idea of the reactionless drive. Isaac Newton left no room for the possibility of a system creating an internal force to propel. Newton's well-known three laws of motion, published in 1687 in *Philosophiae Naturalis Principia Mathematica*, are:

- 1 Every body remains at rest or continues to move uniformly in a straight line unless compelled by external forces to change this condition
- 2 The rate of change of momentum of a body is proportional to the force applied, or $F = ma$
- 3 For every action there is an equal and opposite reaction.

Propulsion is based on the reaction principle stated qualitatively in the third law. A quantitative description of the propulsive force exerted on a body given by the second law, expressed mathematically $F = ma$. Any change in momentum, according to Newton's second law, must be exactly equal to the propulsive force exerted on the body. Let's look closely at these laws and examine how they are incorrect.

Note that the first law (a body will remain at rest or moving uniformly in a straight line unless compelled by external forces to change this condition) refers *only* to an external force, which, of course, requires a second body to produce that force. The circumstances exclude any possibility for an *internal force*, which requires no second body to react against.

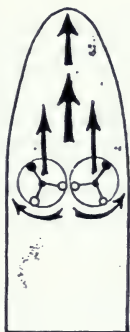
Newton's laws of motion are not totally correct.

The force referred to in the second law (force equals mass times acceleration)—that is, the force employed in effecting the acceleration of a body—always has been considered to be external because internal forces capable of propelling have been held to be "impossible." Since we will show that an internal propelling force is possible, this equation must be modified to include a distinguishing sign (a lowercase "i" after the "F" whenever an internal force is represented). Thus, $F_i = ma$ represents internal forces, $F_e = ma$ represents external forces.

The third law (for every action or force there must be an equal and opposite reaction) implies there can never be a force acting in nature unless *bodies* are involved—the one that exerts the force and the one upon which the force is exerted. According to Newton, forces capable of effecting motion must be produced in pairs, opposite and equal. Once again, only an external force is considered (3-1).



CHEMICAL ROCKET



MECHANICAL ROCKET

The two-directional force produced by the chemical rocket is contrasted to the unidirectional force produced by the mechanical

Newton's second and third laws have been generalized to provide the conservation of momentum principle, which also forbids an internal force: No matter what goes on inside the machine, no matter how many weights may shift and gears may spin, you can never propel.

Science has insisted over and over again that momentum cannot be effectuated unless an exchange with the environment or a reaction against a second body occurs. The rocketry experts with whom we have had discussions thought us insane even to suggest that one could outfit a spacecraft with a series of rotating and revolving masses, take it into outer space, and thereby effectuate its momentum. They admitted that an invention as we described *might* have limited use on earth, but refused to believe it could effect propulsion in deep space. ("Boys, you can't pull yourself up by your own bootstraps.") Some opponents jokingly call Cook's invention a "bootstrap thruster."

The conservation of momentum principle states that when a system of masses is subject only to forces that the masses of the system exert on one another, then the total vector momentum of the system is constant. The principle of conservation of momentum holds generally and is applicable in all branches of physics. In particular, momentum is conserved even if the particles of a system exert forces on one another, or if the total mechanical energy is not conserved.

The conservation of momentum concept can be expanded to the principles of the conservation of linear momentum and the conservation of angular momentum.* A complete description of a system must include both quantities. A simple example of momentum conservation is a heavy rifle fired toward the back of a small boat by a person on board. As the bullet is accelerated to the rear, the boat is accelerated forward.

Let's see how these principles apply in practice. To run or walk forward we push backward against the ground. The reaction of the foot against the ground allows us to go forward. Automobile tires react against the pavement to produce a change in momentum. In the case of an airplane or ship, the required change in momentum is generally wrought by changing the velocity of the fluid (air or water) passing through the propulsive device or engine. In a turbojet engine, the air is the propulsive medium and the thrust is obtained by the acceleration of the air as it passes through the engine. A rocket operating in the vacuum of space uses some of its own mass to propel. For momentum to be conserved, the rocket must acquire an equal momentum in the forward direction.

As mentioned, we have found a way to make a spacecraft increase its velocity *without* exchanging



Our opponents liken our attempt to propel with the CIP to a man trying to lift himself by his own bootstrap.

*These two principles are defined on page 39

momentum with its environment. (The secret of how we circumvented Newton's laws is explained in Chapter 7.) The results of our experiments allow us to assert categorically that the wording of the existing laws and principles of motion are misleading. These should be modified to better express the truth. We understand that such modification will be difficult for physicists to accept, especially since both their education and experience deem what we have accomplished "impossible." We can only ask that, in the spirit of Einstein, conventional thinking in this area be suspended until all the facts that we present are examined.

Actually, the situation we face with the rejection of this invention is no worse than past circumstances in the field of electricity. A century or so ago many sincerely believed that it would be "impossible" to do work with alternating current without violating the conservation of momentum principle, since the average current was zero. It turned out that, although the current in one direction is balanced by an equal flow in the opposite direction, the flows are not equal and opposite simultaneously and thus work can be done. Furthermore, when all else failed, other arguments were presented to preserve the conservation of momentum principle.³

The response of the scientific community toward our project has ranged from cool to cold. Those that could really have helped, have not. Given the

nature of this controversy few qualified people have made objective studies. Those that have, confirm that the CIP does work.

Robert Cook has been trying to expose conceptual constraints of Newton's laws to scientists for 12 years. He is now presenting his case directly to the public. In one sense, it may be said that a gross error has been discovered in the laws of physics. Nearly all momentous scientific revolutions, from

In over a dozen years no physicist or technician has built a model to disprove the theory of the CIP engine.

Galileo to the splitting of the atom, have evoked charges of "heresy."⁴ Science has in many ways become like a religion with dogmatic teachings to protect. Anyone who questions basic precepts cannot expect an unbiased hearing. And it is especially difficult for established scientists to pay careful attention to a "heretic" such as Robert Cook, who lacks the proper educational credentials.

Humanity should learn from history, which has repeatedly shown that so-called "uneducated" persons have many times broken through the barriers of tradition.

Understandably, there is substantial emotional impact connected to the idea that a propelling *internal force* can be produced. Anyone with a heavy emotional investment in the "known laws of physics" tends to intensely reject this idea. This negative attitude must be changed. Given the energy problem facing us, time is limited. We can no longer afford the traditional attitudes of the past. This luxurious pingpong game, arguing about the concept rather than examining the facts is being played on a sinking ship.

Carl Sagan writes, "Many of the problems facing us may be solvable, but only if we are willing to embrace brilliant, daring and complex solutions. Such solutions require brilliant, daring and complex people. The brilliant and daring solution of the CIP engine has collided head-on with human vanity. 'The thing Galileo fought for—the things for which science has honored him, classified him as a martyr of science—was the fundamental proposition that demonstration must be accepted; that observational data must never be suppressed for the sake of authority and theory.'"⁶ Many of the scientists we contacted have flagrantly violated this ideal for which Galileo fought.



Galileo being corrected by experts of his day

In over a dozen years no physicist or technician built a model to disprove the theory of the CIP. (At the same time, objective studies done by Airlines conclude that the invention does work. Obviously, a good number of physicists adhere to an emotionally based protectionist policy regarding laws of physics. Such scientists may soon realize their "solid" foundation actually rests on sand.)

People should not take offense at the concept of the CIP engine. The purpose here is not to discredit Dean but to gain new knowledge and to thus improve the living standards of the human race. Researchers and scientists should participate in development. Why be angry at this discovery? It should be received as a blessing.

Our research in this area brought to light others in the past who have made similar attempts at this "impossibility." (We detail portions of their work in Chapter 5.) The most widely known of these was Norman Dean, who received national publicity in 1960. We were astonished at the remarkable similarities between his struggle and ours. Like us, Dean encountered enormous initial difficulty getting anyone to test or study his working models. Unfortunately, the notoriety of the Dean drive caused an additional obstacle for us. Why? Because the Dean drive was not based on sound mechanical principles. What Dean built (as we will later see), could never propel in deep space. The failure of Dean's drive — a proposed reactionless propulsion system — has strongly reinforced the contention that a reactionless centrifugal force is impossible. Consequently, our critics now have additional ammunition. We heard repeatedly about the CIP engine, "Oh, it's just another Dean drive," words that imply our machine is just another junk artifact. (And all this expressed with no attempt to study or analyze.) The Dean drive was a victory for Isaac Newton. It had the effect of further discouraging any experimentation on a reactionless system. Who in their right mind would want to be ridiculed, criticized, and rejected as Norman Dean was? The important moral of the Dean story lies in the emotional reaction displayed at this revolutionary idea.

Norman Dean was a mortgage expert for the Federal Housing Authority and a leisure-time inventor and physicist. He, too, came up with an idea for a reactionless drive based on a rectified centrifugal force. He spent his spare time experimenting, and in 1959 received a United States patent for "A System for Converting Rotary Motion Into Unidirectional Motion."

For years Dean pounded on doors in Washington, D.C., desperately seeking technical and contractual support. He wrote to Charles E. Wilson, then Secretary of Defense, offering to cooperate with the government in case the device had any military value. The answer came in

the form of a polite note from a secretary saying that the matter would be looked into, but Dean never heard another word. He invited the Senate Space Committee, the National Aeronautics and Space Administration (NASA), and the Office of Naval Research (ONR) to examine the device. There were no positive responses. NASA and the ONR said, in effect, that a study of his plans convinced them that his device wouldn't work because it violated known principles of science. "Do you realize that if your theory is correct, we won't need rockets any more?" one indignant NASA official asked.⁸

To Dean's contemporaries, the concept of the nonsimultaneity of the action-reaction processes and its application to the rectification of centrifugal force was too radical. Dean had repeatedly requested the various scientific agencies (who claim his idea was "just vibration") to use their elaborate vibration-analysis equipment to determine the facts, and not just give authoritative guesses. No one would listen.⁹

For years Dean could not obtain any assistance at all to evaluate his ideas or build and test his working models. His initial patent was filed in 1956. It wasn't until 1960 that someone came to Dean's aid.

The man who rescued Norman Dean was John W. Campbell, Jr., the editor of *Analog Science Fact and Fiction*. The publicity Campbell gave to the affair eventually resulted in Dean getting a hearing. Tests were conducted to validate or invalidate the working models. Campbell was convinced that the mild-mannered mortgage expert, whether he had anything or not, should be given a careful hearing by those responsible for our national defense.

Campbell took the unusual step of devoting an entire issue of his magazine (except for fiction) to the Dean case. Conceding that if the Dean idea worked it would pull the rug out from under modern physics, make scores of rocket propulsion factories obsolete, and upset a segment of the economy, Campbell nevertheless called for a fullscale investigation of the device. Reminding his readers that the stakes were nothing less than "full, free, practical access to the entire solar system" as well as our very survival, the editor asserted that if the government scientists had looked at Dean's space drive when asked four years prior, "we'd have a man on Mars by now!"¹⁰ Campbell argued that our defenses are vital enough to necessitate a thorough investigation of all such ideas, however "far out" they appeared to be, and even if they came to nothing at all. Campbell was an intense crusader for an honest study of a potentially great idea. We would welcome this kind of promoter, who believed in the line of experimentation that we ourselves have followed to a successful conclusion.

The following articles represent Campbell's thinking on this matter. Many of his statements echo our own feelings.

SCIENTIFIC LYNCH LAW (Analog, Oct. 1961)

Whether the Dean device works or not the government science agencies have been provably guilty of Scientific Lynch Law. Remember, and keep firmly in mind, the point that Lynch Law has nothing whatever to do with the guilt or innocence of the accused—but solely deals with the attitudes and methods of the lynchers. A man who's been caught red-handed in the act of murder, is still a victim of lynching if he's strung up without trial.

The Patent Department quite some years back made a ruling that no perpetual motion patents would be considered without a working model. The Patent Department acknowledges the right of a man who can in fact demonstrate his idea to patent a perpetual motion device.

The entire defense of the orthodox scientists has rested on this: Since Dean's device obviously can't work, there is no need to investigate it.

It makes absolutely no difference whether the accused is guilty-in-fact or not, he has, we hold, a right to a fair trial. It took a great many centuries to establish that principle. It's still a tough battle to force people to accept that principle—particularly when strong emotional attitudes are at work.

Most of the physicists who actually allowed themselves to see a demonstration of the device came away badly shaken, and thoroughly convinced—not that it worked, but that it had to be investigated thoroughly.

The prime point of the June, 1960 article, is I hold, proven. The inventor of breakthrough concepts is faced with Lynch Law attitude when he seeks to get ideas through government. They will not give him a Fair Trial, when his device demonstrates a breakthrough device—because, by definition, a breakthrough device demonstrates a hitherto unguessed potentiality in Universe. And is, therefore, by definition, contrary to "known established laws of Nature."

Now someone with an idea like Dr. Robert Goddard trying to get the government interested in rocket power, really rough time. Par for that course is beautifully illustrated lovely little case down in the Smithsonian Museum in Washington. There are models of the beautiful gold medal awarded to Dr. Goddard in 1960—posthumously, of course. Science is always ready and willing to honor its pioneers—particularly after they're dead. And particularly after the Germans first applied Goddard's developments, and the Russians have been outdoing us since then. It's nice, then, to show an American started it all.

Goddard, however, was merely applying then-known, accepted laws, to accomplish a desired end. What he had was science-fiction of what we might call Type I: the theoretically explainable-not-yet-practical device.

*Robert Hutchings Goddard (1882-1945) was an American physicist and rocket pioneer.

Campbell should be credited for helping Dean get his theories tested. Unfortunately, Campbell had not backed a winner. Others have gotten a lot closer to that elusive secret than Norman Dean did.

Additional stories on Norman Dean appeared in other publications. The September 1961 issue of *Popular Mechanics* contained an article entitled "Engine with Built-In-Wings"; and a missile science magazine, *Missiles and Rockets*, published several pieces concerning "Dean's drive." Dean was beginning to stir up publicity.

In a letter to *Analog* Dean expresses his views. Following is his interpretation of his conflict with the laws of physics. (Notice that he doesn't seem to be fully aware of what the real conflict is.)

The error is not in law, but in the assumption. The laws are valid, this particular assumption is not. The error arises from attempting to illustrate the principle of the law of Conservation of Momentum under circumstances that induce forces which, in actuality, do not permit the supposed behavior to occur. Demonstration will show that the supposed behavior does not occur, never has occurred and never will occur."¹¹

Dean goes on to describe his system. (Recall this confusing explanation when you later read the clear description of the CIP engine in Chapter 7.)

The System could be considered as an alternating force "rectifier." The disciplines, methods and dynamics of the System are not pertinent here. They concern, among others, the properties of the phenomenon, methods of energy transference, the principle that the induced forces in a rotating body are always greater than the inertia of its center of gravity, and the methods of distributing total input energy in the System to produce specific resultants"¹²

The magazine articles about Dean did experience their share of criticism. A common response expressed by Donald Wedekind to the editor of *Missiles and Rockets*:

Missiles and Rockets is prejudicing its reputation as a reliable source of missile science developments by persistently reporting such pseudo-scientific claims as Dean's and proponents. A clear description of the principle of operation of the "Drive" and its logical disproof are topics on elementary physics level and unworthy of a prolonged technical treatment. I suggest abandonment of the topic, relegation of the models of the "Drive" to the museum of perpetual motion machines (or to outer space under own power).¹³

Norman L. Dean no longer answers his critics. He died in the late 1960s. John Campbell died on 11, 1971.

Disappointingly, most of the inventors in this area have given up because financial and scientific support has failed to materialize. Most financial backers do not want to fund an invention lacking in scientific support, so to generate capital for this research difficult at best.

A letter published in the May 29, 1961 issue of *Missiles and Rockets* profiles a person who became discouraged and gave up:

Over 20 years ago I devised, on paper, an anti-gravity method based on displaced inertia masses, and was discouraged by financial conditions from experimenting with it. However, I did take it to the Chief of Engineering and Design at Douglas Aircraft, where I was then employed, and Head of the Physics Department at U.C.L.A., where I

ly obtained my Master's Degree. The peculiar results, cases, were exactly these:

1. Initially—derision.
2. After some investigation, the independent conclusion of both men was as follows: Seems impractical, but no way of disproving it. There is no mathematical basis for measuring this new principle. Therefore, it must be proved experimentally.

method seems to provide the missing link for Dean's in that it cuts out a great deal of gearing and throws of the mechanical processes into the realm of electricity, thereby saving space and weight. A hint of its nature the name I have given it: The planetary rotor (in which mass orbits free, like a true planetary system). Remember, Nature made all the discoveries before I did. I am copying Nature.¹⁴

We're certain many other promising paths have been abandoned because Newton's laws dominated for almost 300 years. It is easy to revolutionary ideas.

The whole history of aviation is full of those scoffed at the thought of people flying. This appears even before humankind succeeded at air. In 1685 a book called the *Morass-Diggers'* remarked with contempt:

Often have those fellows brought ridicule upon themselves who sought to make men fly? For they did not know as written in the Scriptures, "As the bird to flight, so is man to work," and what advantage would there be in if men could fly? . . . Anyone who looks at the properly will see not only little use, but great inconveniences arising out of fluttering to and fro. Indeed, such inventor would be the cause of many deaths. For assumption it could be put into effect, positively every news-would soon be relating how one here and another had fallen from the air to his death, and had to be out of rivers or thorn bushes, half eaten away, and

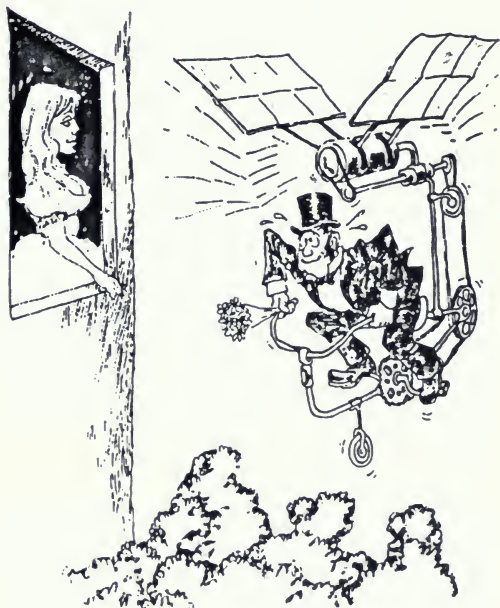
In 1713 Joseph Addison even discovered an new danger that flying might bring: immorality. He warned that couples would bill and coo like on the dome of St. Paul's, that lovers would fly out of their sweetheart's windows, or even be the object of their affections through the air like hawk hunting a lark. The craziest arguments have enough been advanced against new inventions the banner of rationality, but Addison at least had the spirit of satire.

Entirely serious, on the other hand, was the opinion of a French savant, which rendered the discussion superfluous. Joseph Lalande, the astronomer, declared in 1782 that it was quite impossible for a man to rise into the air and stay there—there was no conceivable means of doing so.¹⁷ A year he first man rose into the air and stayed there: a balloon finally set people free of the ground.

When the great mathematician and philosopher Baron Gottfried Wilhelm Leibnitz studied one of the early air-balloon designs, he came to the conclusion that this airship could never be built: The spheres would have to be enormously large and the walls extremely thin, and in practice this was "impossible." Leibnitz ruminated, "Here God has, so to speak, put a bar across man's path, and quite rightly. If men could also travel through the air, there would no longer be any checking their wickedness!"¹⁸

In 1783 the first balloon was ready for a public demonstration in Paris. A crowd of about 300,000 people—half the total population of the city watched the event despite a downpour. The quietly floating balloon rose 3,000 feet and vanished into a cloud, appeared again, and gradually drifted away. After about two hours aloft, it split from overfilling and descended in an unsuspecting village 15 miles from Paris.

In the village, pandemonium ensued. The inhabitants fled in panic, wondering whether a craft had fallen from some other world. A few bold citizens approached the "monster," which moved and emitted a smell of sulphur. As experts in the matter, two monks confirmed that the monster came from Hell. Finally, the most courageous villagers attacked the balloon cover with stones, pitchforks, and a firearm, and vanquished it by riddling it with holes. "Thereupon



"Hawk hunting a lark."

they tied the tool of the finest physical experiment that ever had been made to the tail of a horse, and dragged it a thousand fathoms across the field.¹⁹

Thus we see the 1783 response to a history making invention. In the early 1800s the idea of pulling cars with a steam locomotive was put forth and promptly deemed ridiculous. Moreover, people were sure it was dangerous: Why, the boiler would burst and kill all the passengers! Sparks from the locomotive would set fire to all the houses along the railroad! The smoke would kill birds, animals, grass! Yes, the steam locomotive was undoubtedly too dangerous to be allowed.

No one took the first plane flight much more seriously. After decades of reported "flights" and failures by scientists, half-baked inventors, sensation-seekers and assorted cranks, the press was wary. After all the sound and fury that had surrounded flying for centuries, there was dead silence when success was at last attained. Few people believed the brief announcement in the paper, and a group of newspapermen who had come to watch the flight of a newly-built machine in May 1904 saw nothing (because of unfavorable wind conditions and a mechanical defect), and immediately washed their hands of these inventors who claimed to be able to do what no one could.

The aeroplane of Orville and Wilbur Wright was finished and ready for use but neither the American nor any other government took any interest in the brothers. The Wrights traveled to Europe, offered their invention to Britain, France, and Germany, and came home empty-handed.²⁰

The Wright brothers twice offered their idea to the U.S. Army. After the second time, the Army repeated verbatim the opening paragraphs of their form letter, and demanded drawings to prove that the 1905 Flyer could in fact fly. The Wrights gave up. Wilbur stated that it was bad business to try "to force goods upon people who did not want them."²¹

The inhospitable feelings of contemporary science toward the principle of Cook's reactionless drive has been similar to what Dr. Robert Goddard encountered when he announced his plan for rocket travel to the moon in the 1920s. It is interesting to look at the reaction of the *New York Times* of that period regarding Dr. Goddard's proposed method of space travel.

A SEVERE STRAIN ON THE CREDULITY

As a method of sending a missile to the higher and even to the highest parts of the Earth's atmospheric envelope, Professor Goddard's rocket is a practicable and, therefore, promising device. . . . It is when one considers the multiple-charge rocket as a traveler to the Moon that one begins to doubt . . . for after the rocket quits our air and really starts on its longer journey, its flight would be neither accelerated nor maintained by the explosion of the charges it then might

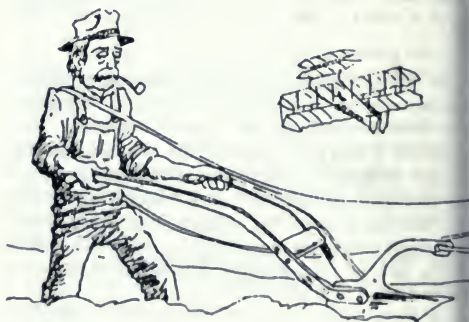
*have left. That Professor Goddard with his "chair" in College and the countenance of the Smithsonian Institut. does not know the relation of action to reaction, and need to have something better than a vacuum against v to react, to say that would be absurd. Of course he seems to lack the knowledge ladled out daily in schools.*²²

This *Times* article displays precisely the same daring attitude we have put on trial throughout chapter.

Of all past inventors, Thomas Edison's out seems most to reflect that of Robert Cook's. Edison success was a combination of native energy and instinctive curiosity coupled with a commitment to relentless practical experiment. Edison never liked to look back. He said that spilt milk didn't interest him he had spilled a lot.

Cook and Edison also share the belief emphasis should be placed on *practice* rather than theory, which explains both their success as inventors and the slowness with which the world of science recognized their achievements. For example, Newton's *Principia* gave Edison an almost arrogant contempt for mathematics, and it certainly didn't enhance his skill in seeing intuitively to the heart of many problems based on figures. A family friend helped to explain the *Principia* in plain language. The result according to Edison was:

*I at once came to the conclusion that Newton could have dispensed his knowledge in a much wider field had he dispensed less about figures. It gave me a distaste for mathematics from which I never recovered . . . I look upon figures as mathematical tools which are employed to carve logical result of reasoning, but I do not consider them necessary to assist one to an intelligent understanding of result.*²³



"And to think the world's experts are still telling the Wilbur brothers they can't fly."

Years afterward he was to claim: "I am not a mathematician, but I can get within 10 percent in the reaches of the art." And, with more truth but the arrogance too: "I can always hire mathematicians, but they can't hire me."²⁴

Similarly, Cook's initial inability to defend his radical theories with mathematics and proper terminologies resulted in the rejection of his working

... Cook's initial inability to defend his radical theories with mathematics and proper terminologies resulted in the rejection of his working models.

... It takes a great and unusual person to invent something that experts unanimously deem to be possible." Edison was that kind of man, and so is Cook. It is worthwhile taking a capsulized look at his life and early experiences in order to understand how this man brought his remarkable reaction-engine into the world.

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4. The Inventor, Robert Cook

The youngest in a family of eight children, Robert (Bob) Cook, the inventor of the CIP, was born in Presidio, Texas on March 1, 1934. Presidio is a border town on the Rio Grande River 200 miles south-east of El Paso in "Big Bend Country." Its population is about 1,000. Bob's father, Fred Cook, of German and British ancestry, was a geologist and licensed mining and civil engineer. His mother, Jesusita Rodriguez Leaton, was of Spanish, British, and Indian descent, and came from a once quite wealthy family. (Jesusita's greatgrandfather, Ben Leaton, was a legendary hero of southwestern Texas.)

In the early 1900s Bob's father traveled extensively on horseback throughout Mexico. He was, at the time, head of one of the top exploration and mining teams in that country. Around the age of 23 he branched off from the exploration team to prospect on

his own in a remote area. While prospecting, stumbled on an Indian village where he found several young Indian boys playing with a rock containing gold. When the Indian boys led him to where the rock had been discovered he found—to his amazement—an extremely rich deposit of gold in a mountainside. He staked a claim and began to develop a prosperous gold mine. A few years later, the Mexican government nationalized all foreign holdings and Fred Cook lost his mine. Still, at the age of 25, he returned to the United States a wealthy man. By the crash of 1929, he had not only lost the remainder of this fortune, but so had others as well. During his lifetime he traveled most of the world. His varied experiences included several years in China managing mining operations and, in the 1940s and 1950s appraising large mining claims in Nevada for the United States government.

Some of Bob's formative years elapsed during the father's absence. To support his family, Fred Cook was (in 1937) forced by economic conditions to work as a mining engineer where he could. Thus, Bob was raised by his mother and Spanish-speaking aunt in a small Presidio adobe home with dirt floors and no electricity or plumbing. (This dwelling was, at that time and place, a typical Presidio house. The town itself had no modern utility or transportation systems. The family owned the land on which the house stood and elec-



Fred Cook prospecting



Cook's birthplace in Presidio, Texas.



Left to right: Tom Cook, Ann Cook, and Robert Cook. A 1942 photograph.

to accompany the father because the harsh environments of his worksites—the mining camps—had, shockingly, been the direct cause of the death of two babies in the family. The thought of subjecting remaining children to this danger was unbearable to his mother.)

Early on, his family realized that Bob was no ordinary child. Initial indications of his abilities came at the age of four. A well-educated neighbor, Mr. King, who on one occasion spent a lot of time with some of the neighborhood kids, observed that Bob caught on faster, and could both comprehend and memorize more quickly than any of the other children. He brought this fact to the attention of his mother and father, who began to watch him more closely.

Even in his earliest years Robert Cook had an insatiable curiosity about nature and how things worked. His family frequently found it entertaining to let him play. At the age of five, he accomplished his first experiment, which got him into some trouble. With an old discarded Hershey chocolate bar, two batteries, and a light bulb, he built a flashlight. He

would put the makeshift light on the couch and sleep on the floor next to it. When he occasionally jostled the couch, the batteries would make contact with the bulb, and the light would go on. The women worried that he would burn down the house. He soon learned other ways to use batteries and, by adding wires, was able to light his playhouse. By the age of eight he had educated himself on the subject of running wires from electrical sources to lights. Outside of their consternation over his first attempt at playing with electricity, his mother and aunts adopted a neutral attitude toward his early experiments. They neither encouraged nor discouraged him.

Anything that spun, fascinated the boy: the spin of a gas-driven or electric motor or, in nature, the spin of whirlpools and whirlwinds. He experimented. He loved to puncture a little hole in a sardine tin, fill the tin with water, and watch the tiny whirlpool created as the water drained. To satisfy his curiosity, he ran inside whirlwinds to see what they felt like and how they worked. He also built small windmills to observe them spin in the breeze. Once, finding an old electric fan, he placed it in the window so he could study how the wind would cause it to spin. (Utilizing the wind was essential because there was no electricity in the house.)

Mirrors and reflections also intrigued him. How—he would wonder—could light be converged at a single point? It was quite a thrill for the boy to go out in his backyard at night with a small mirror and reflect the moonlight to different parts of the garden.

None of his school chums shared interest in his ideas. As a youngster, Bob couldn't understand why. Peer disinterest, however, did not deter his curiosity as the years went by. That attribute only increased.

When he was eight, he and his family moved to Henderson, Nevada. He knew just a few words of English, so he was not only introduced to a completely new life but forced to learn a completely new language as well. Proud by nature, the language handicap caused the boy to feel inferior to the English-speakers around him. Whenever someone called attention to the fact that he could only speak Spanish, he resented it. Until he learned English, he coped mainly by keeping his mouth shut.

In the new surroundings he knew little of World War II. Early in 1945, when he was 11, he witnessed some horrifying scenes in a newsreel: footage of a Nazi concentration camp with dead bodies stacked like firewood. This experience affected the youth profoundly. He had been raised to believe that every human life was priceless and should not be destroyed for any reason. His shock was so intense that his voice changed from clear normal tones to those sounding like someone suffering from extreme sorrow.

Robert Cook's love of and concern for human life was (and is) extraordinary. In his childhood, these

sentiments went far deeper than anyone would have expected. Not only did the boy's voice change, but he lost the capacity to laugh for almost a year. His school nurse became deeply concerned because he couldn't eat for days on end, growing extremely skinny. The nurse recommended a doctor but the boy knew there was no medication to help. His heart had been broken by finding himself alive in a world whose behavior was too hideous to accept. After the War, he eventually regained his normal voice as well as the ability to laugh, but the psychic scar created has never fully vanished.

The family relocated again to Oakland, California for a year and then settled in Concord, a town 20 miles away. Cook's interest in machinery intensified. As a teenager he earned pocket money repairing automobiles, especially certain European models that local mechanics had difficulty troubleshooting. His love of cars ran so deep that he would sometimes fix them for nothing just for the chance to drive them.

Cook was basically bored in high school and did not do well academically. He seemed to share Thomas Edison's opinion that time in school was wasted on subjects not essential. He did, however, go on to enroll at East Contra Costa (Diablo) Junior College in Pleasant Hill, California. His parents had hopes their son would complete a formal college education, but the young man rapidly experienced the same boredom with his studies and couldn't wait to leave school for his real love, the world of machinery.

When he was 19, he met a man named Lyman Stoddard, Jr., a shop foreman and son of the editor and publisher of the *Walnut Kernel* in Walnut Creek, California. Stoddard hired Cook as a printing press apprentice at the paper and became impressed when the young man did some work on his car. When, a few months later, the pressman quit without notice and there was no one with experience to run the press, Cook persuaded his boss to let him try. Now this particular printing press (a 38-year-old, 14-ton flatbed web press) gave the "old timers" a lot of headaches even when in top shape.

"How do you know you can run that old press?" Stoddard asked. "You have no experience."

"I've watched it," Cook said, pointing to his head. "It's up here." Stoddard, who had run the press himself and knew the complexity of it, reflected, thinking that the kid couldn't possibly run it. But since he couldn't find a replacement for the pressman, and was desperate, he reluctantly consented to help Cook start the press. As Stoddard prepared to leave he instructed Cook to run the press until the web broke* and then go home. He was sure it wouldn't be long before the

press became maladjusted and the paper tore. He figured he could help his inexperienced pressman clean and rethread the press the next day.

"I'll run off 20,000 papers tonight and be back in the morning and run off the remaining 12,000," Cook boasted.

Stoddard laughed and left. He couldn't believe that was possible, not when the press was designed to print approximately 10,000 papers per day and operated by a journeyman pressman with at least 10 years experience.

That night Cook ran off the 20,000 papers, leaving the flyboy** who had never seen the press so fast before.

When Stoddard opened the shop the next morning and saw the 20,000 papers he was convinced the old pressman had returned to finish the job. The next day Cook ran off the remaining 12,000 papers in Stoddard's presence. The astonished foreman then realized the young man was for real.

Cook had found a real challenge, one which would lead to his operating and repairing huge metropolitan newspaper presses, some of the most complicated mechanisms in the world. These huge presses are a showcase of rotary motion. A high-speed metropolitan newspaper press takes huge rolls of paper and reels them at speeds of over 1,500 feet per minute. This paper can take multiple folds, multiple prints. You can cut it, transfer it, and deliver it at a rate of 1,000 impressions per minute. Cook loved turning those presses wide open and watching their mechanisms work at top speed.

After only two weeks at the *Kernel*, the inexperienced teenager shattered all production records on that old press. The previous pressman had averaged two web breaks a night. Cook understood the machine so well that, while he was in charge, there was never a web break on Tuesday night when the weekly paper was mailed out.

Once, one of his co-workers, a young woman went over to a competitor, *The Contra Costa Times*, which had a press identical to the one Cook ran. The employees at the *Times* asked her how many web breaks they had a night at the *Kernel*. The young woman had never heard one; she didn't know they were talking about. The *Times* employee assumed she must be deaf because a web break, she explained, boomed like thunder. She insisted she had never heard one.

The competitors (who averaged several web breaks a night) decided they would have to see for themselves what was up at the *Kernel*, whose employees to their amazement, confirmed that Cook had never

*A "web break" occurs when the sheet of paper threaded through a series of rollers and cylinders, etc. breaks. Web breaks can require several hours of work, including clearing and rethreading the press.

**The flyboy is the one who pulls the papers out of the press and the times serves as the pressman's assistant.

web break on Tuesday night for several years. It be seen to be believed. Cook was soon averaging over 5,000 papers per hour (compared to the old of about 2,000 per hour), and the quality of was second to none in the area.

The most influential and supportive person in his life during these years was his mother. She always encouraging him and loved to listen to him his various experiences. She especially enjoyed a lot of happiness when hearing of her son's mechanical successes. The intense determination Cook possesses by nature can be directly to his family and ancestors, whom he describes as strong and ambitious people."

Cook worked for various publishers in the printing trade for the next 17 years. During that span, he received recognition as a mechanical genius. His abilities were never acknowledged instantly, however—new employee he frequently met with initial indifference. His characteristic slow walk and easy manner tended to mask his considerable abilities. In time, though, he would always gradually gain the respect, trust, and admiration, and eventually made many friends in the printing business. He was responsible over the years for at least seven patent inventions utilized by the printing trade, as well as several innovative improvements for operating presses.

An article in the *Concord Journal* of April 9, 1953 (the newspaper of Concord, California) reviews Cook's 1953 start in printing: "It was the fastest apprenticeship ever served. In a matter of a few weeks, he was able to master the problems of a fairly complicated newspaper press, that usually takes an apprentice five years."

This kind of praise was based on incidents such as the following. While Cook worked at the *Walnut*, an important advertising account demanded an "extra color" for his ads. To make the press print extra color required installing a special color attachment.

The factory had two different attachments available, one for around \$5,000 and another for \$10,000. Before purchasing one, Stoddard arranged to have another press belonging to the *Diablo Beacon* (Concord, California), which already had a color attachment. This piece of equipment was the only one of its kind west of the Mississippi. Cook ran the color ad on the rented press, but was never satisfied with it. He wrote about the situation and proposed to Stoddard that he, Cook, build a customized color attachment for the *Kernel* press. Stoddard discouraged this: "By the time we're finished building all the precision parts, it will cost more than a factory model. Why invest all that money in this old press? I can't afford the risk."

But Cook persisted until, finally, Stoddard told him to work up a cost estimate on the project.



Left to right: Robert at 21; his godmother (Gavinita Spencer), mother (Mrs. F. W. Cook), and sister-in-law (Donna Cook).

The estimate turned out to be the absurd sum of \$500, some for necessary shop-built parts, and some to compensate Cook.

Cook was evaluating ways to assemble his attachment when Stoddard one day unexpectedly asked if he were ready to print color. Cook prematurely concluded he was. "Well, I want you to put the attachment on the press tonight before you go home," Stoddard said, "and I want proof on my desk in the morning that this thing will work so we can take on this sudden job." With the crushing deadline Cook was forced to redesign his idea in order to make the attachment less complicated. He soon simplified the idea so much that he was able to put the color attachment together in four hours. And the final cost of parts was a shocker: 26 cents! This surprisingly earned Cook \$499 for four hours of work. Stoddard (though reluctantly) eventually did honor the financial agreement. The attachment, however, more than paid for itself on the first run.

Upon announcing this invention, Cook began to learn a lot about human nature. Hardly anyone took him seriously: The device was just too simple to work; the inventor too young to know sound mechanical principles. Pressmen from other local shops couldn't resist coming to see the initial press run using this odd-looking 26-cent attachment. Most scoffed at this "flimsy" gadget and thought Cook crazy. Stoddard, they felt, was foolish to take chances on losing such a valuable advertising account by putting faith in a simple device conceived and built by a young, inexperienced person. Some also reasoned that if something so



Lyman Stoddard, Jr. receiving a first place award presented by California Governor Goodwin Knight in the 1957 California Newspaper Publishers Association competition where over 700 entries were made by both daily and weekly newspapers. Robert Cook had produced the clean, sparkling print job on the *Kernel's* old flatbed web press (Goss-Duplex) that contributed to the tremendous success.

simple would work, then why hadn't the huge multi-million dollar printing press factory done the same thing 50 years ago when this press was first designed? Cook knew why—they had just never thought of it.

The attachment proved to be "fantastic." It worked far more precisely and was far easier to operate than the factory-built model. So, in 1957, Cook had successfully proven his invention and had won his colleagues' respect and admiration. This experience led Cook to believe that "expert" knowledge can sometimes hinder a person in finding the "truth." Stoddard was proud of Cook. He recognized his gift. In 1980 he would recall Cook as being "by far" the best pressman he had ever seen in the business. Stoddard laughs when he remembers the old stuffed leather chair Cook positioned near the press. When the press was fully adjusted, Cook would relax in his chair and close his eyes. Stoddard couldn't believe it. No one could sleep and run that press. That particular specimen was one of the worst in the business!

In spite of this eccentricity, Cook was producing better results than could be obtained from the factory specifications of a new press. For that reason Stoddard didn't complain about the "sitting down on the job." On the other hand, Stoddard's mother, the owner, wasn't quite as pleased when she toured the shop. She insisted on strict discipline and couldn't believe her son would allow any employee to sleep on the job. She put pressure on her son ("No one sleeps

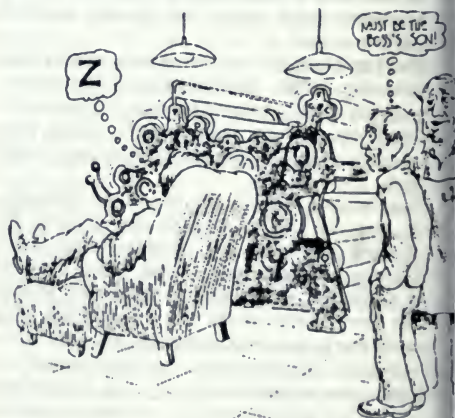
in my shop, it doesn't set a good example.") Stoddard consented to discuss his mother's wishes with Cook who agreed to cooperate.

The next few weeks Cook avoided his "naps" while the owner was present. Soon, though, was back in to see Stoddard "I've lost six pounds. I'm feeling lousy. I can't hack it." Stoddard understood. "You go right back to your chair, I'll deal with my mother." What Stoddard didn't understand was how Cook did it. That press required any pressman be prepared to make fine adjustments to the web any time.

What did Cook actually do in that chair? Sleep? Daydream? Stoddard never knew. Years later, he guessed that maybe the presses had become just simple for his young employee, whose mind probably wandered away to "perpetual motion" or other "impossible ideas."

In 1957, the *Walnut Kernel* went on strike, Cook began working at the *Livermore News* (Livermore, California) owned by Lowell Jessen, a highly respected publisher who at that time was president of the National Publishers Association. The press at Livermore, a 27-ton flatbed web press, was very old and complicated. After a few months of working with this machine, Cook again came up with a unique idea to make this old press print "color." This idea was best yet in terms of simplicity. He presented it to Jessen.

Initially, Jessen accepted the idea as feasible but was cautious enough to bring in a factory engineer to discuss it. The engineer explained in great detail



"You see that guy sleeping over there? If I ever catch you doing that on the job, you're fired!"

it wouldn't work. As a result of this expert advice, he decided against construction of the device. Cook knew he had a sound idea and just couldn't understand why a highly educated mechanical engineer from the factory couldn't see things the way he did.

The idea (which was worth at least several thousand dollars) had been offered as a gift out of Cook's generosity, a token of appreciation for the fine job Jessen had treated him. When Jessen departed for business to Florida, the temporary manager approached Cook and questioned him regarding his position on color attachment. Cook convinced the manager to let him build the device because it would give the business an advantage over competing newspapers if it worked, and the manager had nothing to lose if it didn't. The device was built. It proved entirely feasible. In his return, Jessen was pleasantly surprised.

A public record of this success written by Lowell Jessen can be found on the front page of the March 4, 1958 *Livermore News*:

Because of the inventiveness of Pressman Bob Cook, the twelve-page press had been adapted to use one of the three decks for color. Test runs have shown it to be feasible. This is the first known use of a third deck on a flatbed press for spot color."

Although Cook did not gain financially from this successful venture, it did give him deeper insight into how the human mind reacts to truth when that truth is almost too simple to comprehend. Several letters (Exhibit 4-1a and 4-1b) attest to the high regard Jessen had for Cook; one even described him as the "Babe Ruth" of the flatbed web circuit.

Cook returned to work at the *Walnut Kernel* for about six years, and then was hired on at the *Olympic Press* (Oakland, California) owned by Sheldon F. Sackett, who wanted him badly. Sackett was not only familiar with Cook's reputation but had practical knowledge of his work because Cook had filled in as a substitute pressman on prior occasions and had shattered all production records with the old press then in use. He was determined to have Cook run a new high-speed, rotary letterpress just installed as well as the

LIVERMORE VALLEY PUBLISHING CO.

LOWELL E. JESSEN, Publisher
M. R. HENRY, Associate Publisher

Livermore Ave. — P. O. Box 31 — Phones: Hilltop 7-2111, Hilltop 7-2112, Hilltop 7-3545

LIVERMORE, CALIFORNIA

March 11, 1960

Dear Bob,

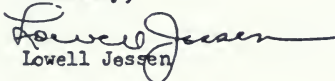
Again my personal thanks for helping us over several tough problems on our press runs.

In fact, you're the Babe Ruth of the flat bed web circuit.

We appreciate your willing and understanding disposition, and trust that our paths will cross again.

Hope you have a lot of fun working on your book, and that you'll enjoy a quiet time among those noisy Texans.

Sincerely,


Lowell Jessen

MEMBERS OF —
Livermore Herald
Livermore News
Shopping News -
Valleys Advertiser

COMMERCIAL PRINTING —
and - News Press

1a
complimentary letter from Jessen to Cook after Cook helped in several emergencies at the Livermore News pressroom (worked elsewhere at the time).

April 24, 1958

Mr. Frank Baker, manager
Flatbed Service Department
Goss Printing Press Company
5601 West 31st Street
Chicago 50, Illinois

Dear Frank:

In response to your latest letter, our pressman is preparing to send you drawings and other pertinent data on his applied-for-patent automatic depression compensator.

His name is Robert L. Cook. His address: 200 Waltham Road, Concord, California. Phone: MULberry 2-4109.

The idea back of it is simple. The compensator itself looks complicated in the drawings, though there is only one difficult pin to perfect.

Bob is prolific with ideas. As I said before, he has an automatic mailing machine that will handle flatbed or cylinder mailings right from the press. One of them is in operation. He worked out a two-color arrangement for a Model E, enabling the shop to print many thousands of spot color handbills and tabloids for large concerns. He is the one who figured how to spot color on our three-decker and had the patience and skill to do it.

Bob's attorney advises him to sell his idea, or take royalties, thus freeing him to work on other ideas. You'll find him a fine person to work with.

Now, when do we get the slitter I ordered from you? We'll need it early in June.

Sincerely,

Lowell E. Jessen

Ex. 4-1b

An interesting letter from Jessen to the Goss Printing Press Company regarding Cook's inventive abilities

otype department. When Sackett announced his plan he created quite a controversy with the unions, who felt him to be a candidate for the bug factory for suggesting that a pressman who had never run a new press (or any stereotype department) could possibly handle these jobs. Either position required a year apprenticeship, which Cook didn't have.

Sackett ignored his critics and sent Cook to El Bay, Oregon to train on similar equipment at the newspaper he owned, *The World*. Using his leverage, Sackett forced the unions to accept Cook. In only three days of instruction in Oregon, Cook moved to California to run both departments. It took a few weeks for the newspaper to look as good or better than any in the city.

All the while, Cook was rapidly becoming an expert in rotary motion, gaining practical experience in on-the-job education for what was yet to come. He learned to consider the critical factors involved in the speeds of spinning masses, and how to transfer an object from one set of rollers to another at very high speeds. He learned some of the most complex combinations needed to run multiple units at different time phases. Most importantly, he developed a tremendous feel for forces and inertia.

There were both centrifugal and Coriolis forces involved in the presses. As a matter of fact, tremendous centrifugal forces were developed. In super high-speed letterpresses, for example, the heavy lead print-cylinders on the press tended to be pulled away from the plate cylinders holding them, by centrifugal force. In impression adjustments had to be made to compensate. Coriolis forces were present as the rollers in the folder continuously spun in and out of the cutting cylinder. And, of course, there were problems with inertia and torque. Huge rolls of paper weighing as much as 2,000 pounds—spinning at high speeds had tremendous inertia. When making a change, the agency stops the press would quit, but the inertia of the rolls would sometimes continue to feed paper between the ink and press rollers, and if not stopped in time could damage thousands of dollars worth of gears.

Cook's awareness of these forces and his feel for the dynamics of spinning masses have combined with his acute intuition to provide the tools for developing a new propulsion system. His experience in the field of flying also contributed knowledge that would later prove invaluable. He received his private pilot's license in 1956 and, a year later, bought a run-around Timm navy trainer so badly in need of repairs it was claimed the plane would never fly again. But Cook, at 23 and with absolutely no background as an airplane mechanic, repaired that plane so that it passed inspection. The plane did fly. Cook later purchased a four-passenger Piper PA 12 and, after its sale, bought a child F-24 which also required repairs. So without formal training in this field Cook soon found him-

self trouble-shooting airplanes with—we may add—great success.

One noteworthy example involved a small Mexican airliner used by a "trunk line" in the State of Chihuahua in 1961. The pilot was clearing customs in Presidio, Texas, en route to Champs Aviation in El Paso, Texas, where the plane was purchased, and now needed important repair work. While in Presidio the pilot offered Cook (who had come to see the plane out of curiosity) a ride to El Paso and back that day if Cook would help with the fuel costs. He agreed. The repairs entailed adjusting the plane's rate-of-climb indicator—a simple job—and the gas gauge, which seemed to have a mysterious problem. The gauge had been checked by the mechanics in Chihuahua City, Mexico, but they couldn't find the problem. In fact one mechanic had accompanied the pilot for the explicit purpose of learning how to repair this sort of gauge problem. When the master switch was turned on with the engine off or idling, the gauge worked fine, but once the engine was started and "revved" up to a high speed, the gauge suddenly stopped working. It was hoped that these repairs could be made by returning the plane to the dealer in El Paso.

Cook's awareness of these forces and his feel for the dynamics of spinning masses have combined with his acute intuition to provide the tools for developing a new propulsion system.

In El Paso, at Champs Aviation, the chief mechanic got on the repairs immediately and solved all the problems except for the gas gauge, whose malfunctioning was the prime reason for the trip. Other mechanical experts had no more success so the afternoon return flight to Presidio was postponed. The following day the mechanics still had failed to find a solution. Cook in the meantime was itching to take a close look at the situation because of a pressing desire to return home. But every time he got near the plane that morning he was told to stay away. Late in the afternoon, he again got close to the plane. An American mechanic had just pulled the gas gauge out and handed it to Cook, thinking the gauge defective. Cook studied the instrument but just couldn't see anything wrong with it and, replacing the old gauge with a new one, had not solved the problem.

Given an opportunity to study the instrument panel with all the covers pulled off Cook noticed that the fuel gauge was sitting on top of the oil pressure gauge. He spotted the trouble at once. The gas gauge was electrical and had two small electro-magnets that moved the needle. The oil pressure gauge, in turn, had a Bourdon tube, which expands with pressure. Cook envisioned the engine "revving" up and the Bourdon tube expanding and making contact with the electro-magnets. This process would affect the magnetic field and cause the needle of the gas gauge to move to the "empty" position. "I see your problem," Cook told the mechanic. "Simply elongate the holes and separate the instruments. That will cure your trouble." Thus, within minutes, Cook had uncovered a difficulty that had mystified experienced mechanics of two countries.

Another instance involved a Piper Twin Comanche with fuel injection engines. On a hot day this engine was very hard to restart if it had recently been flown. Cook didn't like the factory instructions, which recommended advancing the mixture control while the throttles were mostly closed. After an indication appeared on the fuel flow meter, the mixture

control was to be put in the cutoff position. Then the engine was to be cranked over. The pilot was to keep the electric fuel pumps running at all times during the start. Cook objected to this. If the electric fuel pumps were left on while the engine was started, and the pilot followed the factory instructions of turning the mixture control wide open (after the engine fired) the procedure could feed tremendous amounts of raw fuel into the cylinders if the engine failed to "rev" up. If the engine stalled and the pilot left the mixture control in the full rich position, the electric fuel pumps would keep feeding more raw fuel into the engine, and this could create more trouble, sometimes a dangerous fire.

Cook developed his own surprising technique. He primed the engines by turning on the electric fuel pumps, primed both at the same time, and, before turning them over, turned both electric fuel pumps off. So in case the engine didn't fire immediately there was no way the fuel could flood the engine. (The mechanical pump would supply the fuel if the engine revved up.)

Ted Thomas, then vice president of National Aviation in Concord, California, was flying with Cook one day and saw him do this. "There's only one thing



"What we need here is a magician"

like about your methods," Thomas said. Cook startled until Thomas concluded, "They work better than mine." From then on, the starting instruction for that airplane included a notation that the plane be started with Cook's method.

Through experience, and through exposure to a variety of aircraft, Cook became extremely knowledgeable about the basic principles of aviation. He had a tremendous natural "feel" not only for airplane engines and printing presses but for any complex mechanical equipment.

Once, he even repaired the water supply system in his home town, Presidio, Texas. Presidio had the latest in this kind of equipment. The system was so complicated that no one in town could fix it. When it needed repairs, a factory-trained expert from Albuquerque, New Mexico, would have to be flown in. After this expert's death, the city could find no one at all to do needed repair work. In 1970, Cook was in Presidio experimenting on his reactionless system when he heard the waterworks hadn't worked for over three years. He had no experience with such a system, but volunteered to examine it. He found himself way over his head immersed in electrical electronics and a closed loop telemetry system requiring telephone line hookups. Never having dabbled with similar equipment, he was baffled for a week. Finally, by studying the schematics and experimenting with various components, he gradually

zeroed in on the problem. In a few days the system was again working on automatic after nearly three years of being operated manually. Insofar as troubleshooting machines goes, Cook has yet to fail.

There are several facets to Cook's inventiveness. A commitment to simplicity and a deep, stubborn streak are two. Thomas Edison shared this latter quality. He felt that the trouble with most inventors was that they tried a few things and then quit. He himself never quit until he got what he wanted.

Cook has always loved simplicity. ("I kill myself trying to figure out the easy way.") His approach is to start with a general idea that works and trim away at it. ("I think the supreme excellence is simplicity, and that is what I strive for in my work.") One of the most marvelous aspects about Cook's inventions is indeed their beautifully simplified design, which allows them to be built by most competent machinists.

Robert Cook is a natural, authentic mechanical expert. He has evidenced the ability to consider the insignificant but vital details of machinery that many conventional experts overlook. At the same time, he sees through the intricate complexities of sophisticated systems (as our transportation network) to embrace the kind of simplifications that nature herself admires. Clearly, such a brilliant and creative mechanical mind should be listened to very carefully as he presents desperately needed, realistic solutions for seemingly impossible problems.

5. The Failures

What sort of history lies behind the reactionless drive? Who has experimented on these drives? What were some of their results? What forces were used to propel? Before studying the Cook drive, let's consider these questions in order to gain a perspective on the development of this idea.

The concept of trying to propel by producing an internal force is not new. This principle, though declared as one that violates Newton's laws, has nonetheless been heeded by inventors worldwide. Over 50 patents have been granted to inventors experimenting in this field.

The following list of these patents indicates the scope of and approaches to this effort.

1. Atto, Y *Propulseur magnetique*. French Patent No. 1,143,489. Issued April 15, 1957.
2. Auweele, A. J. *Prime mover*. United States Patent No. 3,492,881. Issued February 3, 1970.
3. di Bella, A. *Apparatus for imparting motion to a body*. United States Patent No. 3,404,854. Issued October 8, 1968.
4. Benjamin, P. M. *Centrifugal thrust motor*. United States Patent No. 3,750,484. Issued August 7, 1973.
5. Brich, J. *Propulseur gyroscopique à impulsions*. French Patent No. 1,347,123. Issued November 18, 1963.
6. Canot, A. C. C. *Propulsion d'aéronefs ou d'autres véhicules par utilisation de l'énergie cinétique*. French Patent No. 1,458,088. Issued October 3, 1966.
7. Codebo, A. *Umlaufschlagflügelsystem*. German Patent No. 632,908. Issued December 25, 1934.
8. Cook, R. L. *Propulsion system*. United States Patent No. 3,683,707. Issued August 15, 1972.
9. Cuderman, A. *Centrifugal force propulsion*. Canadian Patent No. 837,448. Issued March 24, 1970.
10. Cull, C. *Device for converting rotary motion into a unidirectional linear motion*. United States Patent No. 3,968,700. Issued July 13, 1976.
11. Dean N. L. *System for converting rotary motion into unidirectional motion*. United States Patent No. 2,886,976. Issued May 19, 1959.
12. Dean N. L. *Variable Oscillation system*. United States Patent No. 3,182,517. Issued May 11, 1963.
13. Dextrau, D. C. J., and Comastri, B. R. G. *Dispositif antigravitationnel*. French Patent No. 1,377,261. Issued September 28, 1964.
14. Drescher, B. *Einrichtung zum Beschleunigen und Abbremsen von Fahrzeugen, insbesondere von Raumfahrzeugen*. German Patent No. 2,061,914. Issued June 29, 1972.
15. Estrade, F. *Device for transforming kinetic energy*. United States Patent No. 3,807,244. Issued April 30, 1974.
16. Evard, A. H. *Machine transformatrice d'énergie*. French Patent No. 1,340,196. Issued September 9, 1963.
17. Farrall, A. W. *Inertial propulsion device*. United States Patent No. 3,266,233. August 16, 1966.
18. Foster, R. E. *Converting rotary motion into unidirectional motion*. United States Patent No. 3,653,269. Issued August 19, 1972.
19. Gairing, E. *Floating Tool Holder*. United States Patent No. 1,311,960. Issued August 5, 1919.
20. Gardner, C. B., Jr. *Self propelled vehicle*. United States Patent No. 1,731,303. Issued October 15, 1929.
21. Goldschmidt, R. *Propulsion of vehicles*. United States Patent No. 1,511,960. Issued October 14, 1924.
22. Halvorson, E. M., and Schwartz, K. *Vibration driven vehicle*. United States Patent No. 3,530,617. Issued September 10, 1970.
23. Hermann, H. *Autokinetischer Antrieb*. German Patent No. 1,556,820. Issued March 5, 1970.
24. Kellogg, M. D., Jr. *Gyroscopic inertial space drive*. United States Patent No. 3,203,644. Issued August 31, 1965.
25. Kuhn, J. *Getriebe mit Veränderlicher Übersetzung*. German Patent No. 425,244. Issued February 13, 1926.
26. Laroche, A. *Système de locomotion sans transmission*. French Patent No. 559,565. Issued June 19, 1923.
27. Laskowitz, I. B. *Centrifugal variable thrust mechanism*. United States Patent No. 1,953,964. Issued April 10, 1933.
28. Laskowitz, I. B. *Centrifugal variable thrust mechanism*. United States Patent No. 2,009,780. Issued July 30, 1933.
29. Lehberger, A. N. *Centrifugal propulsion drive and steering mechanism*. United States Patent No. 3,897,692. Issued August 5, 1975.
30. Llamozas, J. D. M. *Direct push propulsion unit*. United States Patent No. 2,636,340. Issued April 28, 1953.
31. Lundberg, F. R. *Mechanical propellant and steering mechanism*. Australian Patent No. 267,091. Issued November 21, 1951.
32. Matyas, L. B. *Propulsion apparatus*. United States Patent No. 3,584,515. Issued June 15, 1971.
33. McAlister, R. E., and McAlister, T. J., Jr. *Propulsion system*. United States Patent No. 3,756,086. Issued September 10, 1973.
34. Miller, C. L. *Reciprocating Mechanism*. United States Patent No. 1,280,269. Issued October 1, 1918.
35. Modesti, J. N. *Manned disc-shaped flying craft*. United States Patent No. 3,537,669. Issued November 3, 1970.
36. Neff, T. *Reaction motor*. United States Patent No. 2,001,557. Issued July 27, 1937.
37. Neimann, P. *Vorrichtung zum Ausgleichen von Unregelmäßigkeiten im Gang von langsam laufende Maschinen*. German Patent No. 63,188. Issued September 11, 1911.
38. Novak, L. J. *Centrifugal mechanical device*. United States Patent No. 3,810,394. Issued May 15, 1974.
39. Nowlin, A. C. *Device for obtaining directional force from rotary motion*. United States Patent No. 2,350,248. Issued May 30, 1944.
40. Paillet, J. E. D. *Procédé et dispositif pour l'obtention d'énergie*. French Patent No. 933,483. Issued January 1, 1955.
41. Peltier, J. *Impulseur — propulseur mécanique à réaction d'inertie*. French Patent No. 967,839. Issued April 5, 1958.

47. Schieferstein, G. H. *Verfahren und Vorrichtung zur Fortbewegung mechanischer Vorrichtungen*. Austrian Patent No. 115,928. Issued January 25, 1930.
48. Schnur, N. J. *Method and apparatus for propelling an object by an unbalanced centrifugal force with continuous motion*. United States Patent No. 3,979,961. Issued September 14, 1976.
49. Spies, J. *Luft- und/oder Raumfahrzeug*. German Patent No. 2,032,416. Issued January 5, 1972.
50. Trivellin, E. *Dispositivo atto ad imprimere un moto in qualsiasi direzione a dei mezzi mobili*. Italian Patent No. 573,912. Issued March 6, 1958.
51. Young, H. W., Jr. *Directional force generator*. United States Patent No. 3,555,915. Issued January 19, 1971.
- Avot, C. *Dispositif vibreur à masselottes à double mouvement*. French Patent No. 1,063,784. Issued December 12, 1953.
- Slings, S. *Propulsion mechanism*. United States Patent No. 43,978. Issued January 14, 1930.
- Wish, W. L. *Rotary vibrator device*. Canadian Patent No. 1,568. Issued March 2, 1965.
- Ed, A. *Mechanism utilising inertia to obtain translational movement*. British Patent No. 770,555. Issued March 30, 1957.
- ades, C. W. *Improvements in or relating to centrifugal mechanism*. British Patent No. 162,334. Issued April 18, 1911.

Serial No. 813,529

Art Unit 346

...In accordance with Newtons' Law of Action and Reaction, a reactive thrust is generated when the weight is shifted, so that no net thrust can be generated. The Office will not go into a detailed mathematical analysis. The device, therefore, is deemed to be inoperative in the manner and for the purpose described.

Claims 1-8 are rejected under 35 U.S.C. 101 as based on a device lacking in utility for the reason that it is inoperative as pointed out above. This ground of rejection can be avoided only by this presentation of a working model in accordance with the disclosure...

Until now most of these patents have been rejected both by the scientific community and by private enterprise, although many inventors have built and demonstrated models that work on a limited basis. Of those devices that do propel, most move in a series of jerks or surges. In fact, the U.S. Patent Office now often requires a working model before issuing a patent, precisely because the principle involved is cited as being contrary to the laws of physics. The initial Cook patent was rejected for this reason (See Exhibit 5-1). It was only accepted later when a bona fide working model was presented.

In Cook's case a man named John Graham, a licensed patent attorney and industrial mechanical engineer, signed a sworn affidavit that the machine did indeed work. This affidavit satisfied the U.S. Patent Office.

We have studied most of these patents. Slowly, we educated ourselves, adding to our knowledge of inertial forces by analyzing what was tried before. (Edison found that sometimes by learning 100 wrong ways of doing something you find the right way.)

We have heard repeatedly, "If such a thing were possible, out of all the millions of machines built and mechanical actions studied, surely someone would have stumbled on it by accident." We strongly doubt it. These words mask the familiar proposition, "If the idea is so great somebody with proper credentials in the field would have thought of it years ago. So there is something wrong with your idea." To put together a never-done-before machine that propels efficiently is to traverse a very narrow trail strewn with landmines and booby traps. We have stepped on our share.

Of the inventors we researched in this area we could only find two others persistent enough to obtain a second patent: Laskowitz 1934, 1935; Dean 1959, 1963. (Cook himself, 1972, 1980.) Both the Laskowitz and Dean second patent were similar in principle to their first. In contrast, the latest Cook patent is not an extension of his original 1972 version. It is, rather, based on an entirely new principle. Cook seems to be the first person in history to have patented two successful and distinct principles for inertial propulsion.

Any discussion of the various attempts to propel through internal means requires an understanding of some fundamental nomenclature, as well as some knowledge of the basic forces produced by rotary motion. In preparation then, here is how we define the terms we use:

angular momentum—determines the energy or force value of the object moving in a circular path. (The angular momentum is the factor that determines the energy contained within a spinning mass)

angular velocity—rate of change of direction of a mass

centrifugal force—the inertial effect produced when an object is constrained to move in a circle. (This force can be viewed as the equilibrant of centripetal force)

centripetal force—the inward pulling force that causes an object to move in a circle

Coriolis force—the inertial effect occurring when a mass is constrained to move radially across a rotating body

gyroscopic force—resistance to torque that would change the position of the axis of a spinning mass

impulsive force—force acting for a short time but sufficiently large to cause some change in momentum

inertia—the tendency for matter to remain in a state of rest or in uniform motion

kinetic energy—work the object can do by virtue of its motion. (The higher the speed, the more the work potential)

linear momentum—determines the energy or force value of the object moving in a straight line (The linear momentum is the factor that determines the energy contained within a linear moving mass. Linear momentum is a product of mass and velocity.)

linear velocity—speed the object is moving in a straight line

power—rate of doing work

rotor—in the Cook system, a propellerlike unit having weight(s) spinning around the center shaft

torque—twisting or turning action

Although it appears that most forces and effects involving mechanics have been "accounted for," the following thoughts of Einstein and Infeld should be kept in mind:

When first studying mechanics one has the impression that everything in this branch of science is simple, fundamental and settled for all time. One would hardly suspect the existence of an important clue which no one noticed for three hundred years. The neglected clue is connected with one of the fundamental concepts of mechanics—that of mass.

In like manner, a more complete understanding of inertial forces will unlock several clues concerning the existence of internal propulsive forces that also have gone unnoticed for over three hundred years.

Now let's briefly examine centrifugal force, centripetal force, Coriolis force, gyroscopic force, and tangential force. There are a variety of ways to define these forces. We have chosen to view and treat these forces in our own way based on our observations.

THE CENTRIFUGAL AND THE CENTRIPETAL FORCE

In our study of the various propulsive mechanisms with spinning masses, we have chosen to view the resulting forces from a rotating frame of reference. The general theory of relativity admits that the explanations of both rotating and nonrotating observers are equally valid. We are concerned with what forces affect the center of the mechanism.

For example, consider a volunteer turning at the same angular speed as a ball attached to the end of a string he is holding (Fig. 5-1). This is a rotating frame of reference, and from the volunteer's point of view the ball has no acceleration and is at rest. The outward centrifugal force produced by the ball is balanced by the inward pull of centripetal force.

The magnitude of these forces are given by the following equations:

$$F = m\omega^2 r \quad (\text{radially inward})$$

$$F = -m\omega^2 r \quad (\text{radially outward})$$

where m = mass, ω = angular velocity, and r = radius of the circle of motion. We view as a fact that either of these forces can exist without the other.

In our example, centrifugal force is a very real force for the rotating observer, and similarly, is an effective force on the center of the mechanisms we study. As you will soon see, it is this very real inertial force that will be harnessed to effectively propel the CIP engine.

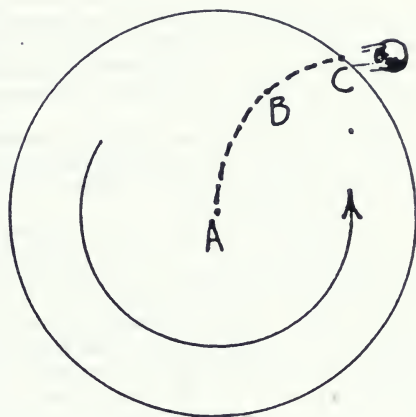


Fig. 5-2

Deflection of ball as seen by rotating observer at center A.



5-1

In a rotating frame of reference a rotating ball seems to be at rest in relation to the observer.

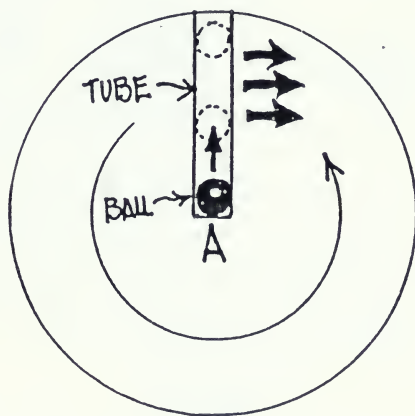


Fig. 5-3

A negative Coriolis force acting perpendicular to the spinning tube.

CORIOLIS ACCELERATION AND CORIOLIS FORCE

A proper understanding of Coriolis force and being able to properly distinguish it from Coriolis acceleration is essential for comprehending many of the patents we'll be reviewing. Both meteorologists and hydrologists must consider Coriolis effects when plotting wind or ocean currents.

Again, we have chosen a rotating frame of reference. Coriolis force can be defined as *the inertial effect occurring when a mass is constrained to move radially across a rotating body*.

The following is how we view the distinction between Coriolis force and Coriolis acceleration. Imagine rolling a steel ball away from center A on a frictionless platform rotating counterclockwise at constant angular velocity. As the ball moves radially away from center A it is unable to match the higher tangential velocity of points B and C. (The ball cannot increase its tangential velocity because there is no friction.) Since the ball does not increase its tangential velocity it appears to curve to the right (as seen by the rotating observer at center A [Fig. 5-2]). The outside observer, however, will see the ball move in a straight line. This effect gives evidence that there must be a Coriolis acceleration and it is defined by the equation

$$a = 2\omega v_r$$

where ω = angular velocity, and v_r = radial velocity.

Let's again imagine a steel ball rolling away from center A on the platform rotating counterclockwise. This time, the ball is forced to roll through a smooth tube. The relative acceleration from the previous example now becomes a force pushing on the right side of the tube, trying to slow the angular velocity of the platform (Fig. 5-3). The force is perpendicular to the radial motion of the ball. This negative Coriolis force (when pitted against a positive torque) then registers a positive force on the center of rotation. (One of Cook's earlier models utilized this Coriolis force to propel.) The Coriolis force is the same deflecting force you would feel pushing you sideways should you walk outward on a spinning merry-go-round.

If on the same platform the ball were forced to return from B to A, the opposite would happen. The ball's inertia resists reducing its angular velocity, and it does so by pushing on the left side of the tube, trying to increase the angular velocity of the platform. The force is produced on the left side of the tube (Fig. 5-4). The magnitude of this force is expressed as

$$\text{Force} = 2\omega v_r m$$

where ω = angular velocity; v_r = radial velocity; and m = mass of ball. (Note that when dealing with Coriolis acceleration [$a = 2\omega v_r$] mass is not included in the equation because this motion is a relative acceleration

between a spinning body and a radially moving body. In the case of Coriolis force note that the masses move in such a way as to *react against* one another and therefore, their weight must be considered in order to measure the reactive force.)

Whenever a mass changes its radius with respect to the center of a uniformly rotating body we have to consider Mr. Coriolis.

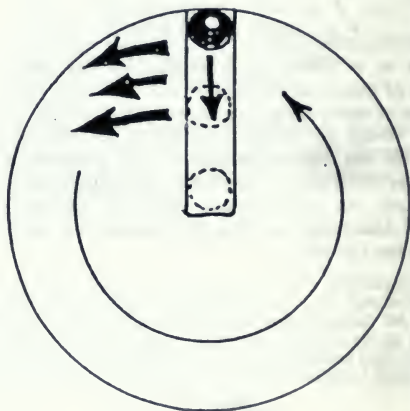


Fig. 5-4

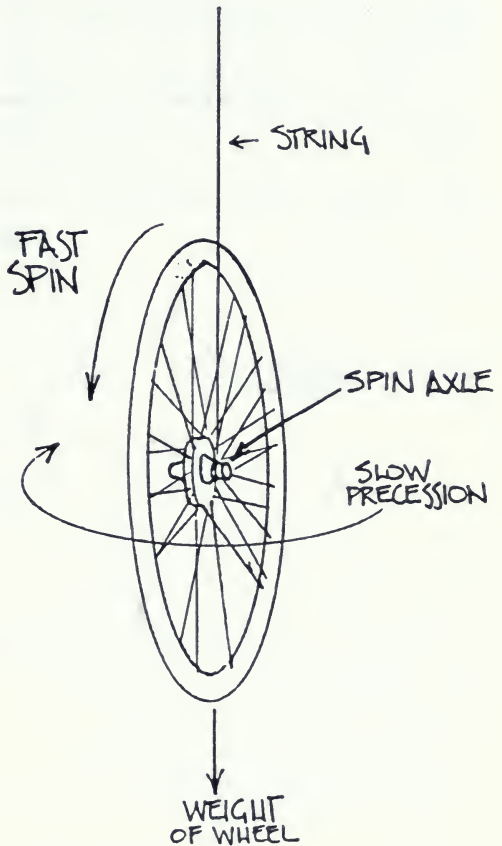
A positive Coriolis force acting perpendicular to the spinning tube.

GYROSCOPIC FORCE

A spinning top is a good example of a gyroscope (Fig. 5-5). The top tends to maintain its position in space because of the inertia of the rapidly spinning body.

A gyroscope rigidly resists being disturbed and reacts to a disturbing torque by precessing (rotating slowly) at right angles to the torque. This principle can be demonstrated with a suspended bicycle wheel spinning at high speed. To observe precession, a force is applied steadily. The wheel is found to precess slowly, not about the axis of the applied torque, but about an axis perpendicular to it and perpendicular to the spin axis (Fig. 5-6).

Any high-speed rotor is like a gyroscope. When torque is applied, the rotor wants to precess. If a rigid rotor is prevented from precessing, a force registers in the system.



TANGENTIAL FORCE

Another force we encountered was a *tangential force*, which is produced when a small spinning mass is briefly angularly accelerated or decelerated. The tangential force can be produced by a brief torque, a change of radius producing a tangential Coriolis force, or by any briefly applied force angularly speeding up or slowing down the spinning mass. (Remember that a tangential force can produce a brief torque and that likewise a brief torque can produce a tangential force.) If we briefly change the angular velocity (Fig. 5-7) of the mass at different positions during each revolution and the radius remains constant, outside tangential forces or brief torque will account for the change in angular momentum.

How might we propel using our knowledge of these forces? In evaluating any given unbalanced rotor, we must remember that by adding a second synchronized counterrotating rotor, all lateral forces are canceled.

Vector A has two components in the two-dimensional plane: a vertical component B and a horizontal component C. Thus, as our single mass rotates we have both vertical and horizontal forces. By adding a second counterrotating rotor we cancel the horizontal forces (Fig. 5-8). This canceling results in a two-directional force.

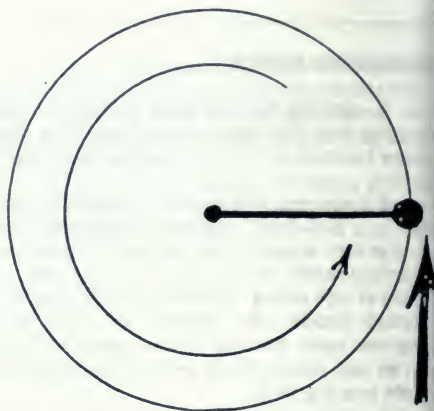


Fig 5-7

Force vector produced at this point by tangential force or positive torque.

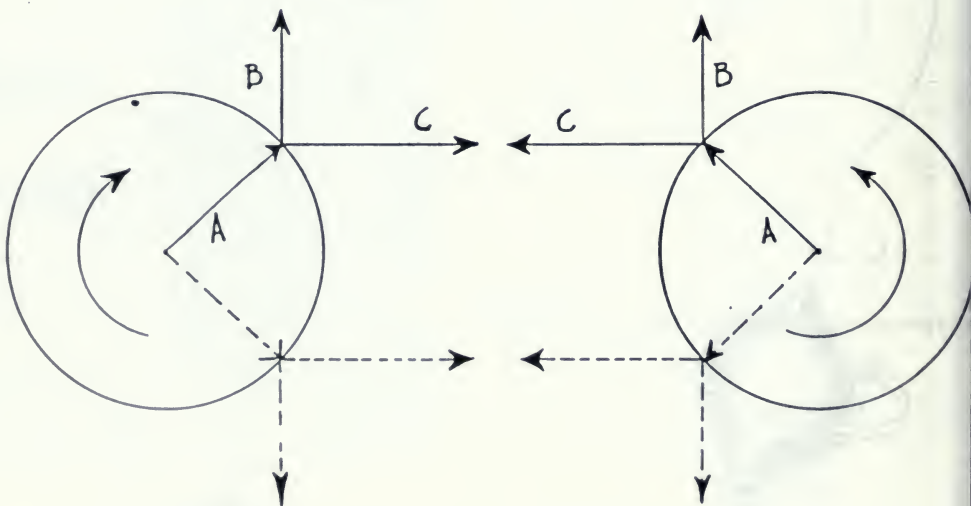


Fig 5-8

The cancellation of horizontal forces produces a two-directional force

Let's now look at possible ways to propel. Let's imagine a mass spinning in a circle. For 180° of travel from A to B we produce positive centrifugal force, and 180° from B back to A we produce negative centrifugal force. Over 360° , the forces cancel (Fig. 5-9).

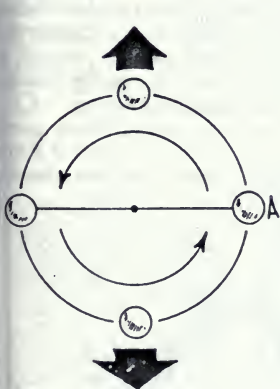
One possibility would be to make our mass spin faster for the positive 180° than for the negative 180° (Fig. 5-10). A greater angular velocity will produce greater centrifugal force in the forward direction. So to speed up our mass at point A by applying positive torque, and (at point B) slow it down by applying negative torque. Unfortunately, this doesn't work. To speed up our mass at A results in a negative tangential force. The same negative force appears at B when we slow our mass down. The two negative impulses cancel out what we gain by the additional centrifugal force. No matter what combinations of acceleration and deceleration we try, we can't propel with this principle.

Many inventors have tried a slightly different approach to reap the advantages of the powerful and easily generated centrifugal force. For example, some devices have rotated mass members and shifted the

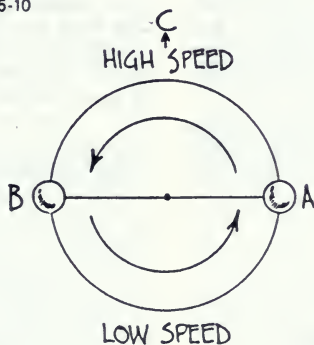
center of gravity relative to the axis of rotation. It thus seems another simple way to propel would be to eliminate the negative 180° of travel.

At position B shoot the mass through the center back to position A, therefore eliminating the 180° of negative centrifugal force (Fig. 5-11). If our mass followed a frictionless path, the lateral force developed at B accelerating the mass through the center could be canceled by the lateral impact force at A stopping its momentum. We know we produce a positive centrifugal force in the forward direction for approximately 180° . Is this, then, an unbalanced force? Let's evaluate what happens to our mass as it moves from position B to position A. Remember, whenever we change the radius of a mass on a rotating body we introduce Coriolis force. (The same as walking radially on that merry-go-round.)

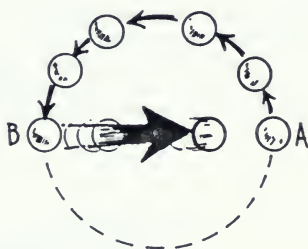
At position B the mass is traveling at its maximum angular velocity. When shot toward the center, it has to slow down and lose some of its angular momentum. Some of its energy has to be drained. Its inertia at point B resists change, and as it moves



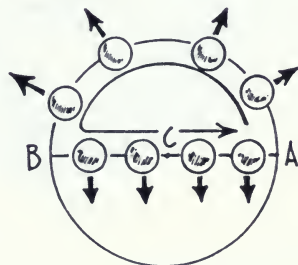
5-9



5-11



5-12



5-9

Centrifugal forces in equilibrium.

5-10

Positive centrifugal force counterbalanced by negative tangential forces and negative centrifugal force.

5-11

Proposed method of producing an unbalanced centrifugal force.

5-12

Centrifugal forces and Coriolis forces in equilibrium.

radially toward center C a positive Coriolis force results perpendicular to the radial motion (thus producing a negative effect on the system).

From center C back to A the mass now resists increasing its angular velocity (negative Coriolis force), which again produces a negative effect on our center. The two negative effects of the Coriolis forces have exactly canceled our positive centrifugal force, and again we have a balanced system (Fig. 5-12).

Several inventors have patented this principle. Witness, for example, the 1934 *Laskowitz drive* (Fig. 5-13). This drive had a series of spinning weights fitted into cylindrical bores. The radius of rotation of the weights would be changed at various points (Mr. Coriolis) to produce a positive centrifugal force that hopelessly propelled. The radius of one weight was increased while the radius of the other was decreased. This motion unfortunately imparted two simultaneous negatively acting Coriolis impulses on the center, canceling the positive centrifugal force.

In 1944, the *Nowlin drive* was patented (Fig. 5-14). This drive had a series of gears extending and retracting a series of cranks attached to a propellant mass. The object was to extend the propellant mass in this telescopic fashion at the required position to supposedly produce an unbalanced centrifugal force. Again, due to both the timing of the mechanism and the shifting position of the weights, the changes of the radius caused negative Coriolis effects, which canceled the positive centrifugal force.

The *Matyas drive* of 1971 (Fig. 5-15) tried it a bit differently. A pool of mercury was the propellant mass, and the greater concentration of mass was

maintained on the positive half of the system by series of pistons that forced the mercury back toward the center of rotation at certain intervals. This method was yet another way of changing the radius of the propellant mass. Because of the machine's timing, the Coriolis again neatly balanced the lopsided centrifugal forces. Another balanced system.

The *Novak drive* (Fig. 5-16) was patented in 1974. Novak had a series of off-center rotating masses timed to take advantage of the positive centrifugal force. Same principle, same results — a balanced force.

The *Cuff drive*, (Fig. 5-17) patented 1974. Change radius — negative Coriolis effects — balanced positive centrifugal force.

Two variations of these principles were published as advertisements in the *Washington Post*, the first on Sunday, October 25, 1970 in a piece by Nik Nhol titled "Thrust from Energy." Mr. Nhol suggested filling and emptying tanks with liquid at certain positions timed at different angular velocities. (See Exhibit 5-2). A similar idea appeared again in an advertisement in the *Post* on November 22, 1971 with the heading "Momentum Always Conserved?" Our own experiments with similar principles have all failed.

There have been yet other patents applying this principle. So far, all have failed because it seems that there is a misunderstanding of the Coriolis force effects. No matter what combination you choose, you cannot produce an unbalanced force and propel in this way. It seems to be a dictate of nature.

Other inventors have tried to propel using a different principle — the sudden application of a force. Known as *impulse drives*, these try to take advantage

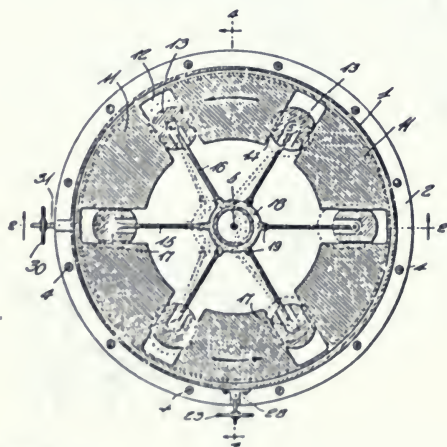


Fig. 5-13

Laskowitz drive.

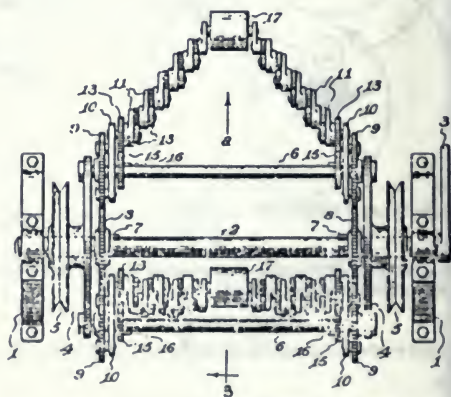


Fig. 5-14

Nowlin drive.

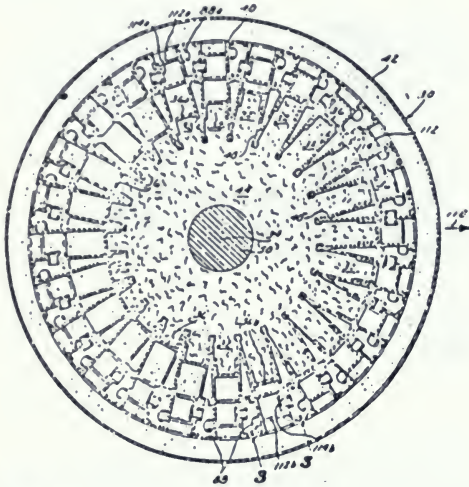


Fig. 5-15
Matyas drive.

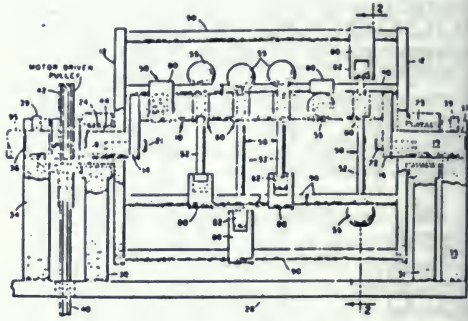


Fig. 5-16
Novak drive.

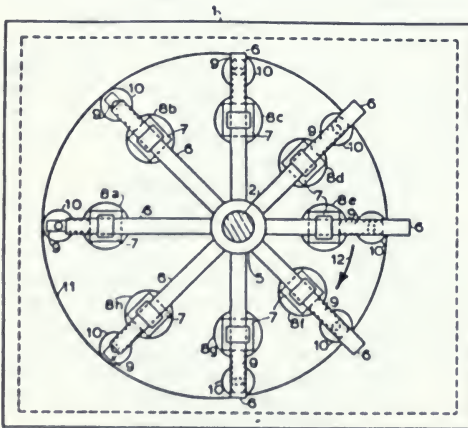


Fig. 5-17
Cuff drive.

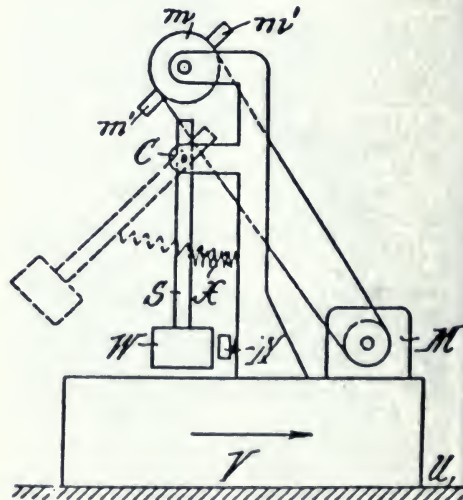


Fig. 5-18
Goldschmidt drive.

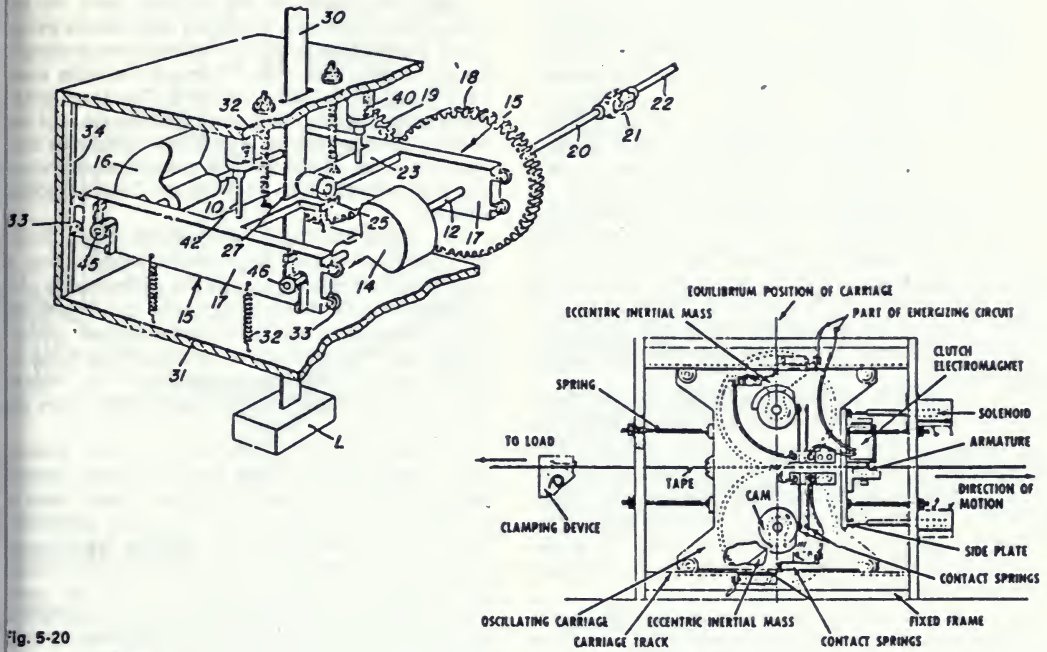
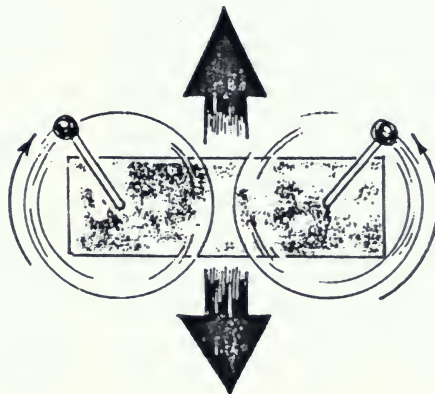


Fig. 5-20
Dean drive.

Fig. 5-21
The heart of Dean's mechanism.



Dean took advantage of the positive centrifugal force to propel the load, and with the aid of static friction prevented the negative centrifugal force from moving the system backwards. When the weights were producing positive centrifugal force on the load, the electro-magnetic clutch grabbed the rigid load tape thus transmitting an impulse that pulled the load forward and moved the carriage into the forward position on the fixed frame.

When the weights swing to the opposite side producing negative centrifugal force, the electro-magnetic clutch releases the rigid steel tape which is then prevented from moving backwards as the oscillating carriage returns on the track to its starting position. By activating the solenoid at just the right timing and by properly adjusting the springs, Dean could slow the carriage's return and prevent it from overcoming the static friction of the load. (It is important to note that the clamping device provided a rigid connection between the main frame and load on the negative force cycle.)

Therefore, the machine overcomes the static friction and moves forward on the positive cycle. On the negative cycle, the springs worked in unison with the solenoid which had a cushioning effect and prevented a large enough negative impulse to be translated to the load and move the machine backwards. Dean's machine did propel across the floor. In space, however, without the aid of friction, his model would only produce bounded motion.

To test Dean's model one of the first experiments to conduct is to place the load on an air cushion or in some similar way minimize the friction between the load and its support. (This test was also one suggested for Cook's working models.)

Mr. Jacob Rabinow of Rabinow Engineering Company (and the inventor of the electro-magnetic clutch) did an analysis of a Dean model provided to the Air Force Office of Scientific Research in 1961. One of his tests was to use rollers between the load and its support to minimize friction. With less than one ounce of friction the load oscillated at the same frequency as the carriage, but did not advance toward it. Rabinow concluded that if the frictional forces of the load were smaller than the reverse spring forces, and if the positive and negative impulse were equal, the load would move backward due to the spring force, and the net displacement would be zero. Thus, Rabinow's test showed the machine to have no net unidirectional effect on an inertial load if the frictional load is small compared to the mass.

In another test Rabinow used gauges to obtain force-time plots on an oscilloscope. He concluded that both the positive and negative areas were equal and that momentum was indeed conserved.

Finally, Rabinow noted that the load moves toward the carriage if: (1) The positive impulse is

greater than the load's static friction; and (2) the spring force developed during the remainder of the cycle less than the static friction.²

Rabinow concluded that the device was capable of operating as a true space drive. He compared Dean's model to a man on roller skates trying to move a table. By using his own inertia and pushing a series of jerks, the man can move the table even though he's mounted on perfect wheels. The short jerks of force simply need to be greater than the value of static friction between the table and floor. (Bear this explanation in mind. As you will see, it was later erroneously used to explain the success of Cook's working models.)

Static friction aids the impulse drives. Surprisingly (as you will soon see from our experiments), the lack of static friction improved the performance of the working models. Researchers need to find a system that benefits from the lack of static friction. Using inertial force to produce a constant linear force evidently requires a different approach. The impulse-based machines have yet to demonstrate a true reactionless drive.

More ingenious attempts to propel internally have been patented. One class of drives considers using gyroscopic forces to propel. These ideas are interesting. The *Foster drive* (Fig. 5-22) patented in 1972 and the *Kellogg drive* of 1965 (Fig. 5-23) involve gyroscopic forces. The Foster drive was reported to move across the flat surface at 4 mph. Our experiments led us to believe that a gyroscopic space drive, although experiencing limited success on earth, would probably not work efficiently in deep space. (Some of Cook's experiments with the gyroscopic force have

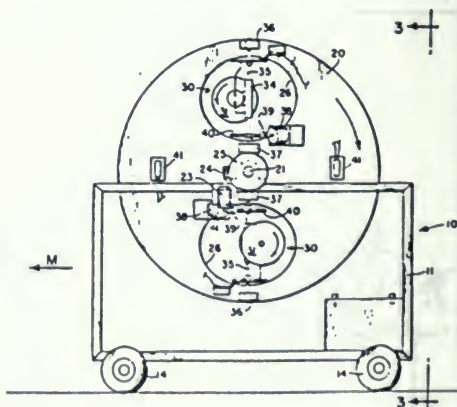


Fig. 5-22

Foster drive.

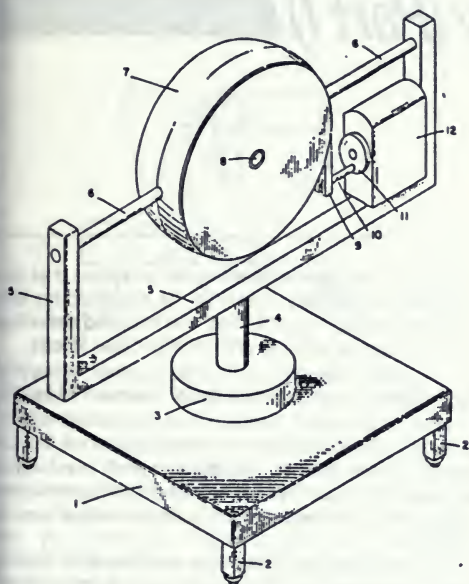


Fig. 5-23

Kellogg drive.

still left him puzzled. Cook intends to continue these experiments at a later time.)

Many of the remaining drives each involve a unique principle. A complete analysis of them would be extremely difficult to present in simplified form.

Some combine Coriolis, centrifugal, centripetal, and gyroscopic forces into supersophisticated machinery. We have either studied or built most of them. Table 5-1 lists selected patents.

Table 5-1 Selected Patents & Their Principle Propulsive Forces

INVENTOR	ISSUED	MAIN PROPULSIVE FORCES
Llamosas	1953	impulse
Kellogg	1965	gyroscopic
di Bella	1968	Coriolis, centrifugal
Auwweele	1970	impulse
Foster	1972	gyroscopic
Young	1971	gyroscopic, Coriolis, centrifugal
Lehberger	1975	centrifugal
Cook	1972	Coriolis, centrifugal, centripetal
Cook	1980	centrifugal

These inventors have been pioneers. Facing the brick wall of the established scientific community takes courage and stubbornness. It comes as no surprise that few have continued their research after initial lack of support. Who wants to finance a project labeled *impossible* by science? We honor these inventors.

Up until now, Newton's laws of motion have prevailed against these machines. However, Robert Cook's CIP engine will put them to their toughest test yet.

Citations, Chapter 5

1. A. P. French, *Newtonian Mechanics* (New York: W. W. Norton, 1971), p. 492.
2. William Beller, "Consultant's Report Overrides Dean Space Drive," *Missiles and Rockets* (June 12, 1961), pp. 24 - 25, 42.

6. The History (Part I)

The year was 1968; the day, February 9. A momentous thing happened on that day: Robert Cook first began the research that will, when fully understood, unlock some of the greatest mysteries of the universe.

What sparked the beginnings was a work Cook had written and wanted published. Being an unknown, however, no one took his book seriously. He was advised that, in order to get his work published, he should create a public following, generate a base of interest. Being an inventor he decided to attempt the so-called "impossible" to gain public attention. Nothing mechanically had ever permanently stumped Cook,

To Cook, the Universe itself was a gigantic perpetual motion machine.

who had figured out some of the world's most complex machinery. But what was impossible? He pondered this question at length. Well, no one had ever built a successful perpetual motion machine.

To Cook, the universe itself was a gigantic perpetual motion machine. It had been running for billions of years, doing all this work, exchanging all types of energy, and it showed no signs of slowing down. Cook knew energy could not be obtained from nothing, but why couldn't energy be derived from energy? He felt intuitively there was a way to do this. After many hours of deep concentration, the trail to a new energy source formed in his mind. On February 12, 1968 he made a note to pick up a tinker toy or metal erector set and two bicycle wheels.

Using these crude parts Cook began his experiments on a new energy source. Within a few months he had decided on an idea that he felt should be patented.

Thus, in the Spring of 1968, Cook visited the law offices of Gardner and Zimmerman, patent attorneys of Oakland, California. He had engaged Joseph B.

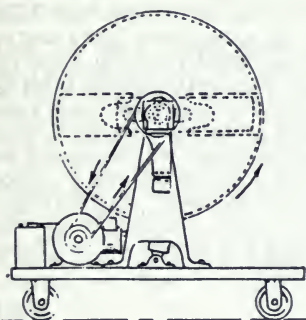
Gardner in the past concerning an invention that dealt with printing presses. This time, he disclosed his idea on a new energy source, one that involved centrifugal force, magnetic effects, and several other forces.

Upon hearing Cook's idea, Gardner, a mechanical engineer, called in his junior partner, Mike Zimmerman, a physicist. Gardner was impressed with the idea, but reminded Cook of the position of the U.S. Patent Office: that all perpetual motion machines to be patented must first be successfully demonstrated. Cook would be required to build an actual working model.

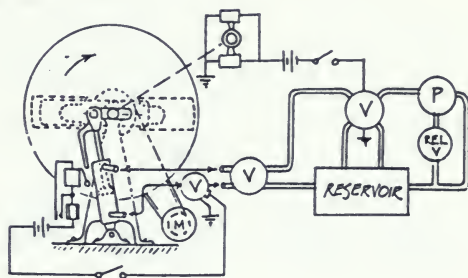
At the time, Cook was employed at Olympic Press in Oakland, so his experiments continued on a part-time basis. Over the next few years he temporarily gave up the printing trade whenever possible to work on the invention. Whenever he ran out of funds, he returned to printing work until he could save enough money to get back to his pet project again.

During the summer of 1968 Cook left his job to visit his home town of Presidio, Texas, where he continued his experiments, the results of which looked promising. One day—while working on one of the series of parts required for the model—he made a mistake. Suddenly, an entirely different picture emerged. With the accidental change, the rotor he was designing was going to propel. Cook reflected on what he had done. He now had two directions he could pursue: Should he continue experimenting with his energy source ideas or begin to develop a possible new propulsion system? Remembering his book and his original purpose, Cook became convinced that a new propulsion system would be easier to promote and much more readily accepted by the public than his "perpetual motion" idea. He would resume his experiments later. Now, he decided to make a commitment to proving, financing, and getting public acceptance of his propulsion system.

The propulsion system, unlike the energy source, would require two counterrotating rotors. To avoid the considerable expense involved in building a two-rotor machine, Cook thought that possibly a small single-rotor model could be built using gravity as an aid. This machine wouldn't propel in a weightless environment, but it could successfully demonstrate the principle. To take advantage of gravity for his purpose,



(a)



(b)

Fig. 6-1

(a) An early CIP concept; (b) schematics of hydraulic system to be used with the early CIP concept shown.

Required knowing just what the acceleration due to gravity was. Presidio, Texas, unfortunately, had no public library. Cook had no idea there was an equation that could determine the acceleration of an object under the influence of gravity. For his single-rotor machine to propel, the acceleration of an object due to gravity had to be greater than 11 feet per second per second.

Using a step ladder and a watch Cook dropped objects to get some estimate of their acceleration rate. The experiments, although extremely crude, proved successful. He satisfied himself that the acceleration of a body under the influence of gravity was greater than 11 feet per second per second. With this knowledge, he was confident his first model could be successfully built with a single rotor.

No model had yet been built but the concept was born. So, early in 1969 Cook rushed back to California to disclose this tremendous new idea to his patent attorneys, who were duly impressed. A patent search began at once.

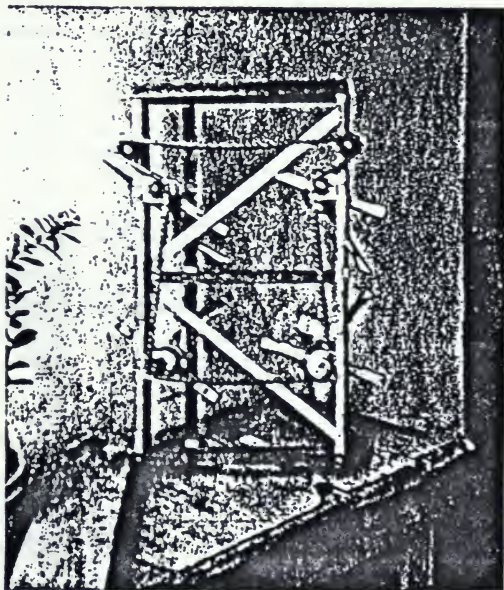
The concept became reality in the spring of that year. A small prototype model was built and—just as Cook predicted—it worked. The small 1/70th horsepower motor, drawing 0.7 amps, propelled a 10-pound cart.

When Cook began his experiments on the new propulsion system he was totally unaware that his work would conflict with Newtonian mechanics. He simply went by instinct and felt he was following natural laws. But as his work progressed he intuitively began to suspect that there might be a conflict with Newton's laws. Something just felt funny, even though he couldn't specifically identify where the problem was.

Later in 1969 Cook expressed these feelings in a letter to his patent attorney. The letter informed the attorney of the inventor's conviction that what he had

stumbled across did contradict the laws of Newton. From his experiments Cook was gradually forming a clearer picture of inertial forces. Intuitively, he came to suspect that both gravity and magnetism were internal propulsive forces.

On April 4, 1969 Cook applied for a patent on his working model. Shown here, the small rotor is attached to a cart (Fig. 6-1a). The initial system was designed to use hydraulics. (We'll describe the mechanics of the principle later.)



The crude handmade model built in Presidio, 1969.

In an article (Exhibit 6-1) published in the *Walnut Kernel*, *Pleasant Hill Post*, and the *Concord Journal*, Cook pronounced this crude machine as "the most efficient energy converter that can be used in outer space in the world today." The single-rotor-model aided by gravity was limited to surface propulsion. A system capable of propelling in deep space would require at least two counterrotating rotors to cancel lateral forces and prevent gyration.

By summer, back in Presidio, Cook started constructing his second model, a unit with two counterrotating rotors that, when completed, would be capable of propelling in any environment.

Ex. 6-1

The first newspaper story announcing Cook's invention. Though poorly written, the article does document Cook's beginning.

But after several months of working on a new machine Cook still had not made it propel. Ailing from a bad cold and suffering from a hand cut that had developed into blood poisoning, Cook felt he was experiencing the lowest moments of his life. He was worried sick that maybe he had made a dreadful mistake spending all that money to apply for patents. He was concentrating hard, trouble-shooting the problem when his aunt Maria handed him an orange and said: "Here, peel this and eat it." Cook still laughs when he recalls how ironic it was that in the middle of his greatest worry and concern his aunt handed him an orange to peel.

Kernel Publications: *Walnut Kernel*, *Pleasant Hill Post*, *Concord Journal*, Thursday, April 10, 1969

YOUNG INVENTOR REVEALS BRAINCHILD

Bob Cook, former Concord resident, now living in Pittsburgh, has just applied for a patent on a revolutionary principle and its application for use in transportation.

The idea, almost unbelievable in its probable extensive use, involves the conversion of centrifugal force to linear force. There are other methods of converting centrifugal force, but this is the first time a conversion system has been developed that would be practical for outer space use, said Cook.

Sometime ago Bob Cook, as pressman, designed a color attachment for Kernel Publications in a matter of a few hours, a few spare parts and an investment of less than \$5.00. The attachment was as good as that offered by the press manufacturer at a cost of nearly \$10,000.

Bob's interest for many years has centered on gravity, centrifugal force and magnetism. In June of '68 he became intensely interested in the experiments of scientists in Atlantic City who built huge metal bottles that spin so fast that they nearly destroy them-

selves. Researchers at Oak Ridge built centrifuges that spin up to 46,000 times a minute, five times as fast as a jet engine. They plan to build bottles that spin much faster so they can boost the weight of things.

... The tremendous increase in weight and the possibility of devising a way to make use of this principle fascinated Cook. His first interest was in another direction, however, and while working on other applications, he almost accidentally discovered a system that can take advantage of this force.

Bob is presently looking for ways to involve his new machine in practical application.

Cook has been experimenting in this field ever since he graduated from Mt. Diablo high school. Cook served his Printing Pressman Apprenticeship at the *Walnut Kernel* in 1953 and worked for the paper nearly ten years. It was the fastest apprenticeship ever served. In a matter of a few weeks he was able to master the problems of a fairly complicated newspaper press, that usually takes an appen-

tice 5 years. He still works as a pressman but just enough to have money to take care of his experiments. Bob's formal education stopped at a few months of Junior College at Pleasant Hill. When he took an aptitude test there he rated extremely high in mechanical ability.

When Cook walked into the offices of Gardner and Zimmerman, Oakland patent attorneys, with his idea, he had no working model and the physicist and mechanical engineers had doubt. Bob tried to explain it so the well-educated physicist could understand, but

he didn't know the technical language and couldn't get through too well. Bob finally went home and built a tiny working model...

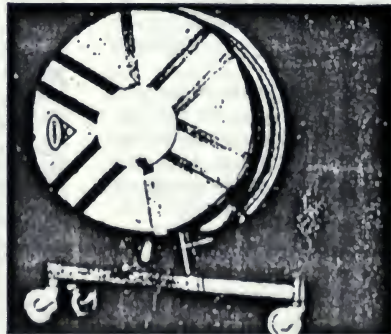
The working model has a 1-70th horsepower motor, drawing .6 amps only, yet drives a 10-lb. vehicle. It has been adjusted to produce 9 ounces of thrust, even though the working model is very rough.

The potential use is almost unbelievable. Its application could easily allow a "flying saucer" design of aircraft. It can be applied to propulsion of ships, etc. Its basic design used on automobile development would save consider-

able horsepower now lost in conventional engines and power transference. It would eliminate the need for a drive shaft, differential housing, and transmission...

The principle involves a wheel with a weight that changes position in such a manner it generates a forward motion. It can be understood by comparing it in principle with a car wheel that is out of balance and shakes the car to pieces. Cook devised a mechanical means to harness the imbalanced wheel and divert the rough force all in one direction. The force can be reversed or neutralized immediately, offering all kinds of adaptability. The only thing is that his "off-balance" wheel is not really off balance.

The test model, according to the young inventor, is the most efficient electrical energy converter that can be used in outer space in the world today.



Later that day he finally made the necessary adjustments and the machine, for the first time, began to propel. His excitement at seeing the model propel was overwhelming. That evening, he made several phone calls to California relatives and friends to tell them of his tremendous success. This second model was handmade and very crude but it *did* work!

Early the next year—1970—Cook moved to Tucson to stay with his father and brother. While there, he meekly approached the scientific community at the University of Arizona in Tucson with what he believed was a major breakthrough in transportation and mechanics. He expected that the professors would generally welcome him with open arms. He was in for the shock of his life! When he began to discuss his idea with professors he felt like he was lost in a shooting gallery. Here was an unarmed small-

"You have no formal education, you haven't read any technical books lately, and you come in here and try to tell me you've destroyed the teachings of Newton."

town inventor colliding head-on with the "fully-equipped" and "superbly" trained "minute men" of science defending one of their greatest heroes, Sir Isaac Newton. The professors simply couldn't tolerate some uneducated "fool" challenging long-established scientific laws. With no advanced education, Cook wasn't even able to understand what arguments they were throwing at him. How could he answer? Of course, his silence was interpreted as ignorance.

In that first encounter, Cook, accompanied by his father, visited Dr. Clark Jacobsen of the University of Arizona. While Cook explained the results of his experiments in Presidio, Dr. Jacobsen appeared somewhat disinterested and annoyed. "But have you heard of Newton's third law?" he asked. "Yes," Cook replied. "And can you recite it?" Dr. Jacobsen asked. Cook replied affirmatively and recited Newton's third law. "There you have it," Dr. Jacobsen said, "for that reason your idea won't work. You have no formal education, you haven't read any technical books lately, and you come in here and try to tell me you've destroyed the teachings of Newton. You expect me to believe that? I can't." Cook was embarrassed at having his father witness the manner in which the professors rejected his idea.

Dr. Jacobsen challenged Cook. "I'll bet you \$2,000 it won't work. No, I'll bet you \$10,000 it won't." "And I'll bet you \$10,000 it does," Cook countered. He and Dr. Jacobsen shook on the wager. After thinking it

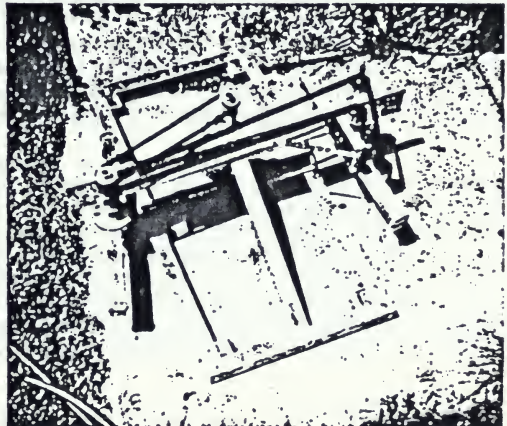
over, however, Dr. Jacobsen said, "Oh, forget the bet, I don't want to take your money." This was the first time a wager had been used to challenge Cook.

This unhappy meeting with Dr. Jacobsen confirmed Cook's suspicions. This professor verified that if his invention worked it did indeed contradict Newton's third law of motion. What Cook didn't realize at that point was how long a battle he had ahead with the world of science, and the fact that he was in conflict with all *three* of the Newtonian laws. (This discovery wouldn't be made until late in 1979.) A small story in the March 1, 1970 edition of the *Arizona Daily Star* records this visit to the University.

In a letter dated March 10, 1970 Cook was notified that his initial patent application (serial #813,529) had been rejected because Newton's laws were contrary to the machine's principles: "In accordance with Newton's law of action and reaction a reactive thrust is generated when the weight is shifted, so that no net thrust can be generated."

The patent office required a working model. Cook now had a four-rotor device but his initial patent application was based on a single rotor. A new patent application on this principle would be necessary.

The second model was crude, so that spring in Arizona Cook built an improved third version at the home of his brother William. Armed with more confidence, he returned to the University of Arizona. This time, he brought a working model, which was demonstrated to Dr. Tom Livingston and to a photographer from the *Arizona Daily Star*. Dr. Livingston was gentle. "I don't want to get into an argument about this idea," he said, "but I know what it's doing." He suggested that in order for Cook to prove the validity of his model an accelerometer test be performed along with several other experiments. One involved placing the machine



Cook's third model was built in Tucson in 1970.

on a boat in a pool to see if the boat could be propelled. A second involved suspending the machine from four wires to see if the model would displace to one side.* Dr. Livingston made helpful suggestions but his attitude toward the idea was extremely cool, and he appeared to be slightly embarrassed at having to witness a demonstration of the model.

On June 2, 1970 the *Arizona Daily Star* ran a story titled, "Cook Says He's No Kook, Hopes to Refute Newton." (See Exhibit 6-2.) In the story Cook suggests that the very fact the model works proves that Newton's law is not 100% true. Years later, his attacks on Newton would become harsher.

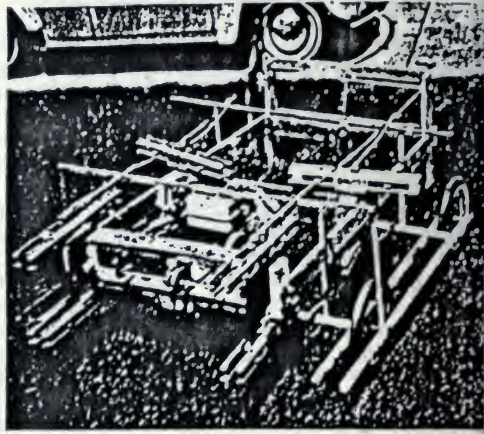
The article caused quite a commotion at the University of Arizona. Two years later Cook was to see a copy of a letter that Dr. Jim Holloway, Professor of Aerospace and Mechanical Engineering, had written to the editor of the *Daily Star*: "If you consider the availability of the Science and Engineering Department at the University of Arizona to your reporters, the total inaccuracy of your story is *inexcusable*. I use the theory of the Dean-Cook machine as homework assignments in one of my advanced mechanics classes."

The newspaper story did document Cook's sincere attempts to obtain an honest evaluation from the scientific community, and the one-man struggle he was engaged in. Unfortunately, it contained several inaccuracies caused by improper and confused editing, just the thing to fuel the controversy and convince the professors how far off this "kook" was. Certain statements in the article were not made by Cook or by his brother, although they were attributed to his brother, who had attended the demonstration but had said nothing.

In his letter Dr. Holloway did correctly point out that the flight of bumblebees do not contradict aerodynamic laws, that rockets are supposed to work, and that a closed exhaust system has little to do with Newton's third law. However, Dr. Holloway's correspondence was *totally inaccurate* when he concluded that Cook's machine was a well-known device "invented" at least six times in the past 50 years, and was last known as the Dean drive. His final recommendation was: "I suggest that Mr. Cook save his money."

In the fall of 1970, Cook returned to the San Francisco Bay Area. Aided by his working model, he abandoned his initial patent application and refilled the modified principle using two counterrotating rotors.

Early the next year, Cook returned to Texas to continue his experiments. The third two-rotor prototype model demonstrated at the University of Arizona propelled in a series of surges. Some professors had explained it as the "rocking chair" effect, propelling



Cook's fourth prototype, an eight-rotor model, was built in Texas in early 1971.

just as Dean's drive did with the aid of static friction. (A highly sophisticated test later disproved this erroneous assumption.)

Cook reasoned that by adding another set of rotors phased at proper intervals he could fill more of the dead part of the cycle and possibly produce constant force. How could the scientists argue against a machine they could watch accelerate?

So, in early 1971, in Texas, the fourth model—an eight-rotor handmade model—was built. Unfortunately, eight rotors were not enough, and the new machine again propelled in surges. So far, Cook had experienced nothing but adverse criticism and resistance from the experts, but he persevered. His dream was to have his machine honestly tested by unbiased professionals. During the summer, unsatisfied with the complexity and performance of the eight-rotor model, he did some redesign and came up with a better performing four-rotor unit, the fifth prototype model.

Through a friend at *Gazette Press* in Berkeley, California, Cook met Richard Griffith, a United Airlines employee. Griffith offered to arrange to have Cook's machine tested by United's engineering department. Through one of the vice presidents, Lionel Schwartz, a demonstration of the machine was scheduled. On September 10, 1971 Cook took his machine to United Airlines—the world's largest—where, at their main test center near San Francisco, a dynamic analysis was undertaken. On the initial visit Cook expected to demonstrate his machine to only two or three people.

Surprisingly, his machine created so much interest that Cook found himself demonstrating his model all afternoon to over 20 of United's personnel. When he asked one of the employees, "Why all the

*These experiments were later conducted and proved the machine worked.

Cook Says He's No Kook, Hopes To Refute Newton

Inventor Builds 'Closed System'

By ART EHRENSTROM
Star Staff Writer

Many things according to the laws of physics are not supposed to be able to work.

For instance, aerodynamically a bumblebee can't fly, but no one has been able to figure out how to tell that to the hot-tailed bee.

Foetus aren't supposed to be able to work — but don't tell this to the man in the moon.

Your car operates on an "open" system in line with Sir Isaac Newton's third law of motion — for every action there is a reaction. Close off the exhaust pipe and the car won't run.

Thus a "closed" system is not supposed to be able to operate. But William Cook has created a closed-system that apparently works.

Cook, who is visiting his father and brother in Tucson, has built a model of a force converter he is inventing and which he hopes to patent despite warnings that it'll never work.

"The model works, is all I know," says Cook. "They (scientists at the University of Arizona) say it goes against accepted teachings of Newton that for every action there

must be an opposite and equal reaction. But the fact the model works proves Newton's law is not 100 per cent true in this case."

Cook's own law is that linear force or linear momentum cannot be converted into its maximum centrifugal force potential instantaneously. The mass possessing such force or momentum must travel 90 degrees in a circle in order to reach that potential.

His converter, he claims, produces centrifugal force with two counter-rotating rotors. The force is brought to clash indirectly against the counter force for about 75 degrees, then for 15 degrees the thrust is reversed for an added boost.

The small model Cook has built produces about five pounds of "intermittent" thrust but, Cook believes, it can produce a "constant" thrust when four more rotors are added.

"I can't say what lies potential force might be when built precisely in a well equipped machine shop," Cook said. "Judging by the fact that five pounds of thrust are produced, it seems possible that a force up to 3,000 pounds or more may be produced at 2,000 revolutions per minute, using six rotors. Such a machine could weigh as little as 150 pounds."

Cook believes such a ma-

chine, used for propelling vehicles, would help curb pollution. "It's quite possible," he said, "that this system would be for more efficient than conventional and automatic transmissions. "Smaller engines could be used to make cars more economical, and this would cut down on pollution, since less fuel would be burned."

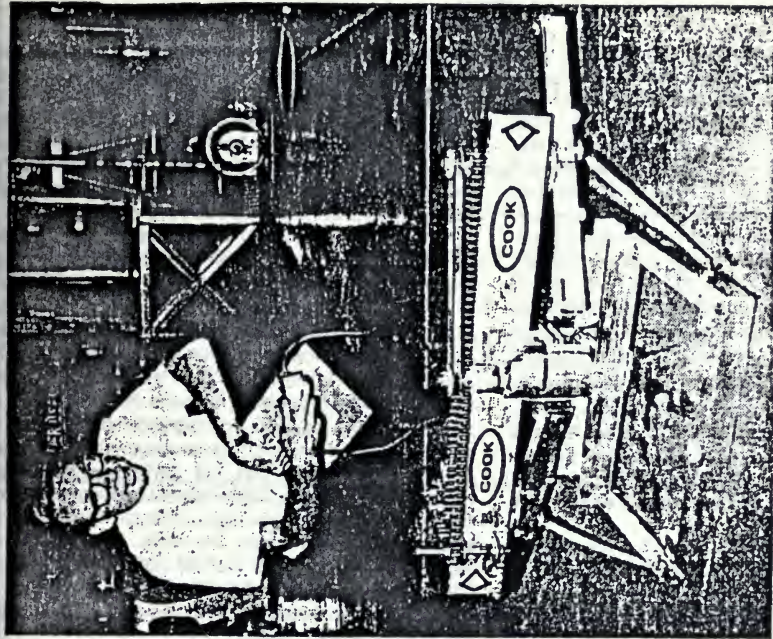
He believes the machine could use solar energy to power space vehicles in a weightless state with as little as five pounds of force.

"The U.S. Patent Office demands a working model of this invention before it will consider my patent claims," he said. So after the necessary papers are drawn up by his patent attorney in Oakland, Calif., Cook plans to deliver the model to the patent office in Arlington, Va., which, he says, has the elaborate equipment needed to test the device.

"When I demonstrated the model in the U.S. Aerospace Department laboratory, I was told it would have to be tested with an oscilloscope equipped with a special sensing device in order to prove or disprove the theory behind it. I can't afford such elaborate equipment, so I'm hoping the patent office will accept the burden of proof," he said.

A Newton Figment?

William Cook, who has invented a force converter he claims works in defiance of a long-established scientific law, demonstrates a model at the University of Arizona in an effort to convince faculty experts in dynamics that he has something. Although they insisted it'll never work in practice, they wished him luck in getting it patented and marketed. (Sheeler photo by Harry Lewis)



interest?" the response was, "Do you realize if this thing works you'll be breaking two laws of motion?" Some younger engineers, taking a close look, expressed enthusiasm and amazement at what this could mean. The older engineers, though, were generally reserved when it came to making comment.

The dynamic analysis took several months. United then notified Cook that a report had been prepared. The conclusions: Although weak and inefficient, the machine produced a net positive thrust! What the analysis failed to come to grips with, however, was that if the principle really worked, then the whole structure of Newtonian mechanics was wrong!

Cook himself was not yet sure what the real conflict was with his machine and the principles of mechanics. In retrospect, when he finally did specifically comprehend the true meaning of what he had uncovered, it shocked him to recall that not one person on the United staff who studied the machine (or even any of the professors) had zeroed in on the full implications of the controversy.

The introduction of United's analysis began, "In spite of being declared in violation of the laws of motion by the United States patent office, Cook's crudely built rig moved spasmodically across the floor."

The United report concluded that the cyclical nature of the forces involved ensures that the proportionality constant between lift and weight will be unfavorable. It also concluded that although terribly inefficient and not practical for production for airline use, the system worked. This implied that Cook's crude mechanism did indeed produce a unidirectional force and that Cook had done the unthinkable. United did recommend that Cook approach NASA for the purpose of interesting them in his machine as a possibility for future space maneuvering systems.

Here are portions of United's analysis (Exhibit 6-3):

Richard Griffith, inspired by United's favorable report, contacted NASA (Ames Research Center, Mt. View, California) on Cook's behalf. He talked to Dr. Dave Houston, head of one of the research departments. Griffith spoke so strongly for Cook that he caused friction between himself and Dr. Houston, who wouldn't believe such a concept possible. Houston's hostility—a result of the argument with Griffith—ensured that Cook would get off on the wrong foot with NASA. Indeed, when finally invited to give a lecture at Ames Research Center, Cook found the atmosphere uncordial. Dr. Houston made it quite clear that he wasn't pleased with even talking about this matter.

Cook made this first visit to NASA in November, 1971—without a working model and without knowing the proper terminologies and mathematics needed to explain his principle. He did not fare well there. The space scientists assumed that Cook was

obviously mistaken, mostly on the not-very-tenable grounds that Cook had no formal education and could not explain his ideas in the proper technical terms. After only fifteen minutes they said, "You're wasting our time and your's. You really don't know what you're talking about." Cook mentioned, however, that he would soon have a copy of United's analytical report. The scientists at NASA agreed to review it.

A few weeks later Cook gave the United report to NASA and Dr. John Olsen was instructed to do the analysis. Dr. Olsen's report (Exhibit 6-4a—"Analysis of a Propulsion Device Proposed for Use by NASA as Means of Achieving Short Trip Times to the Moon and Planets") stated the conclusion of the members of the research department: That the device could not provide any useful propulsion in space inasmuch as it did not change in mass during operation and did not exchange momentum with its environment. The report did state, however, that the demonstration mode mounted on wheels, achieved net movement across the floor because it was able, through friction, to exchange momentum with the floor. "Mr. Cook" the report states, "insisted we did not grasp the significance of the principle of his invention."

Dr. Olsen concludes his report with the following analogy (Exhibit 6-4b).

Let's at this point look at the invention studied by both NASA and United Airlines (Fig. 6-2). Two counterrotating rotors each consist of a carrier containing lead bar (propellant mass) shorter than the carrier. The counterrotating rotors are phased so that forces later to the direction of motion are canceled. The carrier are mounted on shafts connected through bearings to the main frame of the vehicle, and are rotated at constant angular velocity. The frame is mounted on

Cook drive

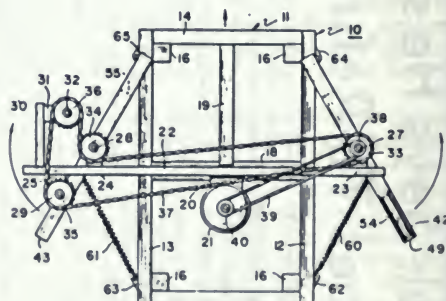


Fig. 6-2

This was the drive studied by NASA and United Airlines.

Ex. 6-3 Excerpts from United Airlines 26-page analysis of Cook's invention

1

United Air Lines

ROUTING							

TEST CENTER AND PROCESS ENGINEERING
SERVICE REQUEST

85/84/-45-04-00-01

D-71-77
NUMBER

DATE 9/10/71

REQUEST SUBJECT DYNAMIC ANALYSIS

FILE 00-00-0

DESCRIPTION: (Reason, Priority, Statement, Sketch, Etc)

Provide a dynamic analysis of the propulsion device designed by Robert Cooke.

ORIGINATOR _____ PHONE NO. _____ DATE _____ APPROVED BY MANAGER _____ DATE _____

FOR TEST CENTER AND PROCESS ENGINEERING USE ONLY

REPLY See attached

11/11/71
DATE _____
MANAGER _____
DATE _____

United Air Lines

TEST CENTER AND PROCESS ENGINEERING REPORT

INTRODUCTION

On 9/10/71 Robert Cooke brought to UAL a device designed to convert centrifugal force into a linear thrust. In spite of being declared in violation of the laws of motion by the U.S. Patent Office, Cook's crudely-built rig moved spasmodically across the floor.

This report provides a dynamic analysis of Cook's mechanism. The cycle demonstrated by Cooke, as well as two other cycles which offer performance improvements, are examined...

Cooke's Propulsion Cycle

Cooke set up his working model so that the propellant mass followed the path shown in Figure 3. From point 1 to point 2 the propellant mass is pinned against the end of the track by centrifugal force. The thrust seen in this segment is the component of centrifugal force in the direction of the cart motion. This thrust is

$$T_{1-2} = m_p R \omega^2 \cos \omega t \quad (1)$$

where m_p is the propellant mass,

R is one half the sliding distance of the track,

ω is the angular velocity of the rotor, and

t is time.

Due to Cooke's positioning of the spring, the propellant mass spends more time behind the center of rotation of the track than forward of the center. Thus, the net thrust in segment 1-2 is negative.

When the propellant mass reaches point 2, the spring force overcomes the centrifugal force, and the mass accelerates down the track to point 3. During this portion of the cycle the system acts as a mechanical analogue of a rocket. The propellant mass is accelerated in the aft direction by the spring force and the resultant reaction produces a forward thrust upon the cart. In addition to this reaction force there is Coriolis force which is the inertial effect occurring when a mass is constrained to move in a straight line across a rotating body. The total thrust in segment 1-2 is

$$T_{1-2} = 2KR \cos \lambda t \cos \omega t - \frac{4K\lambda \omega m_p}{2k - m_p(\lambda^2 + \omega^2)} \sin \lambda t \sin \omega t$$

where K is the spring constant, and

$$\lambda = \left[-\frac{\omega^2}{2} + \frac{K}{2} \left(\frac{1}{m_p} + \frac{1}{m_o} \right) + \frac{1}{2} \sqrt{\omega^2 \left[\omega^2 - 2K \left(\frac{1}{m_p} - \frac{1}{m_o} \right) \right] + K^2 \left(\frac{1}{m_p} + \frac{1}{m_o} \right)^2} \right]^{1/2}$$

m_o is the mass of the cart.

United Air Lines

TEST CENTER AND PROCESS ENGINEERING REPORT

At point 3 the propellant mass strikes the end of the cart producing a negative impulsive force.

$$T_{3-1} = -\frac{2}{\Delta t} \left(F_0 + \frac{m_p R \omega^2}{m_0 + m_p} \right) \sqrt{\frac{R}{KR/m_0 + F_0/m_p}} \cos \omega t \quad (3)$$

where Δt is the time required to stop the propellant mass, and

$$F_0 = KR - m_p R \omega^2$$

During this segment of the cycle the propellant is stopped at the expense of the forward momentum of the cart.

The resultant thrust on the cart for the entire cycle is shown in Figure 3.

A Modification of Cooke's Cycle

A significant improvement in performance can be achieved by using viscous damping to arrest the propellant mass. Not only can the large negative impulse be avoided, but by delaying the travel of the mass to the end of the track, the negative centrifugal force component can be reduced...

...Cooke's cycle could also be improved by the use of a constant force rather than the variable spring force to accelerate the propellant mass. This would increase the thrust during the ejection stroke by allowing the use of greater force and improving the timing of the stroke...

ANALYSIS OF A PROPULSION DEVICE PROPOSED FOR USE BY NASA AS A
MEANS OF ACHIEVING SHORT TRIP TIMES TO THE MOON AND PLANETS*

During recent visits to the Advanced Concepts and Mission Division at the Ames Research Center, Mr. Cooke^{**} described and demonstrated a model of a propulsion device he invented. Mr. Cooke believed that the device would serve as a space propulsion system capable of transporting payloads to the moon and planets in times shorter than those possible with current propulsion systems. However, after listening to Mr. Cooke's explanation of the principle on which the device relied for propulsion and after observing the operation of the demonstration model, members of the ACMD were unanimous in their conclusion that the device could not provide any useful propulsion in space inasmuch as the device did not change in mass during operation nor did it exchange momentum with its environment. The demonstration model, mounted on wheels, did achieve net movement across the floor because it was able, through friction, to exchange momentum with the floor. Mr. Cooke insisted that we did not grasp the significance of the principle of his invention (eccentrically moving masses developing centrifugal force which was used to pull the machine in a preferential direction by means of springs attached to the rotating masses), and cited a report by an engineer at United Airlines that indicated the device would provide net momentum in a preferred direction. On a subsequent visit, Mr. Cooke brought a copy of the United Airlines report to ACMD for our appraisal. We made a Xerox copy of the report and returned Mr. Cooke's copy with a promise that we would study the engineer's analysis and give Mr. Cooke the results of that study within two weeks. I was requested to review the report and communicate my analysis to the inventor.

Examination of the dynamic analysis of the propulsion device by.... an engineer employed by United Airlines, revealed a fault that is probably the major cause of the erroneous results obtained....

....Rather than correct the errors....I chose a less complicated and less involved method to show that the net momentum of the propulsion device proposed by Mr. Cooke is zero over one cycle. The analysis by....is attached for reference, and my analysis is contained in the following sections.

*Only the relevant conclusions of this report are presented, the first section - a physical description - and the second - detailed mathematics - have been deleted.

**Editor's note: This report misspells Cook's name throughout.

....Perhaps an analogy will illustrate how Mr. Cooke's principle can provide motion in a desired direction under some conditions but not in space. Suppose one member of a group is told that if he can manage to get from the center of a frictionless pond of ice without throwing away any part of his clothing or other mass, he will receive a reward. The member agrees, and asks that he be allowed to have two bowling balls with him. The group allows this, and the member is then placed on a sled in the middle of the pond with the two bowling balls held at arms length ahead of him. Left alone, the member swings the bowling balls in opposite arcs until they are at either side of him, still at arms length. While the balls were in motion, the sled moved forward x feet, but came to a stop when the balls reached the end of their arcs. Now the person draws the balls toward him until they meet in front of him. The sled remains motionless. Then he slowly extends the balls to arms length ahead of him to the original position, and observes that the sled moves backward x feet to its initial location, and stops when the bowling balls reach their fully extended position. The member then quickly pulls the bowling balls toward him until they touch his chest. Again the sled moves forward x feet and stops. Now he slowly extends the balls ahead of him until they are again at arms length, and the sled moves back x feet and stops. After some thought, the member draws the bowling balls to his chest, rests them in his lap while he takes a small bag of sand from his pocket and sprinkles some on the ice behind each sled runner. Then he slowly extends the balls to arms length ahead of him and notes with satisfaction that when the balls reach their fully extended position the sled moves slowly forward. As he pulls the two balls toward his chest, the sled moves faster ahead but resumes the slow motion again when the balls come to rest against his chest. In due course of time, the member arrives at the edge of the pond and claims his reward. Is he entitled to it?

Net Impulse

The net impulse over one cycle is the algebraic sum of the six individual impulses calculated in the foregoing analysis.

$$I = \sum I_i$$

We have

$$\begin{aligned} I_1 &= m\omega R(1 - \cos \omega t_1) \\ I_2 &= m\omega R G \sin \omega t_1 \\ I_3 &= m\omega R(\cos \omega t_1 - G \sin \omega t_1 + (G^2 - 1) \sin \omega t_2) \\ I_4 &= m\omega R(-\cos \omega t_1 + G \sin \omega t_1 + (G^2 - 1) \sin \omega t_2) \\ I_5 &= -m\omega R G \sin \omega t_2 \\ I_6 &= m\omega R(\cos \omega t_2 - 1) \\ \hline \sum I_i &= 0 \end{aligned}$$

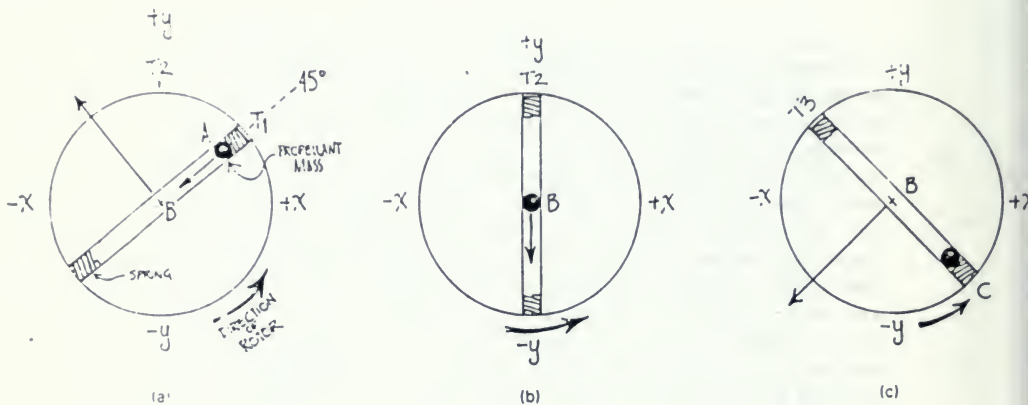


Fig 6-3

(a) Direction of positive Coriolis force produced by radially moving ball between A and B. (b) the ball drained of angular momentum; (c) direction of negative Coriolis force produced by radially moving ball between B and C

small wheels. At the ends of the carriers are springs attached to the frame. These are used to accelerate the propellant mass radially.

Forty-five degrees from the desired direction of travel both lead bars are accelerated radially in the carrier and impact in the rearward direction. Then they are recycled to the 45° position, and the action repeats. Mechanically, it's rather simple, but the true full-force picture is extraordinarily complex.

In his analysis Dr. Olsen states, "Rather than correct the errors in the United analysis I have chosen a less complicated and less involved method to show that the net momentum of the propulsive device proposed by Mr. Cook is zero over one cycle."

Dr. Olsen's report was quite a disappointment. Not only did he analyze the incorrect principle, but also his timing calculations were not based on the timing inherent in Cook's actual model. Cook knew that what Olsen had analyzed wouldn't work from his — Cook's — experiments. Olsen corrected the timing in a later report, but never did rectify the incorrect principle.

Cook wrote a summary on Dr. Olsen's principle. He entitled it "How Not To Propel with Inertial Forces." This summary is presented here.

HOW NOT TO PROPEL WITH INERTIAL FORCES

In 1971, Dr. Olsen made what he thought was an honest analysis of the CIP (Cook Inertial Propulsion) engine. He made the statement that in order to simplify the math involved in analyzing the system he would condense the propellant mass (which on the working model was a long lead bar) into a small round ball. In doing this he failed to realize he had changed the sound mechanical principle on which the CIP engine was founded. The drawing he made of his idea showed a ball contained inside a revolving tube which had springs on each end that were compressed and released at certain intervals for the purpose of trying to create an effective force.

Let's simply explain the principle Dr. Olsen analyzed. At $T = 1$ the spring is released sending the ball A toward the center B. As the ball moves toward center, it must lose angular momentum, which creates a Coriolis force (Fig. 6-3a).

Assuming counterrotation and synchronization, this force is produced in the +Y direction.

At $T = 2$ the tube is vertical and the ball B at center. It has lost all angular momentum but still has linear momentum in the -Y direction (Fig. 6-3b).

At $T = 3$ the ball has moved from center B to position C (Fig. 6-3c). It had to increase angular velocity and again create Coriolis force but this time in the -Y direction.

The impact force, which is produced by the ball arriving at C equals the force used to initially release it at $T = 1$. These forces cancel. The Coriolis force produced between $T = 1$ and $T = 2$ balances the Coriolis force produced between $T = 2$ and $T = 3$.

Also, the positive centrifugal force produced between $T = 3$ and $T = 1$ exactly cancels the negative centrifugal force during this same time.

*This change can be seen in Exhibit 6-4a.

In his report (page 9) Dr. Olsen lists these six impulses in the direction of travel over one cycle, and shows the net impulse to be zero. We couldn't agree more.

No one has ever fully analyzed the complete principle. It looks so innocent but yet is supercomplex. (I still do not completely understand all the details of why it works. Cook does by his feel for inertial forces and his newly acquired knowledge of advanced math and physics.) Together we can give you a glimpse of the forces involved and how Dr. Olsen strayed from the principle.

The two counterrotating rotors of the demonstration model have long lead bars. To properly analyze the principle you have to consider these as bars.

At $T = 1$ (45°), the lead bars were moved radially by springs controlled by cams. The bars overlap the center of rotation by four inches (Fig. 6-4).

Moving the bars radially causes two Coriolis impulses to occur simultaneously in each one. A positive Coriolis impulse is produced by the portion of the bars moving toward center, and negative Coriolis impulses occur in the portion moving away from center. Because of their quadrant, the force vectors were additive in the desired direction of travel. This principle demands simultaneous Coriolis impulse forces.

As the bars move radially at a controlled rate the following happen:

- (a) The centripetal force acting on the section of mass constrained to move radially away from the center of rotation in a straight line is destroyed (because that part moves from the center in nearly a tangent). A mass moving in a tangent cannot produce centrifugal force, although it will produce a tangential acceleration or negative Coriolis force (provided a constant positive torque is maintained).
- (b) The loss of centripetal force and consequently centrifugal force on four inches of mass overlapping the center of rotation causes the opposing centrifugal force produced by the overlapping four inches of mass on the other side of center to become more effective in producing a positive propulsive effect. As long as the bar does not move radially, eight inches of mass has forces in equilibrium. In other words, four inches of mass on each side of the center counterbalance each other until moved radially.
- (c) Although the lead bar remains physically the same size while spinning (12 inches $\times$ 1½ inches $\times$ 1½ inches), the inertial mass varies a great deal, something that Dr. Olsen neither mentions nor considers in his report.

A good way to visualize this is in the form of a cone—shown by the concentration of dots in Figure 6-5.

When the greater mass moves toward center it has to give up energy (which produces a positive Coriolis force) while the mass moving away from center increases its energy content and produces a negative Coriolis force. The Coriolis forces combine in the positive direction with the increased centrifugal force imbalance created by the removal of the centri-

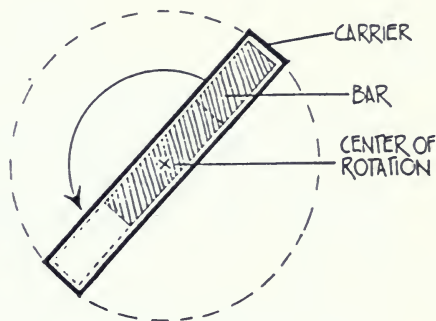


Fig. 6-4

Lead bar properly positioned in its carrier.

petal force in the short end of the mass. Again, note that the bar only travels four inches in the carrier before it impacts, producing a negative impact force in the rearward direction.

To complete the picture there are other forces (such as the gyroscopic forces) to consider. A complete analysis is extremely complex and beyond the scope of this book.

Shortly after Olsen's report, a similar—and incomplete—report was done by Dr. Dick Albert at the University of Arizona (Exhibit 6-5).

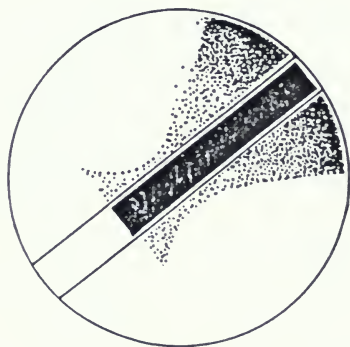
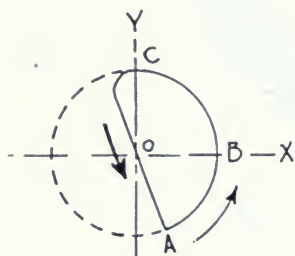


Fig 6-5

The inertial force cone

Notes on the Cook Cycle



A mass is forced to move at constant velocity over an arc from A to C. It is then accelerated from C through O towards A along a diameter which rotates with the same angular velocity ω . Before reaching A it is retarded so as to reduce its radial velocity at A to zero.

The mass moved in such a manner exerts forces on the mechanism driving and guiding it. By resolving them into their components in the X and Y directions and integrating them over the complete cycle the reaction of the system can easily be found.

Moving from A to C the mass is subject to centrifugal force. All components in the direction of Y during the travel from A to B are equal but opposite to all Y components over the paths from B to C. Their total therefore is zero. An addition of the components in the X direction gives a resultant force through the center of rotation.

Moving from C to O the mass is retarded in the -X direction as its velocity is reduced from ωr to zero and accelerated from O to A where it attains again the velocity of ωr but in the +X direction.

Adding the reaction forces of the X acceleration and X deceleration of the mass from C to A, gives a resultant force in the direction of -X, through the center of the diameter and of the same value as the +X resultant of the centrifugal forces from A to C thus yielding zero when added to it.

That these two resultants are equal becomes obvious if one considers that the work done in changing the velocity ωr from the +X direction in A to -X in C is equal to the work done in changing it back from -X in C to +X in A.

As the total of the reaction forces caused by acceleration of the mass from C towards A is equal and opposite to the reaction due to the retardation before reaching C, these forces cancel out equally.

The foregoing shows that over the cycle all forces have added up to zero and the whole system has returned to its position at the origin.

On December 2, 1971 the *Concord Transcript* (Concord, California) displayed the model tested by United Airlines on its front page. Cook again challenged Newton: "The somewhat ambiguous words of Newton's third law are greatly responsible for the delay in developing this system." (See Exhibit 6-6.)

Cook returned to Presidio for vacation over the holidays. Armed with the United Airlines report he was sure investors were on the horizon. He wanted a complete system built to prove his theory fully.

A few months later in March a newspaper story (Exhibit 6-7a) about him was published in Tijuana, Chih., Mexico, which is across the Rio Grande from Presidio. Here is a translation: (Exhibit 6-7b).

On his way back to California Cook stopped in Tucson. There, he stopped by to see Steve Wilkerson at the *Daily Star* to describe the results of the test United Airlines had done on his invention. Wilkerson showed Cook the critical letter Dr. Holloway had sent the newspaper almost two years earlier. Insulted, Cook arranged a meeting with Holloway to discuss his idea as well as the United Airlines report.

The two men talked for about an hour. Dr. Holloway became convinced that Cook's principle was sound. "I'll buy that," he said. "I believe you're right." His conversation happened on a Friday, so Dr. Holloway told Cook to make arrangements for Steve Wilkerson to come in on the following Monday and he, Holloway, would publicly endorse the concept.

That Monday was something of a shock to Cook, for instead of endorsement he was handed the following unexpected report supposedly *disproving* his idea (Exhibit 6-8).

"Over the weekend," explained Holloway, "I conducted some experiments and I won't be endorsing this thing publicly. I built your machine out of an Erector kit I use for building models and it worked beautifully on wheels, it zipped right across the laboratory table. But then I put it on an air bucket and all it did was gyrate in a circle." Cook requested to see the model but Holloway stated that it had already been dismantled. "But did you use counterrotating rotors?" Cook inquired. "Oh, yes," Holloway replied, "and all it did was gyrate in a circle."

Cook, who believed Holloway told the truth, was now worried. He had never tested one of his models on an air cushion. He reasoned, though, that if Holloway did really use counterrotating rotors and the device didn't propel it sure couldn't gyrate in a circle it would have to oscillate back and forth. Cook became suspicious. A small article (Exhibit 6-9) in the *Arizona Daily Star* of April 21, 1972 records Cook's stop in Tucson.

Once back in California Cook immediately purchased an air cushion. When floating on this cushion in air, his machine worked perfectly.

That May (in 1972) a San Francisco business-

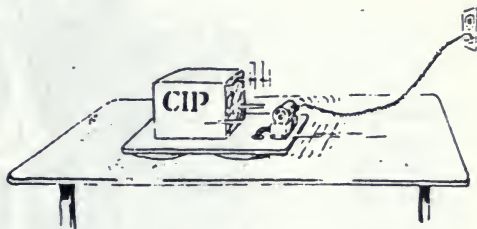


Fig. 6-6

CIP on an air cushion propelling on a flat laboratory table.

man, Phil Stall, responded to an ad Cook had run in the *San Francisco Examiner* seeking an investment partner. The two men signed a partnership agreement. Cook moved to San Francisco and continued his experiments at a college, which was owned by Stall.

Stall was curious as to what Dr. Holloway would say of Cook's successful experiments with the machine on an air cushion. He phoned Holloway and asked him to witness a demonstration. (Cook would bring the machine to Tucson once again.) Holloway agreed.

So Cook went to Arizona and demonstrated the machine on an air cushion in one of the University laboratories. Dr. Holloway still wouldn't accept it. He claimed that the mechanism was propelling forward because the machine tended to tilt the air cushion and, as the cushion tilted, the air escaped out the back creating a kind of jet propulsive effect. Cook then placed the machine at the back of the air cushion so the cushion couldn't be tilted up. It still worked. Dr. Holloway now couldn't explain what was happening so he called it a "trick machine." (See Fig. 6-6.) After this incident, Stall phoned Holloway, who maintained that he still wasn't satisfied that Cook had proven anything.

Stall arranged for a further test on Cook's machine at United Airlines. This time, the machine was tested for two weeks with an accelerometer attached to a polygraph recorder and oscilloscope. The test was conducted by one of United's top engineers, Rob Wolf, who had 27 years of engineering experience. Prior to the test Wolf had reviewed the analytical report prepared by United, and wasn't convinced it was totally accurate. "Bob," Wolf told Cook, "this accelerometer test will probably disprove your theory."

Concord



Transcript

SERVING CONCORD, PLEASANT HILL AND CLAYTON

CONCORD, CALIFORNIA, THURSDAY, DECEMBER 2, 1971

Concord Man Invents New Propulsion Plan

By JOHN DAVIDSON

Concord resident Bob Cook, 37, has invented a new propulsion system which he says will cut air pollution and save money by just about anything that moves.

The only problem is that, he says, it takes a long time to build. "I'm having a hard time finding believers," he says.

For every action, there is an opposite and equal reaction," Newton's third law of motion says. Cook says he has been thinking about it for almost 300 years ago.

According to Cook, who is a printing pressman by trade, these laws, and the somewhat different interpretation of them, is responsible for the delay in developing his new system.

Cook says his system is a completely new way of converting centrifugal force into a line of "linear force." At this state his principle is still in the experimental stage. He has built a model of a car with a four-wheel drive system, which he says is a "surrogate" for a car with a four-wheel drive system. The model is built with a four-wheel drive system, which he says is a "surrogate" for a car with a four-wheel drive system.

Cam which pulls on springs principle involved and they attached to the rotors. When the invention is started, the model was demonstrated. The model was demonstrated in a series of tests. The model was demonstrated in a series of tests. The model was demonstrated in a series of tests.

forward in a series of tests. The model was demonstrated in a series of tests. The model was demonstrated in a series of tests. The model was demonstrated in a series of tests.

lied by Cook. The model was demonstrated in a series of tests. The model was demonstrated in a series of tests. The model was demonstrated in a series of tests.

which multiplies the force at that end. "Another model was recently demonstrated at the engineering department of University of California at San Francisco," he says.

As he weighed out the force of his forward spin of the rotors, he found that the model was really propelling itself. It was really propelling itself. It was really propelling itself.

the negative centrifugal force created by the sequenced rotors. "I'm not sure if there is more positive force there," he says.

lived in Concord on and off for years. He has been taking time off from his printing trade to work on his system and to try to promote it.

"Off and on for about the last two years I've been conducting experiments in Concord," he says. He moved to Concord the latest time about six months ago and has been continuing work at the home of friends.

The inventor says he struck upon the idea for his propulsion system accidentally. He was working on a mechanical experiment, just out of curiosity even though that's considered nifty. I made a mistake which put the motor out of balance. Then I realized it was going to propel itself. It was going to propel itself.

After that accidental discovery, Cook says he came to Oakland to see a patent attorney, and a patent search was conducted to see if someone else had invented it.

He says he filed for a patent in April, 1969, but it was refused on the grounds of mechanics (Newton's third law.) After that, Cook relied according to a change made in the law. He says he filed for a patent in April, 1969, but it was refused on the grounds of mechanics (Newton's third law.)

Right now he says he is in the process of contacting business and getting media coverage.

"I'd like to see the inventor working on his system with a steam turbine in cars," the local inventor says. "I'm looking for someone to help me develop my system."

The most important use of his device would be in cars, Cook says, since it could be helpful in reducing air pollution. "It can be used on just about anything that moves," he says, noting it could be powered even by solar energy in space. "All you need is something to cause the rotors to spin."

In an actual full-sized motor, he adds, there would be a series of rotors which would cause the rotors to have to be eight inches long each.

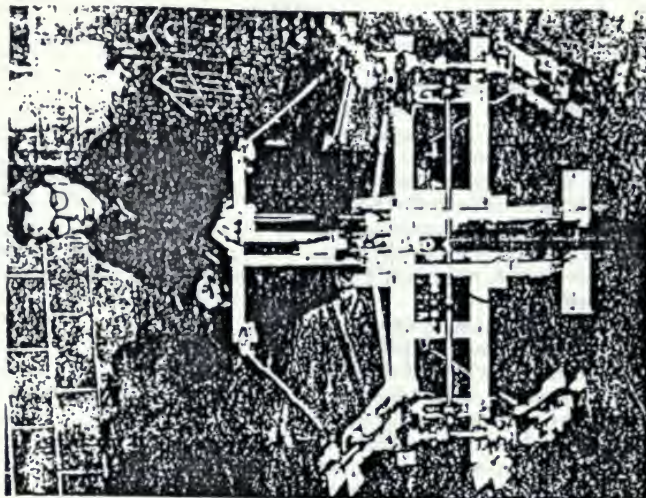
The centrifugal force propulsion system is not Cook's first invention — he says it's his eighth. "Practically all of the rest dealt with the principle of the centrifugal force," he says. But financially all worked out.

speaking, the inventions were too late since those types of presses were just about obsolete.

Cook, who has a high school education, says he is "more or less self-taught. I'm just curious — machinery fascinates me; it just comes second nature to me."

The inventor claims his centrifugal force system really does not oppose Newton's law. "When the frame moves, that's the reaction in Newton's principle! This system just diverts the reaction."

Well, they doubted Copernicus and Freud too . . .



NEW INVENTION — Concord resident Bob Cook says he has invented a new propulsion system based on centrifugal force. He says the system will help develop the space, which he claims will power just about anything that moves. The key feature of a small working model he has built is four small rotors which, when spun by a motor attached to an aluminum frame, propel the model forward on a series of jets.

Cook maintains that he never made the mistake of being too early and was misinformed.

Genial Inventor of Presidio, Texas.

Robert Cook es el nombre de un nativo de la vieja población de Presidio, Texas, de 38 años de edad, atento y caballero, de fácil palabra y clara inteligencia, quien con la satisfacción reflejada en su rostro, nos muestra fotografías, documentos y nos da toda clase de explicaciones de un aparato que acaba de crear de su invención, sobre el cual, la Oficina de Patentes de Estados Unidos solo le falta enviarle el número de registro, pues ya le dió el "visto bueno".

Se trata de un equipo a propulsión, que adaptado a los automóviles y movido a vapor, hará innecesarios el cigüeñal y la transmisión, así como otras partes del vehículo, inclusive los frenos, ya que dicho aparato servirá para impulsar las ruedas y para frenar el movimiento. Pero lo más importante de todo y por ser tema de actualidad la contaminación del ambiente o de la atmósfera, debido a su combustión, esta no producirá miasmas tóxicos, como lo que posiblemente y si se llegara a poner en uso, reducirá en un gran porcentaje este peligro que amenaza al mundo.

Ex. 6-7a

First foreign language news report of Cook's invention.

Nos dice el señor Cook que su aparato ya fue examinado por la United Air Lines, la más importante línea aérea de Estados Unidos, y que habiéndolo estudiado a conciencia, encontraron aceptable, puesto que además se han dado cuenta que invirtiendo las hélices del aparato, estas pueden impulsar hacia arriba, por ejemplo a un avión, aunque el invento está especialmente diseñado para vehículos terrestres.

Nuestro entrevistado que, como decimos, es nativo de Presidio, para largas temporadas en California y nos sigue diciendo que está en espera del número de la patente y que permanecerá posiblemente en la vieja población hasta el día último del presente mes. Está en casa de sus tíos Mariquita, Panchita y Teresita Rodríguez donde ahora también se encuentra su padre, el señor Federico Cook. Nos despedimos del señor Cook trayéndonos la agradable satisfacción de haber conocido a un hombre sencillo y bueno, con muchas aspiraciones y deseos de trabajar y servir.

GENIAL INVENTOR FROM PRESIDIO, TEXAS

His name is Robert Cook, he's a native citizen of our border town, Presidio, Texas. The 38-year old Cook has a keen intelligence and an easy manner. He is quick to show off pictures and documents relating to the latest model of his invention, explaining that although the USA Patent Office has already given its approval, the registered number is still pending.

Cook's invention is a propulsion engine that can be adapted to automobiles and can be powered by steam. The engine needs no drive shaft or transmission, and the adaptor supplants conventional wheels and brakes. In addition, and of most concern today, this engine will not produce toxic materials to pollute the air, thus reducing a great deal of atmosphere pollution.

Cook tells us that his apparatus has already been examined by the United Air Lines, the largest airline in the USA. After studying it, they found Cook's engine acceptable for planes: the propellers can be impelled upward although the invention was specially designed for land vehicles.

Cook, as we said, is a native of Presidio, but spends long periods of time in California. At present, he is waiting to receive his patent number, but will remain in our vicinity until the last day of this month. He is staying with his aunts, Mariquita, Panchita, and Teresita Rodríguez. His father, Mr. Fred Cook is also with him. As we ended our interview with Cook, we felt a pleasant satisfaction of having met a simple and good man with many aspirations and wishes to work and serve mankind.

Translated by Eva Maria Nieto
from *Renovacion, Semanario De La Verdad*
Cd. Ojinaga, Chih., Mexico.
Owner and G. Manager — Tomas Noriega
March 19, 1972

Ex. 6-7b

Translation of the 1972 story

Tucsonan's Son Allowed Patents For His Controversial Engine

By ART EHRENSTROM
Star Business Editor

Although once declared to violate the laws of motion, a crudely built engine invented by a Tucsonan's son has been allowed 10 U.S. patent claims

as a result of a study by United Air Lines.

Robert L. Cook, whose father, Fred W. Cook, lives at 501 E. Jacinto St., said UAL engineers in San Francisco "have opened lots of doors for me and people are beginning

to take me seriously for a change."

The report, signed by Lt. Collins, UAL vice president for engineering, found the device for converting centrifugal force into a linear thrust not efficient enough for airplanes.

but Cook insists this conclusion does not mean it can't be used to propel cars or boats.

"One of the airline's engineers, David B. Doll, told me it could possibly be used as a substitute for helicopter rotors," he said.

Cook was in Tucson en route to the San Francisco patent office, where he expects to be issued the patents and to arrange for foreign patents from Canada, England, France, Germany, Japan and Italy.

Cook had an earlier model of his invention checked two years ago by two University of Arizona physicists. Although they admitted the engine works, they insisted it violated Newton's Third Law — that for every action there must be

an equal and opposite reaction.

"The model works, is all I know," said Cook. "In my case, I don't think Newton's Law has been properly interpreted."

Cook's present model produces about five pounds of "intermittent" thrust, but he believes it can produce a "constant" thrust when four more rotors are added. With six rotors, he thinks, it could produce up to 3,000 pounds of thrust electrically at 2,000 revolutions per minute, without emitting exhaust and without having to have batteries recharged.

Cook is a printing press mechanic by trade, but has resigned his job in Concord, Calif., to devote all his time to the promotion of his invention.

Ex. 6-9

The 1972 Arizona Daily Star story. Cook states, "In my case, I don't think Newton's Law has been properly interpreted."

Evaluation of the Cooke "Propulsion System"

This device will not work in space at all: the unit will move back and forth in a closed path and the center of mass will remain steady. On the ground however, jerky forward motion is possible by applying a centripetal acceleration for an extended time in one half plane and for a very short period of time in the other half plane. Since the bearings of the wheel cannot react to the impulsive force, the load is transmitted to the ground, effectively applying an external force.

This machine can be simplified tremendously by having a single (no sliding) rotating mass at the end of a boom synchronized with a set of brakes. When the reaction is acting forward the brakes are in the released position and when it acts in the other way they are locked. Since the ground transmits a resistance force through the tires, the machine is effectively prevented from returning to its original position.

Still another simplification is possible. Mount the wheels on ratchet bearings.

We have a "rectification of centrifugal force" in appearance only: the device works through an interaction between friction and centripetal acceleration. Note: The analysis by UAL is incorrect. The basic equation is (in free space)

$$\frac{d}{dt} Jv = \frac{dJ}{dt} v + \frac{Jdv}{dt} = 0$$

where J is the moment of inertia. UAL engineers neglected dJ/dt . It is fairly easy to show that the c.m. motion is bounded. On the ground we have

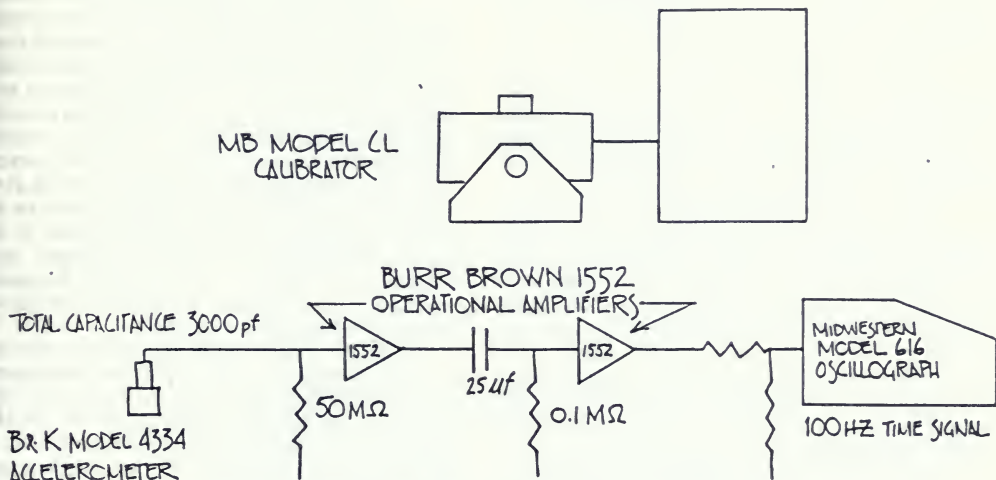
$$\frac{d}{dt} Jv = F_{1-2}$$

in which F_{1-2} is the friction force. Since F_{1-2} has a high static component and a low dynamic component and since an impulsive internal load is absorbed by the structure whereas a finite time application is transmitted to the bearings, the bearings then act as unidirectional brakes.

Recommendations: I suggest Mr. Cooke stop wasting his money and time.

Ex 6-8

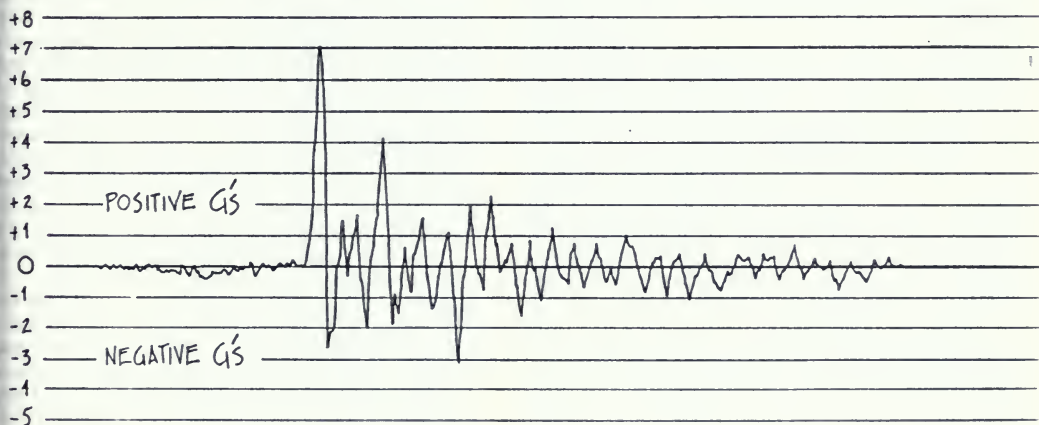
Dr Jim Holloway's evaluation after his study of the Cook propulsion system



SYSTEM FREQUENCY RESPONSE: 3 TO 125 HZ
 CALIBRATION SET FOR 1g = 1 CM SINGLE AMPLITUDE PEAK ON OSCILLOGRAPH
 TEST CONDUCTED at SAN FRANCISCO, CALIFORNIA by UNITED AIRLINES, DEC 27, 1972

Ex. 6-10

Schematic of United Airlines' accelerometer test.



TIME CYCLE
 100 HZ

Ex. 6-11

Accelerometer printout of Cook's cycle showing positive conclusions

Here is the testing arrangement (Exhibit 6-10):

Wolf was amazed at the results: "In all honesty the results of our tests are positive, it does work." The "peak forces" were 6¼ positive to 3 negative, and the positive area on the graph was greater than the negative (Exhibit 6-11).

No one could really explain the results; the tests again proved Cook had done the unthinkable. "We're willing to back up the analysis and our results to anyone that calls," said United, "but that's as far as we can go. We can't recommend one way or another that anyone invest or not invest in this thing."

With such startling conclusions one might think that the engineering staff of United Airlines would be anxious to inform the world of their findings. This didn't happen. Too much doubt set in: With something so seemingly impossible could they be sure their analysis was correct? United didn't want to get involved with controversy. They felt, for obvious business reasons, that since the idea wasn't feasible for the airlines they would avoid any further testing on this crude, inefficient model. United wasn't in the business of promoting inventions.

The whole problem seemed to be one of human vanity. Cook's impression was that the engineers and authorities at United seemed afraid of the controversy that would be initiated by pushing the idea too far. The engineers began to suspect they might be wrong, and a tremendous fear appeared to develop. This attitude ultimately prevented a thorough in-depth study of this tremendous idea. It also prevented the specialists from recognizing the true controversy between Cook's demonstration of an internal propulsive force and the laws of mechanics. The professionals seemed to be extremely confused about the scientific implications of what Cook had or had not uncovered.

The accelerometer tests were finished on December 27, 1972. A few days later, in January 1973, Cook sent Dr. Holloway the following letter (Exhibit 6-12) informing him of the results:

Phil Stall, upon hearing of the test results at United, decided to go ahead and have a more powerful version of the machine built. He asked Cook to get three different estimates from machine shops for the next model. Excited over the accelerometer test results, Cook couldn't begin to expect that he was soon to be undermined again.

By the time Cook had obtained the estimates, Stall, having second thoughts, had soured on the idea. What changed his mind were the opinions of one of his young business associates, Richard Toole, a recent graduate of Dartmouth. Toole had been assigned to accompany Cook to United to witness the tests there. Awed by the reception and treatment that Cook was afforded at United's Testing Center, Toole appeared to be jealous and envious. Earlier, on their drive to United,

he had boasted of his education and his private pilot experience. Cook failed to see how that had anything to do with the testing Toole had been sent to confirm.

Rather than criticize the experimental arrangements while viewing it at United or in Cook's presence the young man did something quite unethical. He later—in private—informed Stall that the tests had not been conducted properly. This statement was an outright falsehood. The tests were performed by United's top engineering professionals. Stall now wanted more positive endorsement from what he considered more qualified personnel. He wished to bring in other experts. The ideal people, he thought, would be at the California Institute of Technology (Caltech) in Pasadena. The President of Caltech, however, recommended Dr. Gary Hiller, an associate professor of mechanical engineering at the University of California Berkeley to analyze the machine.

In January of 1973 Cook, Stall, and Hiller met in San Francisco over a business dinner. Arrangements were for Dr. Hiller and Cook to meet later, on the campus. When fully introduced to the idea, Dr. Hiller's initial reaction was positive. He believed that there might really be something to this machine but didn't trust his own judgment: The machine seemed too good to be true. Hiller took it to a second professor who, likewise, became excited. But the second professor didn't feel confident that they were qualified enough to pass final judgment on the idea, even though it looked good to them. The two men then presented the idea to a third professor, Dr. Joe Brown, who had a reputation as a "super brain." Dr. Brown didn't have time to talk to Cook on the day they were introduced, so Cook left some reports and Dr. Brown said he would check the matter out in time.

A few weeks later a student friend of Cook's, nephew, one Mike Figueira, went to Dr. Brown to ask his opinion on the invention. Dr. Brown told Figueira that he wouldn't spend fifteen minutes checking it out after he realized what the idea was all about because—as he put it—it was "contrary to the laws of nature." Figueira passed this comment on to Cook who offered to come to Brown's office and further discuss the idea. Brown stated flatly that the thing wouldn't work and he wouldn't waste his time on it.

When news of events reached Stall he suggested it was time to "throw in the towel." Stall assumed the professors had spent a lot of time building models in the laboratory. Cook explained that the professors had conducted no experiments, that everything they said was conjecture. Stall couldn't believe "The professors have a chance to make a lot of dough if this thing works, why should they pass up a chance like this?" He wanted out.

Cook went to San Francisco with dissolution partnership papers in hand. Before signing, however, Stall had decided to speak directly with Dr. Hiller

January 2, 1973
R.L. Cook
Concord, CA

Professor Jim Holloway
Aero-Space and Mechanical Engineering Dept.
University of Arizona
Tucson, Arizona 85721

Dear Friend,

My last two weeks have been very exciting because of the tests "United Airlines" has been doing on my propulsion device which you were introduced to last summer. I'm certain that you won't believe the results of the tests since they were positive.

The "accelerometer" showed that the "peak forces" were approximately 64 positive to 3 negative and although the area under each peak was very close to being equal, never-the-less the positive area was greater in practically all the recordings.

The test records have given me a perfect picture of what I suspected all along and I was not at all surprised at the results although the director of "United's" engineering lab, was very amazed to say the least. Mr. Rob Wolf was the one that selected and set up the test. He is a specialist in this field and has had 27 years experience. The testing was very thorough - they worked on it for several days. Incidentally before the test was conducted I mathematically and graphically illustrated the results to be expected but no one expected those results to come true. But they did - the only difference was that I used pounds and inches on my scale and they used "G's" and centimeters on theirs. The results on both scales were almost identical 64 to 3 negative. Perhaps this was all a strange coincidence but it's interesting to see how I set up the equations and got these results.

In closing I must say:

1. Although the machine barely passed the test - it must be remembered that an incomplete system was tested. Certain very important parts were missing on the test machine because I don't have the skill nor the equipment to build them. One of these parts (a radial velocity regulator) for the propellant mass (or weight) could have prevented overacceleration which produced the somewhat long lasting negative force.

At the speed the rotor was turning the radial velocity of the mass should not have exceeded 14 ft. per second but without it this velocity reached about 3 ft. per second which was too much for good efficiency.

2. I'm convinced that I have discovered a new principle regarding motion - namely how angular momentum can be converted into a linear force which can increase or effect linear momentum in space or in any environment where motion can take place.

3. The wording of the old accepted principle of linear momentum is incorrect and should be buried with it's author (Newton I believe). I for one refuse to be limited by such teachings especially when they are wrong.

4. The system appears to be highly inefficient at first glance - but it really isn't when the full truth is known. A properly built machine will fully demonstrate this fact.

I am preparing drawings for a "factory built" machine which hopefully will be finished some time this year. It will be a complete system designed to produce about 200 pounds of constant force.

I'll keep you informed on my progress and if you have any questions please feel free to ask, also if you have any suggestions that might help expedite the work, I'd like to hear them.

Sincerely,

Robert Cook

Robert Cook

confirm the experiments done to disprove Cook's model. When Cook arrived at his office, Stall was still waiting for Dr. Hiller to return his call. They both waited but finally, becoming impatient, signed the paper anyway. Cook was just leaving when Hiller's call came through.

Stall quizzed Hiller on what tests were conducted at the University. He was informed that since the idea was against the "laws of nature," the professors hadn't considered it worth their time to construct anything or do any experiments because they assumed the idea to be worthless.

Cook had been totally honest when he told Stall no experiments had been done. Now, realizing this, Stall suggested that they tear up the dissolution

He was informed that since the idea was against the "laws of nature," the professors hadn't considered it worth their time to construct anything or do any experiments because they assumed the idea to be worthless.

papers and continue with the original contract. But Cook was just too angry. He felt that Stall didn't trust him, that his honesty had been impuned, and that his partner had caused him to be subjected yet once again to humiliation from professors. Cook's feelings had been hurt too much to continue the partnership.

On his own now, Cook wouldn't quit. Deciding on the basis of cost estimates and the recommendations of United's personnel, he chose Menches Tool and Die, Inc. of San Carlos, California to build his sixth working model (the first that was not handmade). The machine cost a whopping \$3,869. It did produce a greater positive force, but still was not the complete system needed to produce continuous acceleration. This 85-pound model could—at a slow 70 rpm and 15 pounds of spring pressure—drag a 200-pound man across the floor. The fact that so little spring pressure was used strongly indicated that the model worked without the help of static friction.

During the latter part of 1973 Bob traveled with his shop-built model seeking supporters, investors, and manufacturers. He was battling a dead but powerful opponent—Sir Isaac Newton—and his proof was still too weak to be taken seriously by Newton supporters. His meetings with scientists, professors, and

engineers, however, slowly educated him, providing the nomenclature needed to later answer his critics.

Eventually, Cook felt better prepared to remedy the hostile Dr. John Olsen at NASA. He made an appointment, this time bringing the professionally built model on an air cushion as well as an improved grasp of the necessary terminology and mathematics. Olsen wanted to witness the demonstration in the hall by the receptionist's desk. Cook was offended at this. He had spent years developing an alternative concept of transportation and the only facility his government could give him to demonstrate his working model was a small place by the receptionist's desk. The inhumane Olsen made it clear from the outset that he wasn't at all pleased having to look at the machine. Fortunately, as Cook prepared the demonstration, many scientists and engineers gathered that a classroom had to be opened to accommodate them. With a blackboard to use Cook took advantage of the opportunity to give approximately a one-hour lecture demonstration. Colonel Alfred M. Worden, one of the Apollo 15 astronauts, was in the audience. Afterward he wished Cook success because he felt rocket transportation was too expensive.

This visit wasn't without moments of humor. When the lecture was over, Cook and his friend Harold Furlo (who had accompanied him to NASA) were discussing with Dr. Olsen the errors that he, Olsen, had made in a previous analysis. "Well," Dr. Olsen said, "I might be inclined to believe that such a thing is possible if no less an authority than Newton—Isaac this is—hadn't said this sort of thing was impossible."

Furlo, overhearing Olsen, quickly jumped in for the fray with some salty language: "In this regard Newton didn't know what the fuck he was talking about." Dr. Olsen and the other sophisticated scientists present were deeply shocked. They had never heard anyone speak so irreverently of Newton.

Escorting Dr. Olsen by the elbow, Furlo said, "Come over here and let me explain to you how the machine works." He went on to depict how the two rotors acted like two men pulling a boat down a canal with ropes stretched at 45° angles. Furlo showed how these two men pulling evenly on both sides of the canal at the same speed could make the boat move down the canal in a straight line.

"I can agree with you that this might work on the ground or in a canal but where are you going to get the two little men to pull this thing in outer space?" Dr. Olsen asked. Furlo, pointing at the black motor on the machine, replied, "Do you see that motor there? Well that small motor is the two little men that are going to pull this in outer space." The response left Dr. Olsen flabbergasted.

The lecture had been well received but Cook's model had barely propelled (for then-unknown reasons). Therefore, he had not provided an overall

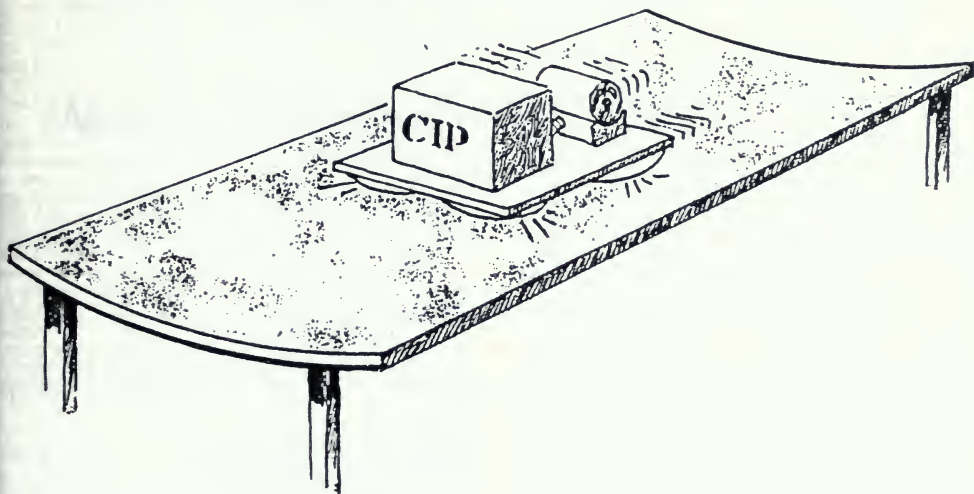


Fig. 6-7
The warped platform caused the edges of the air cushion to drag. The warp is accentuated here, but could not be seen in the actual situation.

convincing demonstration. The model, mounted on an air cushion, had been placed on a wooden platform Cook had brought from home. Not until he placed a straight edge across the platform after he had returned home did Cook realize what had gone wrong. Covered by sheet metal on one side, the platform had been warped—the sides had curled upward due to the high moisture content of the air following heavy rains. Because of the model's low efficiency it needed a perfectly level surface for a proper demonstration. The warped platform had a devastating effect on the machine's performance: It had caused too much drag on the air cushion, especially during the positive force cycle (Fig. 6-7).

Cook phoned Dr. Olsen to explain the machine's poor performance. But the NASA scientists already felt they understood what was happening and had begun their dynamic analysis. They were certain the machine wasn't doing what Cook was convinced it was. They saw no need for him to return with the machine. Copies of their latest analysis would soon be mailed to him. At the lecture, Cook recalled Dr. Olsen saying, "If Newton's third law goes, we're wide open for perpetual motion." From the way this was said, Cook got the impression that Olsen considered perpetual motion some kind of a crime.

I came into the picture in January of 1974, first meeting Cook while on vacation from Denver, Colorado. I was visiting my brother Brett, a graduate student at the University of the Pacific in Stockton, California. Brett's roommate Art Smoke was Cook's nephew. Brett and Art fascinated me with their accounts of Cook's experiments. They both had intense confidence in the inventor's ingenuity and his integrity. I anxiously awaited meeting Cook at Art's wedding reception, and on that very day my brother and I made arrangements with Cook to view his machine and hear his unbelievable story. Seeing the model a few days later, I fell in love with Cook's project at once and soon became convinced that the man hadn't been given a proper hearing.

Then 23, I left a good job in Denver to assist the inventor, expecting no immediate financial compensation for my work. Even at that young age, I had extreme confidence in my ability to promote, and, being a small-town farm boy from Iowa, was an extremely hard worker. With a reputation for being thorough in my work and studies, and with a degree in mathematics, I felt I could beneficially complement Cook in his efforts and be an ideal assistant to him. My own frank evaluation of his working model led me to agree with his interpretations. The conclusion Cook

had reached was, to me, quite staggering. Being trained in classical physics, I initially experienced a great deal of difficulty and discomfort in considering Cook's contentions.

I soon reasoned, however, that a machine this fantastic couldn't possibly be difficult to promote. No, not something with the potential to reshape history, provide a major solution to the energy crisis, and correct errors in the foundations of physics. How could this invention help but stir up all kinds of interest? Surely, the rewards were too great for absolutely no honest, in-depth study to be done. I was in for the shock of my life. To this day, ensuing events do not seem real to me. If Cook were wrong, I wanted to know. I could accept defeat, but not knowing for sure one way or the other drove me crazy. All of Cook's experiments to date had proved positive.

Many of the experts had explained that Cook's model was taking advantage of static friction to impulse along. With the friction removed, it would duplicate the earlier experimental test results of Dean's drive. (When the load on Dean's unit was placed on rollers, it simply oscillated back and forth.)

Cook had done experiments on both a boat in a small pool and on an air cushion. To his expectation and everyone else's disbelief the machine worked better without friction. But Cook could not win. He'd carry out one suggested experiment successfully, and there was always another he hadn't tried, always one more. It all started with Dr. Clark Jacobsen at the University of Arizona. He suggested that the wheels on Cook's original model weren't properly lubricated. With a little oil on the wheels, he maintained, the device shouldn't propel. A few squirts of oil, and the machine ran beautifully! Next, Dr. Tom Livingston suggested putting the machine on water. Cook did, and away it impulsed! Then Dr. Holloway suggested the air cushion experiment. After this success, they concluded, "Well, maybe that's not the way to do it. It has to have an accelerometer test." And after that test proved the machine worked, the professors were still not satisfied. They admitted the test results proved positive, but were convinced that the test equipment was not properly set up, although it was done by professionals for a full two weeks. What does it take?

In February of 1974 Dr. Olsen's revised report arrived along with a separate, smaller report from a Dr. Kenneth Dunham, which corroborated Olsen's report. All Dr. Olsen had done was to change the timing of his old incorrect principle. Nevertheless, we weren't really counting on a miracle. Dr. Olsen did suggest that we read a brief discussion in Arthur C. Clarke's *Profiles of the Future*. He indicated we might recognize our own device in the passage:

Yet every few years, some hopeful inventor builds a actually demonstrates, at least to his own satisfaction, a antigravity device. These are always laboratory models producing (or, rather, apparently producing) only a very lift. Some of the machines are electrical, others purely mechanical, based on what might be called the "bootstrap principle," and containing unbalanced flywheels, crank springs, and oscillating weights. The idea behind these the action and reaction may not always be equal and opposite, and there may sometimes be a little net force left in one direction. Thus, though everyone agrees that you can't lift yourself by a steady pull on your bootstraps, perhaps a series of properly timed jerks might have a different result.

Put this way, the idea seems completely absurd but it is not easy to refute an intelligent and sincere inventor with a beautifully made machine containing dozens of parts moving in every possible direction, who maintains that an oscillating contraption produces a net lift of half an ounce and that a bigger model could take you to the Moon. You may be 99.999 percent sure that he is wrong, yet be quite unable to prove it. If gravity control is ever discovered, it will surely depend on much more sophisticated techniques than mechanical devices—and it will probably be found as a byproduct of work in some completely unexpected field of physics.²

Also in February I joined Cook for his second meeting with Dr. Brian Williams, a physicist at Lawrence Livermore Laboratory (Livermore, California). Cook spoke highly of Dr. Williams, rating him as the most open, genuine, and brilliant scientist he had yet met.

Dr. Williams began an honest analysis of the principle. After some concentration he concluded that to give this principle a complete and thorough analysis would require several weeks or even months. Dr. Williams suggested that we conduct a rope experiment. He felt if we could make the model hang off center it would have a super convincing demonstration for a scientist.

A front page picture (Exhibit 6-13) in the *Concord Costa Times* (February 8, 1974) documents the machine suspended from ropes at Buchanan Air Field, Concord, California. Again, Cook expressed his confidence that Newton's third law was in trouble. The *Times* had interviewed both Olsen and Williams. As expected, Dr. Olsen's words were not kind: "Whether the device may have limited success on earth, it would never work in deep space. He's trying to violate the laws of nature and not having much success, but it might be nice as a Christmas toy for kids."³

Dr. Williams wasn't quite as severe in his skepticism: "I have my doubts that it does what he thinks does, but the important thing is to see if it performs and then try to explain why. And even if Cook has developed a new form of propulsion it is probably :

²Compare these words to John W. Campbell's remark (*Analog*, Oct. 1967): "... a breakthrough device demonstrates a hitherto unguessed potential in the Universe. And is, therefore by definition, contrary to 'known' established laws of Nature."

CONTRA COSTA TIMES

"THE GREEN SHEET"

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\$2.50 A MONTH

Machine Challenges Newton's Law Of Motion

By SUE SHOEMAKER

An apparently simple, 85 - pound device which Bob Cook of Pittsburg has invented may not revolutionize the transportation and aerospace industries overnight — but then again maybe it will.

Cook has spent the last six years and about \$50,000 developing what he claims is a revolutionary new method of propulsion, which defies scientific laws of nature.

Despite doubts ranging from skepticism to outright disbelief on the part of scientists and engineers at Ames Research Center and United Air Lines, Cook says his device in a more sophisticated form would be capable of solving the energy crisis and propelling a vehicle, from bicycles to space shuttles.

Basically, Cook's device consists of four rotors mounted in two levels on a frame. Atop each rotor is a weight which slides back and forth in a short track.

As the rotor turns forward, the weight, attached by a spring to the frame of the machine, slides forward, making the machine forward.

As the rotor continues its revolution the weight slides back, but because the speed of the rotor has been reduced the weight moves back with less force than it moves forward, so although the machine jerks backward, the backward jerk is weaker than the forward jerk and the net effect seems to be a slight forward movement.

The forward thrust is intermittent, occurring only when the weight slides forward once per revolution, but Cook and his assistant, Joel Dickinson, are trying to improve it by making the forward thrust continuous.

Cook acknowledges the device he is testing is a crude model — "sort of the Wright brothers' first plane," says with a chuckle. Although rotor movement is now very slow, he says it is the speed of the machine could be increased 1,000 times.

"With the help of advanced hydraulics and ball bearings, there would be hundreds of uses for it," he says.

Cook was testing the device at

Buchanan Air Field in Concord Wednesday and planned to take it back to Ames later in the week. Although it is currently powered by electricity, he says one of the device's most revolutionary features is that it can run on any type of power, from steam to solar energy.

In addition, he claims the machine needs relatively little power to reach great speeds, an important factor in times of fuel shortage.

"This form of inertial propulsion could eventually be the most widely used form of propulsion. It could outrun anything we have now," he predicts.



MACHINE'S MAKERS
Bob Cook and Joel Dickinson

And even of more scientific significance, Cook and Dickinson, who admitted he was an "A - 1 skeptic" until he saw the machine, are sure the invention disproves Newton's Third Law of Motion, that every action has an equal and opposite reaction.

They are confident that once it is accepted by the scientific establishment the device will force a re-evaluation of the basis of physics and revolutionize the entire field.

But acceptance does not seem forthcoming, although scientists at both United and Ames have been sufficiently interested in the device to test and analyze it.

Their conclusion has been that, on a theoretical basis the device should not work; that according to known scientific principles it cannot contradict Newton's Law and do what Cook believes it does.

But to David Doll, an aeronautical engineer at United, this does not entirely rule out the possibility Cook has really discovered something.

"He may have something in this invention which is not covered by simple Newton's Law analysis," Doll says. He added according to Newtonian analysis the helicopter should never have worked.

"Maybe he's got another helicopter," he says.

According to Doll, the United scientists concluded the device would not be practical for use by the airlines. In addition to certain technical problems which would be encountered in adapting the device on a large enough scale to lift and propel planes, he says the method is substantially less efficient than current means of propulsion.

"But it's an interesting device," Doll says. "I can't really see any promise for it in the industry but it's fun to watch. I'm kind of rooting for him."

An Ames scientist who is familiar with Cook's work is more discouraging. While the device may have limited success on earth, it would never work in deep space, he claims.

"He's trying to violate the laws of

nature and not having much success," he said. "But it might be nice as a Christmas toy for kids."

Dr. John Trenholm, a physicist at the University of California's Lawrence Laboratory at Livermore, is unwilling to be quite so strong in his skepticism.

"I have my doubts that it does what he thinks it does, but the important thing is to see if it performs and then try to explain why," Trenholm says.

And even if Cook has developed a new form of propulsion, Trenholm says, it is probably so weak that it will never prove useful in transportation.

But even limited success would be very valuable to science, he adds. "The value would not be in practical application but in pointing out to scientists that in some small way the principles on which they base their work is wrong."

The discovery of just such an "error" years ago led to the development of the hydrogen bomb, he said.

"The scientific community is not always right," Trenholm pointed out. "There's no fundamental reason why someone in their backyard in Pittsburg can't come up with something really significant."

A former printing pressman, Cook has worked full time on his inventions for the past six years. Although he has had no advanced training in engineering or physics he says he comes from a "long line of engineers and physicists."

Stockton Record



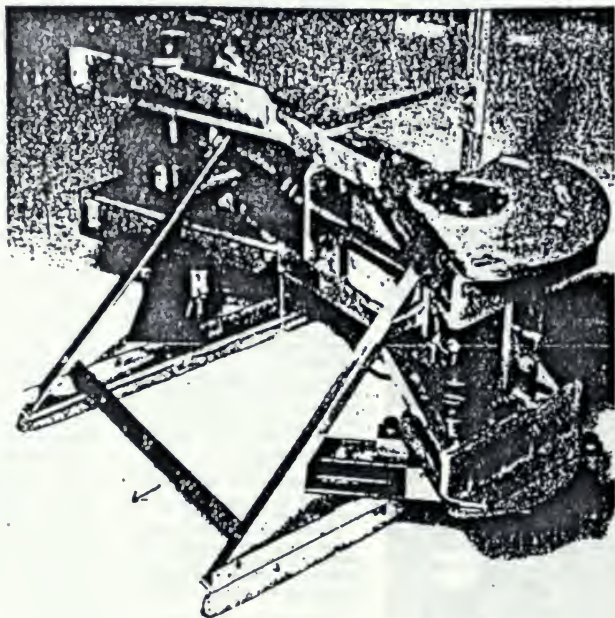
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XX

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COOK'S 'INTERNAL PROPULSION' DEVICE

Invention Displayed

Newton Challenged

By June Land

Of the Record Staff

Isaac Newton's third law of motion may have been contradicted Monday afternoon in Stockton.

A contraption resembling a child's large scale erector set model described by its inventor as an internal propulsion device, passed its final test—it moved forward on almost frictionless ice.

Newton's law says that for every action there has to be an equal and opposite reaction or to put it another way—for a body to move it must be acted on by an outside source.

"Newton made a mistake, that's all," said the inventor, Bob Cook, 39, of Pittsburg, who maintains the device will revolutionize transportation.

The device is made of counter-rotating cams and gears resting on thin blades that are powered by an electric motor, but battery or even solar power could be used, says Cook.

He explained the contraption is propelled by the so-called "phantom" Coriolis force trapped inside the rotors which results in the motion despite the absence of friction.

Webster identifies the Coriolis force as corresponding to

the Coriolis acceleration of a body equal to the product of mass by the Coriolis' acceleration and responding as a result of the earth's rotation for the deflection of projectiles and the motion of the winds to the right in the northern hemisphere and to the left in the southern hemisphere.

Skeptics claimed the device would "just sit there and rock back and forth" if all friction were eliminated, said Cook.

It moved forward in short spurts Monday afternoon at Oak Park Ice Rink, however, Cook maintains the experimental model can be improved to get a more consistent

force by more and a better combination of rotors.

"I have definitely proven the principle is sound by doing all the tests that are required. Now I have to determine the efficiency," he explained.

Some of the tests included movement on an air cushion suspended from ropes and in a raft floating in a swimming pool.

"People say it can't work because it defies the law of nature," said the soft-spoken and rather shy inventor who admitted he has no formal education.

He was a printer for about 18 years in the East Bay area and says he stumbled on the idea for the contraption when he was experimenting with a new energy source.



BOB COOK

"I made a mistake and came up with this."

Cook has been working on the test model for about six years and has invested some \$50,000, according to an assistant, Joel Dickenson, 24, of Pittsburg.

Cook claims the device can be used to propel automobiles and "could even move in space" if solar power were used.

He patented the device in 1972 and the next step is to either raise capital to produce a working model or to sell the idea to a manufacturer, said Dickenson.

weak that it will never prove useful in transportation. But even limited success would be very valuable to science. The value would not be in practical application but in pointing out to scientists that in some small way the principles on which they base their work is wrong. The discovery of just such an "error" years ago led to the development of the hydrogen bomb. The scientific community is not always right. There's no fundamental reason why someone in their backyard in Pittsburgh can't come up with something really significant."

That week Cook and I paid what was to be our last visit to Dr. Olsen and "friends." The results of the rope experiments had—so far—been inconclusive. Because the positive force was intermittent, the 5-pound machine did not hang on one side; rather, it tended to impulse slightly more in the positive direction than the negative. What was convincing, though, was that when we made it swing like a pendulum we could increase the arc by timing the positive impulse in the forward swing, and decrease the arc by timing the positive impulse on the rearward swing.

One of the purposes of our return trip to Ames Research Center that spring was to gain access to the Moffett Field blimp hangars. These had extremely high ceilings that would allow us to present a demonstration to the scientists on much longer ropes. With longer ropes we were sure we could give a more impressive demonstration because gravity would take longer to produce its negative effects on the machine. This would allow the machine to swing further off center. A large air hangar was one of the few places we could think of in which to do a convincing experiment. We had considered suspending the machine from a bridge, but were afraid air currents would interfere with the results. (Remember that the positive force produced by this model was very weak.) The smaller air hangar in Concord used for our earlier experiments was inadequate; the ceiling was just too low.

We approached Dr. Olsen with our plans and explained how we needed an indoor environment where we could use longer ropes for our experiments. Unfortunately, these experiments didn't appeal to the space scientists. They vetoed use of the air hangar for this purpose.

I finally cornered Dr. Olsen and said, "Look, we have successfully completed all the experiments that have been suggested and the machine has stood the tests. Is there any other experiment we could try that might convince you?" After a few minutes he responded, "Yes, there is something. Find yourself a perfectly smooth ice-skating rink, place the machine in a rigid base supported by sharpened and honed out hockey blades, and if the machine is successful I will personally come to see the demonstration."

Dr. Olsen was quite confident that this experiment, if set up properly, would fail. The Stockton

Record (February 12, 1974) has a large picture of this experiment on its front page (Exhibit 6-14). The experiment was conducted at the Oak Park Ice Rink in Stockton, California, and it was extremely successful. The machine had seldom worked better. It spurted across the ice rink. We turned it around, and back it came.

We compared this experiment to the last page of Dr. Olsen's latest report. (See Exhibit 6-15.) There, Olsen had suggested that the forward impulse tended to depress the front and lift the rear of the machine so that it moved forward with the aid of friction. We took a close look at our working model—it was perfectly stable. Olsen's argument couldn't possibly be right.

We called him to remind him of his promise. Surprised at our results, he nonetheless remained skeptical. "You sure you had enough weight on the machine?" he joked with Cook. He never did keep his promise.

So far, the various front page stories on Cook's invention had gotten no reaction, but they did interest KRON-TV (Channel 4 in San Francisco) enough to do a brief segment on their nightly news program. Here's how that TV interview of April 5, 1974 went:

ANNOUNCER: Jeff Simon is in Concord visiting the inventor of a strange new machine.

SIMON: Printer and part-time engineer Bob Cook has invented a machine which according to everything we learned in high school physics shouldn't work. According to Newtonian law anything that moves must react against something else. A car's tires react against the pavement, an airplane's propellers react against the air, but Cook's internal propulsion machine suspended here on a cushion of air moves from some internal force called the Coriolis effect.

COOK: The rotors utilize a force which is similar to a force you feel while walking toward the center of a spinning merry-go-round, and you'll think your feet are coming out from under you. This is a very powerful force.

SIMON: How might this machine be used in the future?

COOK: In the future it could be used in space and in general aviation and both a major airline and NASA have studied the principle, the major airline has agreed with it in principle even though they're a little concerned with the efficiency at this time.

SIMON: Cook says he had developed faster, more efficient models of his invention but he can't show them because they're not patented yet. He figures if he puts together 18 of these rotors set at certain angles the internal propulsion machine will fly. Well, who knows, maybe that's how the flying saucers do it. Jeff Simon in 4 Country

The segment was scheduled to appear on both the early evening and late evening news. For reasons unknown it wasn't repeated on the later news program.

In late February and early March of 1974, we paid several visits to the University of the Pacific campus. Reactions of the professors were typical: Dr. Greg Howland wouldn't take time to evaluate it, "unless it was hanging four feet out on ropes";

...With this particular timing, the first four impulses contribute to forward motion, and the last two contribute to a rearward motion. It is interesting to note that the greatest impulse I_5 (contributed by the impact of the mass at which time the impulse direction is $\omega t, \pi/2$ or 270°) occurs in the rearward direction. Because in practice, the springs on the demonstration model of the machine are attached at one end to the sliding masses, one pair of which is well above the center of mass of the machine, and are attached at the other end to the rear of the vehicle, the forward impulse I_2 tends to depress the front and lift the rear of the vehicle. At the occurrence of the rearward impulse I_5 , however, the action of the upper sliding masses tends to lift the front and depress the rear of the machine. Because I_5 is greater than I_2 , the frictional force of the machine in contact with a supporting surface, or the rolling friction if supported on wheels, would tend to be greater in the rearward direction. Thus, there could be a net forward movement of the vehicle through an exchange of momentum with the Earth. In space, however, as shown by the analysis, there would be only an oscillation to and fro, with "to" equal to "fro".

Although the analysis was made on the basis of the conditions of the sketch, it is completely general and any other numerical values of $\omega t_1, \omega t_2$, and ωt_3 could be used (subject to $\omega t_1 < \omega t_2 < \omega t_3 < \pi$) in place of the values of $\pi/4, 3\pi/8$, and $\pi/2$ used in the example given here, and the same result ($\frac{2}{\pi} I, \neq 0$) would be obtained.

Ex 6-15

Ice experiment disproves the conclusions Dr. Olsen made in a 1974 NASA report.

Dr. Larry Fisher just wanted to look at the idea on paper to satisfy himself. No one got excited about our model. Dr. Fisher did have the courtesy to give us some advice on promoting the idea. "Take the humble pie approach," he suggested. "Since you have no advanced education, and can't speak the professors' language, simply walk in and explain you have a machine that works. You can't understand how it works so you would like a professional explanation or evaluation." We had tried all approaches, including this one, and none had met with much success.

We contacted the science reporters of the *San Francisco Examiner*, the *Oakland Tribune*, and the *San Francisco Chronicle*. Greg Mahn of the *Examiner* was not interested. Franklin Jorth of the *San Francisco Chronicle* agreed to see us but after a few minutes of hearing our ideas he found them far too controversial for his interest. He laughed! Peter Christensen of the

Tribune was the most openminded and interested. He made a special trip to Concord to visit with us and view the model. The machine did get Christensen excited but before doing a complete story he wanted a professional endorsement. He called the Lawrence Livermore Laboratory and requested assistance in finding the best individual available to evaluate Cook's idea. Dr. Brian Williams was the man recommended. Christensen was the one who first put Cook in contact with Dr. Williams. The reporter wanted the scientific endorsement of the idea before he would do a story. Williams suggested that more experiments would have to be conducted before he could make a public statement for or against the idea. The story was never published.

In light of all our experiments with positive documented results, we raised the question: How can scientists be so positive that we are wrong? We have

working hardware; they have theories. Only the ultimate test remains: will the machine work in outer space?

The exchanging of momentum with the environment through friction was one phenomenon cited as aiding our system. Honest testing, however, showed that the results were the same: The less the friction, in fact, the better the results. Early in 1974 we valued our progress. It seemed we had exhausted most of our possibilities with the existing model. To convince the businessmen, we had to convince the scientists. So far, we had failed. Our biggest problem was lack of funds. We had to build a super convincing model that could produce a constant thrust.

The disappointment was the poor overall efficiency of the machine. Based on the United Airlines test we estimated approximately a 1% efficiency. Cook, a perfectionist, wasn't proud of this system. He took pride in the fact that the machine had uncovered tremendous flaws in the field of physics (an extremely great discovery in itself), but the efficiency wasn't impressive. The fact that the model had so far passed all tests and did appear to dispute the laws of physics should have been reason enough for a far greater investigation. But this wasn't to be.

Cook now became determined to find a more efficient way to propel inertially. He continually reminded me of his belief that any object under the influence of gravity was propelling with inertial forces, and was doing so superefficiently. We had to find that secret.

So, in the early part of 1974, nearly broke, we abandoned our promotion of the patented idea—our only real hope for financial support—and went back to the drawing board. We began about six months of intense experiments to find a more efficient way to propel. A basic approach soon developed in experimenting with new concepts: identify road blocks; circumvent road blocks. Before finding the right solution we were to discover many ways of "How not to propel efficiently." But we did experiments. We wanted something the experts could not ignore. We branched to unexplored areas, tested new principles. Both of us were fighters, not quitters. Cook was no ordinary man; he possessed vision, foresight, and I became his pupil. He was fighting for the truth. When I frequently became deeply depressed over the discouraging remarks made by the experts, Cook continued to remind me that the experts were speaking from ignorance of our principle. He gave me the assurance I needed.

We were on a wild adventure. "I would rather be ashes than dust," Jack London said in 1916. "I would rather that my spark should burn out in a brilliant blaze than that it should be stifled by dry-rot. I would rather be a superb meteor, every atom of me in magnificent glow, than a sleepy and permanent planet. The proper function of man is to live, not exist. I shall not

waste my days in trying to prolong them. I shall use my time."³

The Wright brothers themselves had developed their expertise from experiment after experiment. Wilbur Wright stated our feelings perfectly: "Having set out with absolute faith in the existing scientific data, we were driven to doubt one thing after another, until finally, after years of experiment, we cast it all aside and decided to rely entirely upon our own investigations."⁴ Neither Wilbur nor Orville ever got around to high school diplomas. They felt reading gave them a great degree of misinformation. Cook held a similar attitude: "I've gotten more clues from nature than from anything I've read in books," he recalls. "When I'm really stuck I just look at nature."

Our early models developed both positive and negative forces. The positive being slightly stronger than the negative. We were determined to find a principle that eliminated the negative forces, which had adversely affected the performance and efficiency of earlier models.



Cook at West Pittsburg, California, where an important series of experiments was conducted during 1974

THE EXPERIMENTS

It is beneficial to review our experiments and discuss what we learned. Past experiments had provided one solid clue to a solution: Counterrotation would be required. Intuitively, Cook also felt sure that the solution would resemble a miniature solar system.

We developed a checklist of forces, evaluating each force before building any models. We felt we definitely had to consider Coriolis, centrifugal, centripetal, and gyroscopic forces.

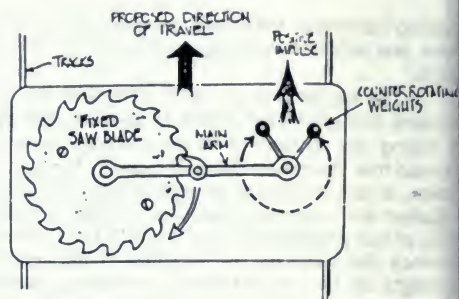


Fig. 6-8

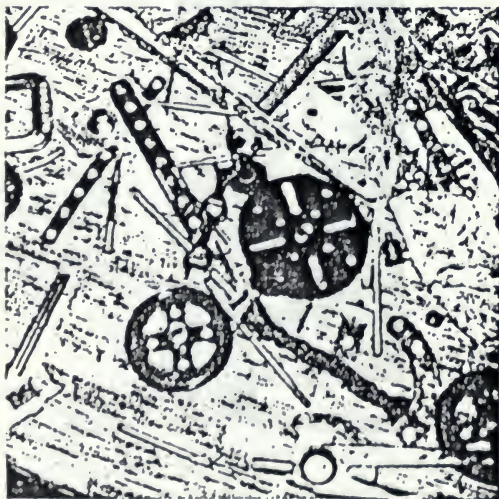
(a) Ratchet arm

Ratchet Arm

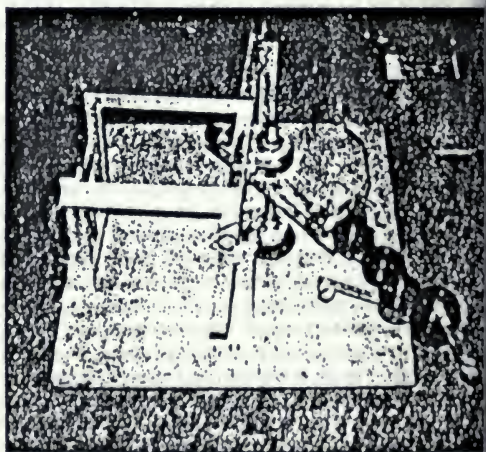
The ratchet arm was our first new concept. Here, we had one large arm moving clockwise. On the end of that arm were two smaller counterrotating arms each with a weight on the end. The counterrotation canceled the lateral forces of the small arms and produced a two-directional force, first positive then negative. The object of the model was to keep the main arm rigid on the positive impulse and translate that force to the machine, thus propelling it forward (Fig. 6-8a). When the force went negative, the main arm flexed in a clockwise direction canceling our negative effects, thus preventing these effects from returning the cart to its original position. By phasing in a complement of units, we hoped to attain a constant positive force.

We also had to consider the fact that the two counterrotating weights were changing radius with respect to the main center of the system. We would have Coriolis forces present here that had to be considered. The weight going away from the center of the system produced a negative Coriolis force on the center of rotation, while the weight going toward the center of the system produced a positive Coriolis force. The Coriolis forces canceled each other.

We reviewed our checklist. Everything appeared to check out. We were ready to build a working model. The lack of money forced us to build the small ratchet arm from miniature parts. We used portions of several toy clock kits, a circular saw blade, and a small electric shaver motor to construct the first experiment.



Miniature parts used to build the ratchet arm



Ratchet arm under construction in 1974

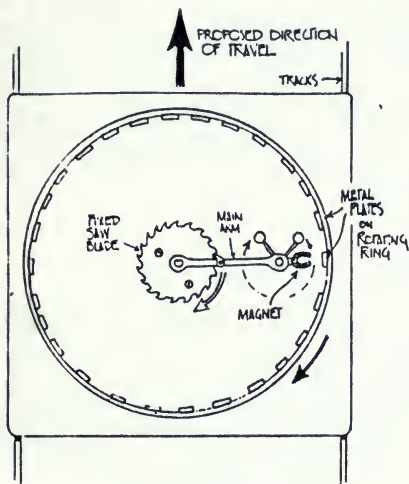


Fig. 6-8
ratchet arm with magnet and rotating ring.

mental model and begin experimenting. What a disappointment! The machine wouldn't propel. We tried adjustment after adjustment with no success.

There was obviously a negative force in the system, but we couldn't find it. My diary entry of June 10, 1974 reports: "Results very depressing—had a negative force in the system and we aren't sure what it's all about. Efficiency and performance of little system poor."

We had been certain this new idea was it, the failure came as a terrible blow. We had to be overlooking something! A few more days of experiments and Cook recognized the problem, which was caused by tangential acceleration. When the main arm moved backwards, kinetic energy was stored in the arm. When the positive force developed, all of it was used to stop the negative momentum of the arm, and none was left to be translated into forward motion of the machine. We added a new ingredient to our checklist tangential acceleration. We did nonetheless learn how an oscillating tangential force could be controlled. This bit of information eventually proved to be a significant ingredient in the ultimate solution, even though it seemed rather unimportant at the time.

We next considered using a magnet in conjunction with the small ratchet arm to prevent the negative acceleration problem. We added a magnet on the end of the main arm with its pair of small counterrotating rotors. The idea was to introduce an outside rotating ring with small metal plates attached at appropriate intervals (Fig. 6-8b).

Our object was to use the positive centrifugal force provided by the small counterrotating arms to

propel the system forward. When the negative centrifugal force appeared, we would introduce our "outside" force provided by the rotating ring, which was also attached to the cart. The outside rotating ring had its small metal plates positioned to align themselves adjacent to the magnet at the appropriate timing, and prevented the flexible arm from flexing negatively. By providing the rotating ring with a constant angular velocity, we hoped to absorb our negative force by converting it to a negative torque on the rotating ring and overcoming the torque with more energy from our power source to maintain constant angular velocity. The magnetic principle here would be similar to an automobile speedometer or tachometer.

We soon learned that we had additional problems. We could not prevent the negative force from affecting our center of motion and destroying the positive effects.

Pulsating Ring of Energy

Instead of using small counterrotating rotors and a magnet to create the force why not (Cook reasoned) simply spin four weights near a magnet attached to the frame of the system?

We had hoped that when the weight passed by the powerful magnet it would produce a positive impulse force on the magnet and propel the cart in the positive direction (Fig. 6-9). We hoped the simultaneous negative impulse force registering on the weight would slow it down but not translate itself to the center of the system. If this occurred we could then accelerate the flywheel back to the proper angular velocity without negative effects. From studying our experimental results, we found that the force required to re-accelerate the weight would be drawn off of a particular portion of the spinning ring. The tangential force needed to reaccelerate the flywheel would be translated to the center as a negative impulse force, resulting in a balanced system. This experiment failed.

We now thought we could lick this acceleration problem by increasing the flexibility of the system. Instead of using a rigid arm, why not use a flexible arm (heavy cord) attached to four rotating weights? We had to find a way to convert the negative impulse force into a negative torque without affecting the center of the mechanism. A floating ring was placed between the center and the spinning weights to distribute the force acting on one weight to all the other weights simultaneously, thus producing a torque. The torque would cause the cords to begin wrapping around the center shaft thereby changing the diameter of the flywheel and the amount of inertial mass stored in the flywheel. Therefore, energy could be drained from the flywheel and used for propulsion. We hoped that, because the spin of the weights was from the negative-

to-positive anticipated direction of travel, the resulting positive force produced on the magnet and attached cart would then propel our machine forward (Fig. 6-10).

After building the model more problems became obvious. When the weight spun near the magnet it would slow down and get out of position in relation to the other weights before the floating ring could convert the negative impulse force simulta-

neously to a negative torque. To reaccelerate the weight back into position (in relation to the other weights) again created a negative tangential impulse force balancing the positive one. This model failed.

Even though these experiments weren't successful they taught us how important flexibility was the system, which provided our second major clue. Flexibility might have to be included in any final solution. We were on a systematic and logical path to truth.

Unbalanced Rotor with Shift

But why couldn't we propel by simply using unbalanced rotor? Figure 6-11a shows a complete cycle of the rotor. With a 2 to 1 ratio, the small rotor travels 180° for every 90° the large arm travels. Remember that a system of four rotors will cancel out unwanted vertical and lateral forces. Why not, at position A, shift our weight to the opposite end of the unbalanced rotor? (See Fig. 6-11b.)

The centripetal and impact forces created when shifting the weight could be canceled by a complete system. The Coriolis forces would be acting vertically, and would also be canceled with a full complement of rotors. It appeared as if we could shift the weight without producing a negative effect on the overall system.

The resulting positive centrifugal force produced by the small rotor would be developed at just the ideal time to give the greatest force vector contribution in the forward direction. The negative centrifugal force would appear at the most ineffectual time.

We would have both resultant positive and negative forces but, because of the vector contribution, the positive centrifugal force would be greater than the negative and an overall positive force should result. On paper, this idea had appeared sound. At the time we hardly realized how close this simple idea, product of Cook's intuition, was to achieving the impossible.

Unbalanced Rotor without Shift

We realized that we could generalize the principle. By adopting a 1-to-1 large to small arm ratio we could duplicate our earlier idea without shifting the weight (Fig. 6-12). The centrifugal force affecting the small rotors center of rotation appeared to always be positive, producing a lopsided centrifugal force. But as a result of simplifying our general principle, the problem soon became obvious: These ideas would not work. Our forces were in equilibrium. We were pitting centrifugal force against itself.

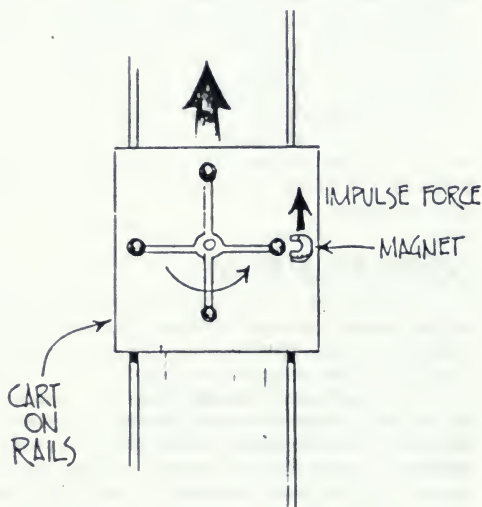


Fig. 6-9
Pulsating ring of energy

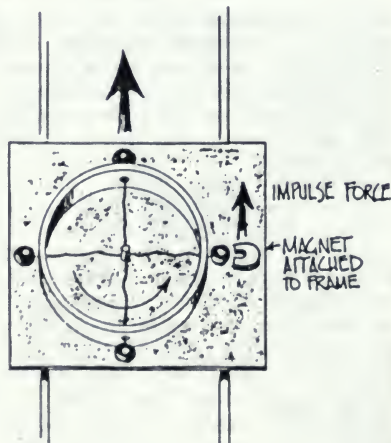


Fig. 6-10
Pulsating ring of energy with flexibility

Tracing the path of the weight through space in the horizontal plane produced an ellipse. Next, we began studying a number of possible combinations using elliptical orbits. After we explored this area for several days the forces turned into a nightmare. Circular motion, not elliptical, seemed the way to go.

One other variation was to have both rotors in the same plane of motion timed at a 1-1 ratio. The centrifugal force on the small rotor's center of rotation was always positive. The Coriolis force on the main center would also be balanced because, as one weight came toward center, its mate moved away. Would this be a positive centrifugal force? It looked good—for a few minutes. Then, we again saw the difficulty. The angular velocity of the smaller weights is opposite the angular velocity of the wheel in quadrants I and II, reducing the positive centrifugal force affecting the main center of the system for the positive 180° of rotation. In quadrants III and IV, the angular velocity of the weights adds to the wheel's angular velocity, resulting in a larger negative centrifugal force for the negative 180° of rotation. What you gain, you give right back. A neatly balanced force.

Every one of the combinations we examined eventually came up balanced. These ideas added to our feel for inertial forces but, obviously, we were missing key ingredients for a workable solution. We needed to study new ideas.

We built no models, but evaluated the possibility of building both external and internal mass accelerators.

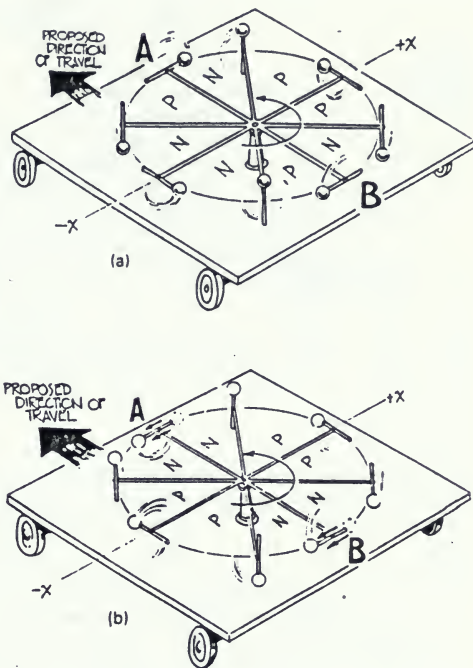


Fig. 6-11

(a) Force pattern of unbalanced rotor with 2-1 ratio; (b) the effects of shifting the mass on the force pattern.

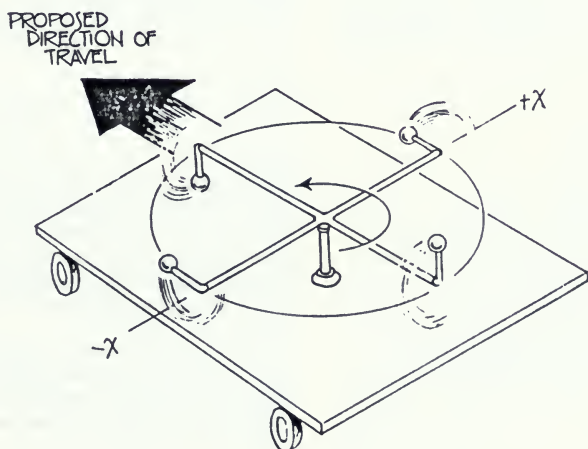


Fig 6-12

Unbalanced rotor with 1-1 ratio

External Inertial Mass Accelerators Picture two spinning rings. At 90° from the desired direction of travel attach a "foreign" mass to each ring, and release them 90° later. The idea is to introduce a dead mass (energy wise)* to each ring, pump it full of energy, thereby almost instantly creating a powerful positive impulse force) then 90° later release it. The kinetic energy of the masses was to be destroyed by collision with each other. We could then recycle the dead masses back to their starting positions, re-energize, and repeat. Remember that by releasing the masses at point A, they will leave the ring in a tangent, and by synchronizing the units, the two masses could be made to collide and destroy their inertial mass (Fig. 6-13). We considered the possibility of using a strong magnetic field to introduce, guide, and possibly recycle the masses. But to build this machine would be quite a feat!

*The mass in a static state

Internal Inertial Mass Accelerators Instead of introducing the "foreign" masses externally, introduce our propellant masses from the center. By radially accelerating the mass through a tube we hoped to take advantage of a resulting Coriolis force and the positive impulse created by initiating the radial acceleration. Here, we again make the dead masses more effective by energizing them inertially. We could then expel the energized masses in a tangent after 90° , drain their kinetic energy by collision with each other, and recycle them back to the center and repeat the cycle. Our object was to have the radially moving masses leave the tube in a tangent (Fig. 6-14).

The greater inertial mass providing the forward propulsion would produce a tremendous positive force compared to the small negative force produced by recycling the de-energized masses back to their centers.

The principle looked sound, but to construct a model would be nightmarish. To Cook, destroying all this energy by collision seemed a crime, so we abandoned these ideas.

The Spiral

Cook soon realized that a coiled tube was one way to convert the tremendous inertia into positive acceleration which otherwise would have been destroyed by the collision of the masses. (Strangely, Cook had always had the feeling that the workable solution would involve a spiraling propellant mass). A coiled telephone cord provides a good example of this setup. By forcing a linearly accelerated mass to enter a coiled tube perpendicularly, a positive propulsive thrust could be created. This thrust would be produced by the resistance of the mass to change its linear direction as the tube forced it to spiral and lose its

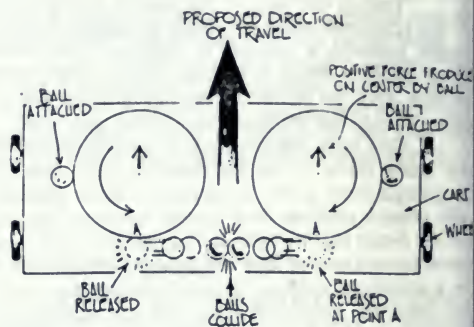


Fig. 6-13
External inertial mass accelerator.

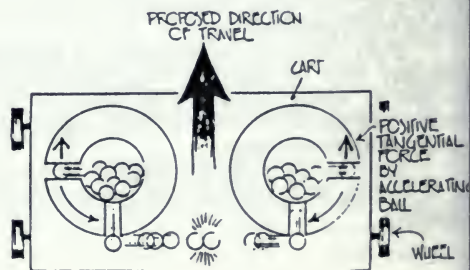


Fig. 6-14
Internal inertial mass accelerator.

inertial mass. The draining of this energy would produce the desired positive force. When recycled, the de-energized mass would produce a small negative force in comparison to the large positive force produced by the much greater inertial mass. The positive force would be determined by the initial linear velocity of the mass (Fig. 6-15).

The plastic tubes we first experimented with failed so we had a metal pipe coiled for \$168 and began again. The coiled pipe was attached to a wheeled cart. An exploding firecracker provided the initial linear thrust.

These experiments sent our neighbors (and, occasionally ourselves) running for cover. Everything seemed to go wrong. We had too short a tube; we couldn't slow the radial velocity appreciably; we had too many different force vectors; we had too few recrecrackers; and we had too many complaints from neighbors.

These trials did, however, give us our third major clue to the final solution: We would have to find a way to take advantage of the various inertial energy states of the propellant mass. Somehow we needed to find a way to shift the propellant mass efficiently from high to low energy states. But how?

We now had three major clues to the solution:

- counterrotation
- flexibility
- positive inertial control of mass

As it turned out, we would need just one more clue.

Early in October of 1974 we ran completely out of money and had to terminate our experiments with no solution in sight.

Cook's father, in failing health, returned to the Bay Area from Arizona. We had been conducting our experiments in West Pittsburg, California, an area not known for the pure quality of its air. Because of his own allergies and his father's ill health, Cook moved to a small country home at Fallon in northern Marin County, California, approximately 30 miles north of San Francisco. Here, in the fall of 1974, the final solution that we sought synthesized.

In Fallon, with good fresh air and a quiet atmosphere, Cook was able to put in the concentration needed to solve this mystery.

Cook kept a notebook. Resting on his back with the window opened just right to provide loads of fresh air, he began reviewing the experiments. Day in and day out he studied combination after combination after combination. After about a month (from mid-October to mid-November), and after studying and rejecting over 100 possible combinations, Cook went back to an old experiment with small counterrotating rotors. On November 18th, a glimpse to a possible solution appeared. The light at the end of that tunnel was very faint at first but it wouldn't go out. It just got brighter. Had Cook, after all these years, finally brought off the impossible—had he found a way to propel internally and superefficiently? It looked too good to be true. You would expect the excitement to be intense. It was not.

The month before, Cook had lost a close friend; he was still extremely sad and, in addition, not nearly so confident after so many disappointments. It seemed that every time he got close, he was somehow pushed away. All these feelings prevented Cook

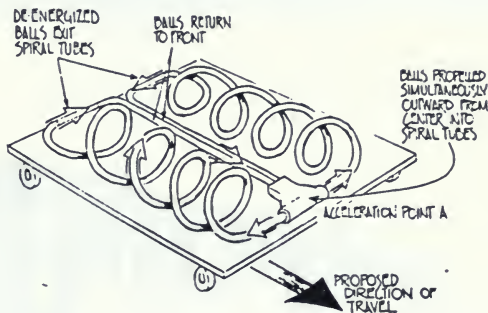


Fig. 6-15

(a) Double spiral on cart

Had Cook, after all these years, finally brought off the impossible — had he found a way to propel internally and super efficiently?

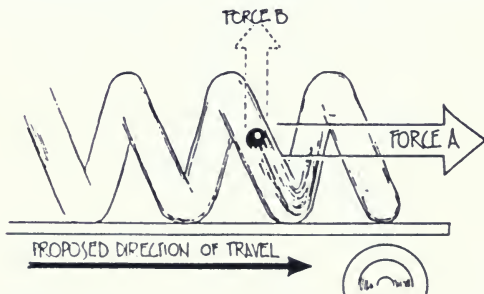
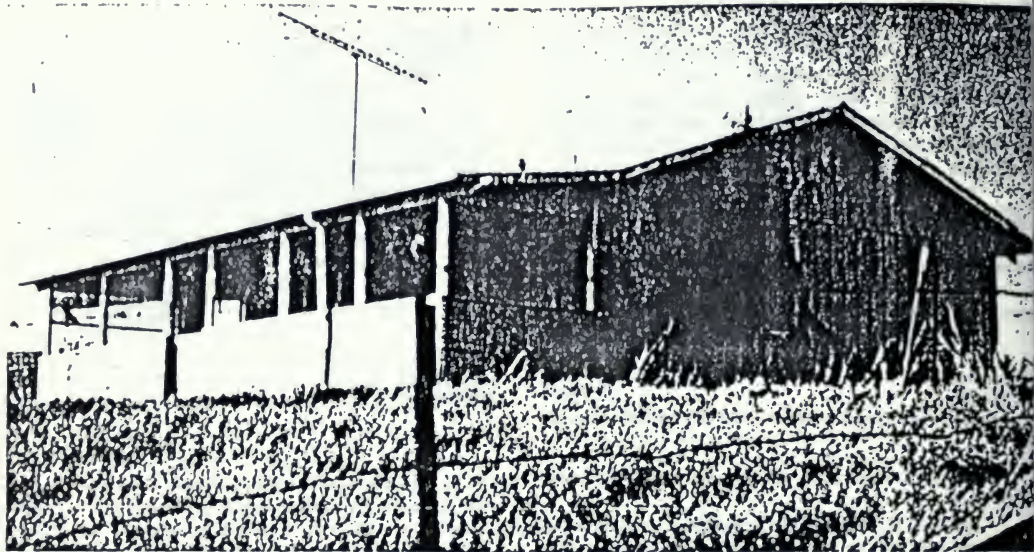


Fig. 6-15

(b) deflecting force vectors



Farm house in Fallon, California, where the elusive solution was first conceived after Cook studied and rejected over 100 possible combinations.

from initially being fully aware of just what he had discovered. And if this new principle was indeed the solution, could it be translated into a mechanism? Cook still wasn't sure. It was mainly a question of gearing. Could a machine be built with the gear-train necessary to provide the required rotations?

The more Cook studied the idea, the more convinced he became that a machine based on it could be built. He was, gradually, becoming excited as the thrill of finding this almost impossible solution began to take hold.

Enthusiastic, Cook told his father about it. At 89 and in ailing health, his father still grasped the significance of the principle. "Bob," he said, "You're

right in the middle of quantum mechanics. I wish I was 20 years younger to help you unlock more of these mysteries with the mathematical know-how I used to have."

To unlock nature's secret Cook had needed fourth ingredient—the splitability of mass. The ultimate solution encompassed the following factors:

1. counterrotation
2. flexibility
3. positive inertial control of mass
4. splitability of mass

One of the greatest ideas in history had been created. Let us examine the facts.

Citations, Chapter 6

1. Dynamic Analysis Number D-71-77, "United Air Lines Test Center and Process Engineering Report," (September 1971), p. 2.
2. Arthur C. Clarke, *Profiles of the Future* (New York: Harper and Row 1973), pp. 49-50.
3. Jack London State Historic Park Brochure, p. 18.
4. National Geographic, Special Publications Division, *Those Inventive Americans* (Washington, D.C.: National Geographic Society, 1971) p. 171.

7. The Principle

Until now the principle of the conservation of angular momentum has stood the test of time, judging by the great number of failures experienced by inventors attempting to create reactionless drives. In most cases, in trying to destroy angular momentum in order to propel, these inventors have succeeded in creating a negative linear thrust that destroyed any positive motion imparted by the angular momentum. Here is the secret of how we circumvented this problem.

The principle is so beautiful, and the mechanics are so simple, but the implications are phenomenal! Let's analyze the total system part by part.

The propulsion unit itself must be considered a closed system. The motor, being a separate part of the system, can be considered an open system. We should bear in mind that the propulsion system requires a prime mover, such as electric motors, gasoline or steam engines, and so forth.

How It Works

Each unit has two counterrotating upper and lower arms maintaining a constant angular velocity (Fig. 7-1). Attached to the end of the upper arm A is a small rotor C, which is geared to spin at a constant velocity. It spins in a plane perpendicular to both arm A and arm B. The small rotor C has a permanently fixed mass (FM) attached to one end, an identical exchangeable mass (EM) attached to the opposite end, and a nucleus mass (N) attached to the center of the rotor. (See Fig. 7-2.) (We will discuss the nucleus mass later.) At one end of arm A (opposite to rotor C), a counterweight (CW) balances the nucleus mass exactly. (This counterweight, shown here for simplicity, would be replaced by a rotor identical to rotor C in a complete system.)

The exchangeable mass transfers from rotor C to lower arm B, splitting the propellant mass. And,

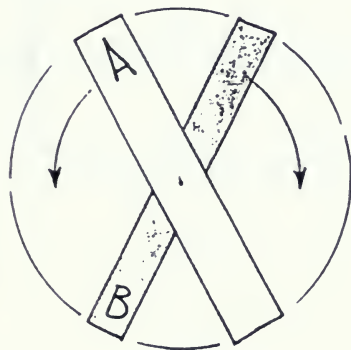


Fig 7-1
Counterrotating arms

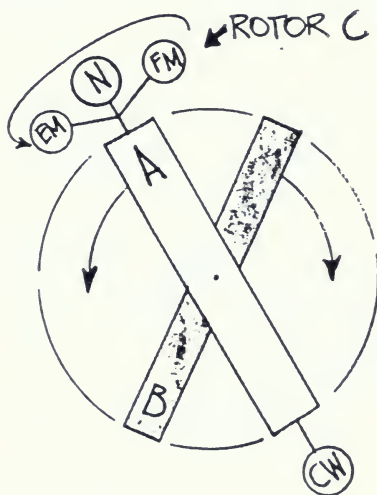


Fig 7-2
Counterrotating arms with rotor and counterweight.

180° later, it is transferred back to rotor C. This cycle (Figs. 7-3a through 7-3d) is continuously repeated to create an imbalance in the system. The object of this configuration is to synchronize rotor C and arm B so that the exchangeable propellant mass can be transferred without creating an impact. Keep in mind that to cancel all unwanted vertical forces, horizontal forces and their vibrations will require a set of at least four rotors. (See Fig. 7-4.)

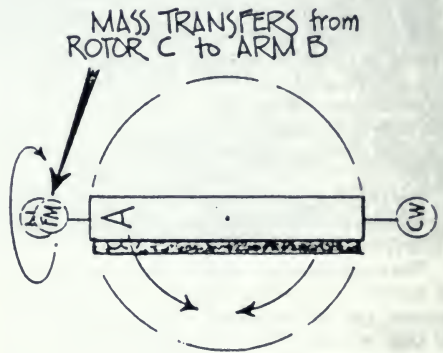
There are only so many forces in nature that can be produced when something spins. The three

main forces are products of centrifugal force, Coriolis force, and gyroscopic precession. We know from experience that when there is a multiple spin (such as the CIP), gyroscopic precession is going to develop. The gyroscopic forces in this case are vertical, and can be canceled with a complete system. All Coriolis forces (which are horizontal) can also be canceled with a complete system.

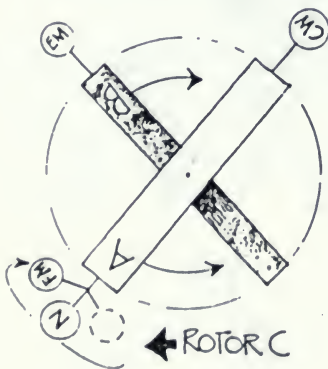
The only force to consider, then (since all others are canceled), is centrifugal force. Let's study the centrifugal force picture.



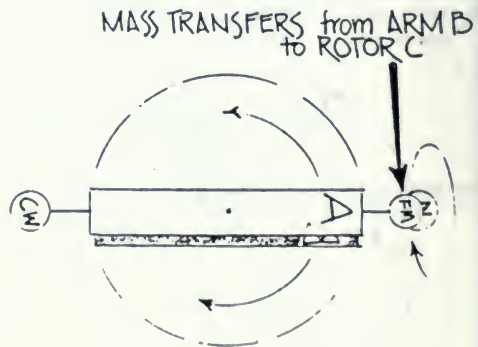
(a)



(b)



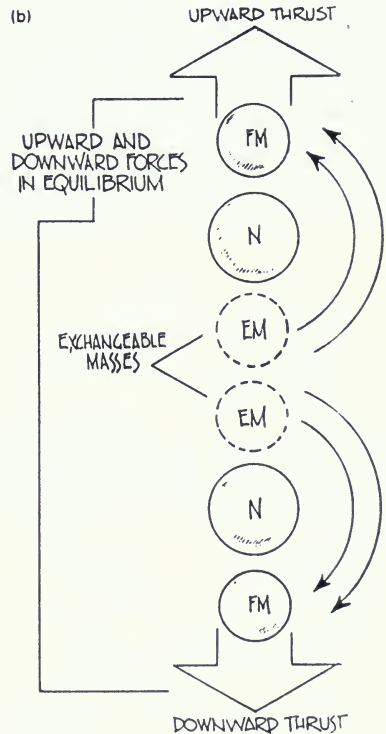
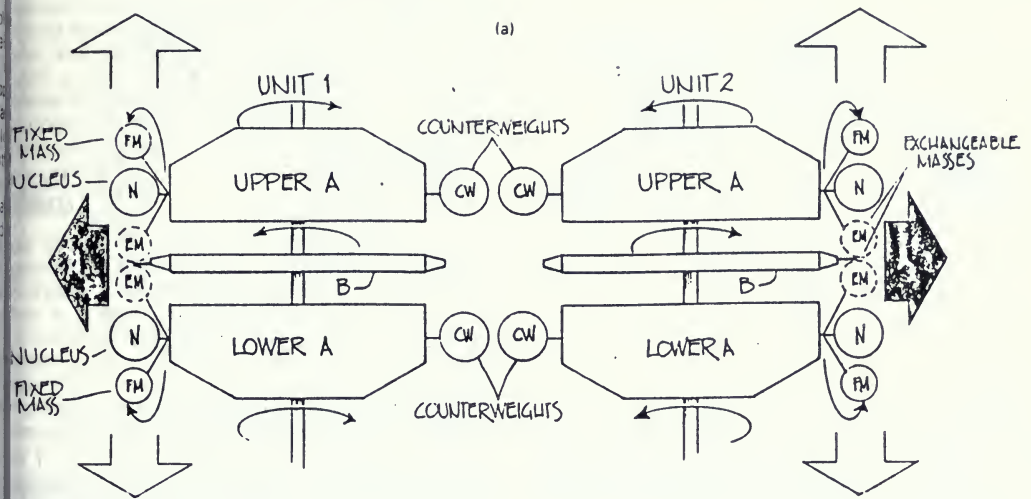
(c)



(d)

Fig 7-3

(a) Positive force cycle (b) mass splits, (c) neutral cycle, (d) mass recombines



7-4
 Unwanted vertical and lateral forces canceled by four counter-
 rotating rotors; (b) two counterrotating rotors cancel unwanted
 lateral forces.

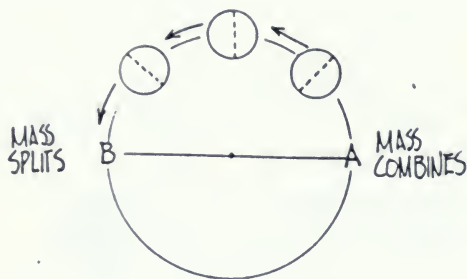


Fig. 7-5

Masses combine 'or 180° to produce positive cycle

For 180° between A and B we have a complete combined propellant mass producing positive centrifugal force (Fig. 7-5).

For 180° between B and A we have split the propellant mass. The centrifugal force generated by mass C equals the centrifugal force of mass D. We have 180° of forces in equilibrium (Fig. 7-6).

What we have now is a mass multiplier. We have a greater mass for 180° and, with a greater mass, we can accumulate more kinetic energy and produce more force. The mass itself is just like a sponge. As the angular velocity of the mass is increased, it—the mass—acts like a sponge soaking up water. The mass grows inertially. It may start out at one pound but it can

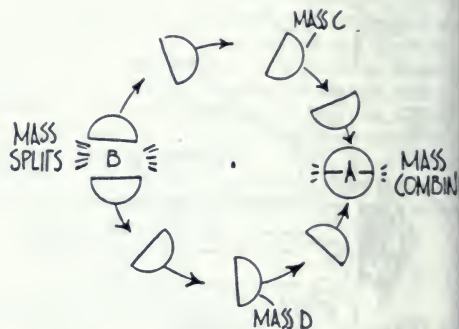


Fig. 7-6

Masses split for 180° to produce neutral cycle.

grow to thousands of pounds inertially. By phasing three pairs of units as a three-phase alternating current system, we can produce a constant force (for smoothness six pairs of units are required).

Let's now look closely at what happens at points A and B where the exchange is made (Fig. 7-7). We can best illustrate this action by considering a helicopter passing alongside an airplane. Picture a stationary helicopter with its blade tips moving at 200 mph around its center (Fig. 7-8). When the helicopter is sitting on the ground and the rotor is spinning clockwise in still air, the velocity of the rotor tips through the air remains constant. If the rotor tip speed is 200 mph all tips are moving through the air at the same angle

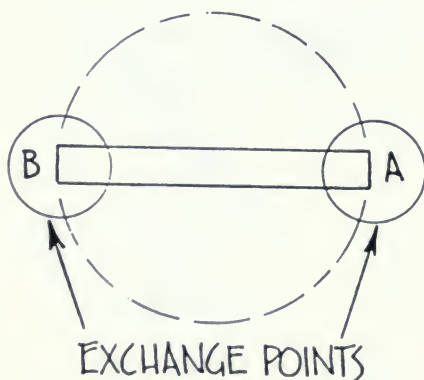


Fig. 7-7

Exchange made at points A and B

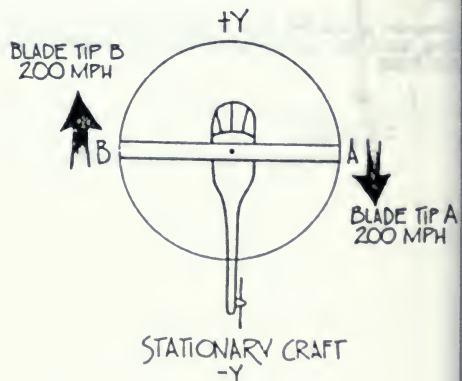


Fig. 7-8

Equal velocity of rotor tips A and B with craft on the ground

state relative to each other. Here the exchangeable weight is transferred (Fig. 7-12). It is important to note that the plane and helicopter can approach each other at any reasonable speed and still make the exchange as long as the velocity of that one helicopter rotor tip matches that of the plane for an instant. The situation is similar to a baton exchange between two relay runners.

This gives a good picture of how the propellant mass is split and exchanged while in a low kinetic energy state. Remember, however, that in the actual mechanism the plane of rotation of the small rotor is perpendicular to the plane of rotation of the main arms A and B.

Now let's consider the independent path of travel for each mass during a complete revolution of the main arms. The centrifugal force generated by the permanently fixed mass on the rotor balances (cancels) over 360° . The exchangeable mass, however, is forced to remain on the positive 180° of arm movement producing positive centrifugal force except at two points, where its direction is reversed. Figure 7-13 shows a path of the fixed mass; Figure 7-14 shows one possible path of the exchangeable mass.

A complete vector analysis of the exchangeable mass does show a negative impulse force produced when the direction of the mass is reversed. The negative force or impulse has a much shorter time to effect negative motion than the positive force pro-

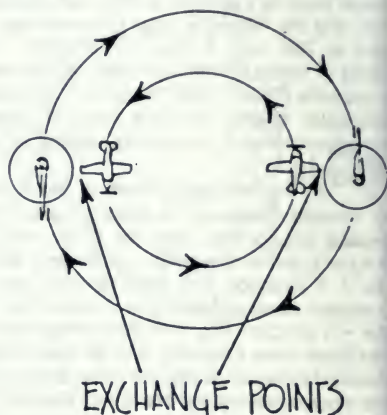


Fig 7-12

Transfer points of exchangeable weight.

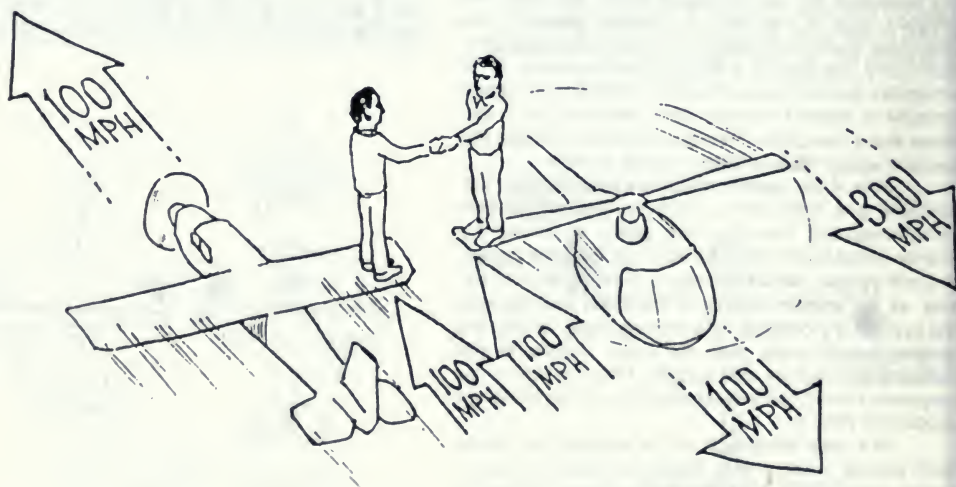


Fig 7-11

The zero inertial energy state of volunteers is a result of their zero relative velocity

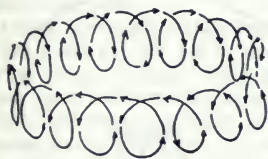


Fig. 7-13
Possible path of fixed mass

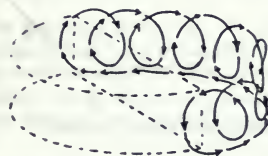


Fig. 7-14
Possible path of exchangeable mass.

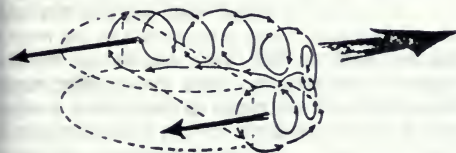


Fig. 7-15
The two intense impulse forces produced by reversal of the mass cancel the longer lasting, less intense positive centrifugal force.

duced by the combined propellant mass. Nonetheless, an analysis shows this negative impulse could completely cancel the longer lasting positive force unless rectified in some way (Fig. 7-15).

Then where is this fantastic solution? (Have patience, we won't disappoint you.)

What we have done is to find a way to rectify the two large negative impulses. Here we introduce one of our most important actions: flexibility of the system, which allows negative force and energy to be controlled by transferring it to a nucleus mass located in the center of the rotor. Flexibility in this system must be complemented by a nucleus mass that absorbs the negative force and energy instead of allowing these factors to produce a negative effect on the overall system. When the small rotor is out of balance we have to compensate for the undesirable effects produced by the unbalanced centrifugal force on the rotor. That is the purpose of the oscillator and the nucleus.

The oscillator feature of the system allows the necessary flexibility needed to complement the action of the nucleus mass, which is to temporarily absorb and store this energy. The oscillator feature allows the unbalanced centrifugal force to advance and retard the rotor (along with its nucleus mass) up to several inches by trapping the rotor's driveshaft in a motion limiting slot (Fig. 7-16). If we didn't have the nucleus mass we would have no anchor to produce the centripetal force required to vertically curve the direction of the fixed

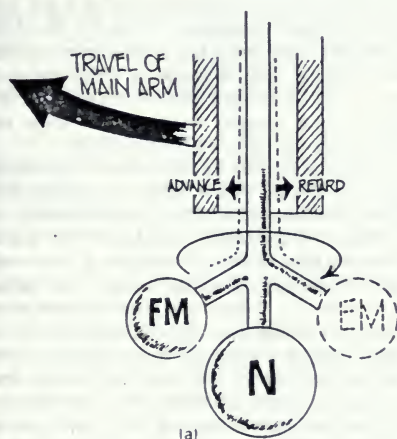
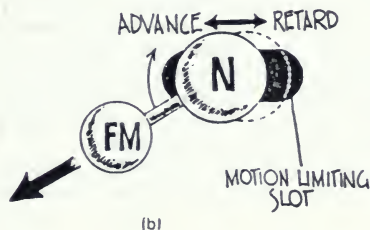
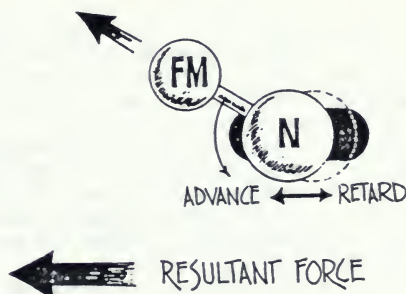


Fig. 7-16
The unbalanced rotor oscillating. (b) the motion limiting slot canceling the effects of resultant force



mass attached to the rotor. Without the nucleus mass, the centripetal force required would have to be provided by the main arm, and this would translate to the center of the system as a negative force. Our experiments have positively confirmed that a heavy nucleus mass in the center of the rotor will control the oscillations completely. We have found an 18-lb nucleus mass will move less than 2 inches when a 45-lb force is applied for 1/16 of a second. Our experiments have also shown that the higher the angular velocity of the unbalanced mass, the less the time duration and the shorter the oscillations. At several thousand rpms, the oscillations will amount to a fraction of an inch.

The nucleus mass acts as a storage battery for kinetic energy. As the nucleus mass causes the fixed propellant mass to slow down (relatively speaking), energy is absorbed into the nucleus. The low-energy state of the fixed propellant mass is the low angular velocity state of this mass. If released in this state the fixed mass would have a low value of kinetic energy. This energy given up by the fixed propellant mass has to be transferred to some other part of the system without producing negative effects.

As the fixed propellant mass continues to spin about the nucleus mass it has to return from a low to high inertial energy state. It receives the energy back from the nucleus mass it transferred earlier in the cycle. The nucleus mass does not provide any propulsive effect. The nucleus mass is a control for the oscillations as well as a storage cell for the kinetic energy that drains off the fixed propellant mass at various positions when the rotor is in an unbalanced state.

Without the nucleus mass, the energy in the fixed propellant mass would produce a negative force that would have a negative effect on the center of the system. If we couldn't drain the energy from the fixed propellant mass in this way, we couldn't create an unbalanced centrifugal force.

The energy drained from the fixed propellant mass increases the angular velocity of the rotor and nucleus mass in relation to the main arm, and when the energy is returned to the fixed propellant mass, it reduces this angular velocity. In a sense all we're doing is juggling energy back and forth.

We can view this process in the same way we look at certain bodies in our solar system: The earth (which is similar to our nucleus mass) forces the moon (similar to our fixed mass) to circle around it because it (the earth) has a greater mass. (Fig. 7-17.) In our propulsion system the center of the rotor can move a bit to one side in our oscillator, but it will never reach the end of the motion limiting slot and impart a negative force to the center of the system.

In our system, this negative force produces two different effects. One increases the angular velocity of the nucleus mass in relation to the center of the

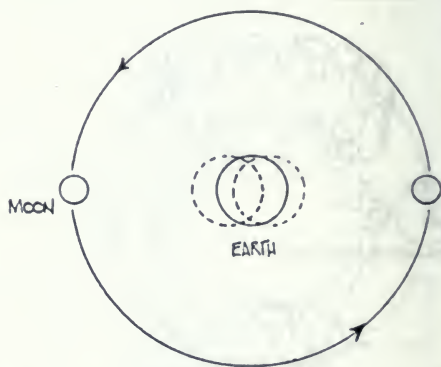


Fig. 7-17

The moon affects the position of earth in space.

main arm, while the second does just the opposite. These forces cause the rotor and nucleus to oscillate. We are not dealing with one single mass, but actually with a rotor composed of three spinning masses.

If we had a single mass without this special spin and we were trying to oscillate it on the main arm back and forth for 180°, we could not go anywhere because in stopping the mass the resulting negative tangential force (which can be considered a negative linear impulse) would destroy any positive momentum created by the positive centrifugal force.

To produce the desired force mechanically, double spin is absolutely necessary. This type of system demands flexibility and splittability. We know this from experimentation.

Where are the negative effects, if any, going to come from? The only negative force that could destroy the positive motion imparted by the combined propellant mass would have to appear at either point A or (See Fig. 7-7.) Due to the motion limiting slot and the flexibility in the system this negative force does register its effects on the whole system.

We predict this system when fully developed will convert energy into a force so directly and efficiently that we expect an 80 to 90% efficiency potential. There is no propulsion system in the world that can compete against this. (For example, many experiments consider the advanced rocket systems of today less than 2% efficient.) Remember that one unique feature of our system is that any type of energy source can be utilized—it has the potential to be almost as efficient as the electric motor. One way to increase the efficiency of the system would be to hermetically seal the unit so air wouldn't interfere with the spin of the rotors. Air does not help propel it, and is just a nuisance in this case. We are talking about a system that almost defies imagination. When properly built

propellant mass exchanges of over 4,000 per minute possible in each unit.

A series of microswitches could time the exchanges. We could actually adjust this timing as the speed of the rotors increase. With electrical timing controls, we could make the timing adjustments similar to a car's electrical distributor with a centrifugal force advance. As the rotor in a car's distributor picks up speed, the centrifugal force advance mechanism will advance the timing so the spark gets to the spark plug in time to compensate for the higher speed. We need a centrifugal force timing advance system such as this to be adapted to the Cook engine.

The principle employed in the system is so perfectly natural. We have proved the principle beyond any doubt. It is interesting to compare Cook's principle to a prediction by G. Harry Stine in an article entitled "Detesters, Phasers and Dean Drives."

...further come to the conclusion that the Dean Drive—or any machine capable of producing a unidirectional force—would have to consist of a device that was one system during part of a cycle and another during the rest of the cycle. Or a device in which the initial system was deliberately destroyed during one part of the cycle and re-assembled during the rest of the cycle.¹

...r. Stine was exactly right! We accomplished that same purpose not by destroying the system, but by detaching and recycling a part of the system. The changeable part of the propellant mass is what accomplishes this amazing result.

Another prediction by Russell E. Adams, Jr. (in an article called "In Search of the Bootstrap Effect") was not quite so accurate:

...conclusion, it is not my intent to debunk the concept of a mechanical space drive. However, centrifugal drives have a chance of success in my opinion. Impulse and gyroscopic drives might work. The idea that such a gross departure would not have been noticed in the three hundred year history of mechanics seems inconceivable.²

Let's examine how a system of this type could be designed. The most ideal combination of ratios and proportions for a complete system has yet to be established. There are so many variables it would take hundreds of experiments to best determine the most ideal arrangement. In addition, the best method of locking and unlocking the exchangeable propellant mass has yet to be established.

Combining four rotors in proper sequence, we cancel all unwanted vertical forces, lateral forces, and air vibrations. By adding additional units and properly timing them we can produce a smooth constant unidirectional force. This preferred 12-rotor configuration could eventually be built quite compactly. It could be stalled to propel any type of car, airplane, ship, submarine, spacecraft, and so on.

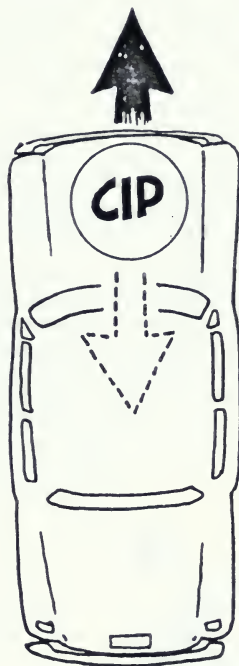


Fig. 7-18

The CIP can produce forward and reverse thrust.

In an automobile or locomotive, for example, only one 12-rotor unit would be needed. The positive force would be directed to the front of the vehicle, and the steering mechanism would do the guiding (Fig. 7-18). To slow down, you would change the timing of the exchangeable mass 180°, trapping it on the opposite side of the spin. Without changing the direction of the rotors, the force would instantaneously be reversed, slowing or stopping your vehicle. You could stop on the slickest field of ice instantly.

The system is simple compared to a car's automatic transmission. This simplicity will reduce initial cost and maintenance and produce greater efficiency. For marine use a ship or submarine equipped with this system would have amazing maneuverability.

For space travel the most ideal craft seems to be some kind of saucer shaped craft while, for atmospheric use, the system tends to favor a cigar shaped craft. These flying vehicles would have unlimited maneuverability.

The combination of three 12-rotor units positioned in a circle at 120° intervals (Fig. 7-19) could produce instant horizontal propulsion in any direction. To go forward, flip on unit A; to reverse, flip a micro-switch, which changes the timing of the electromagnetic latching mechanism 180° . This action will reverse the force, eliminating forward momentum and thus reverse your direction (Fig. 7-20).

If you are traveling forward and you want to turn right, simultaneously reverse the force of unit A to eliminate forward momentum and flip on unit C. (Unit A would be activated in the reverse mode just long enough to destroy the forward momentum and then neutralized [Fig. 7-21].)

To travel northeast, use a combination of units A and C (Fig. 7-22). Or, to travel southwest, reverse both units A and C. Any direction of travel in a horizontal plane is possible. By combining vertical and horizontal units, any type of maneuver is possible.

For the ultimate in safety, three units could be stacked vertically. The purpose of having three vertical units in this arrangement would be to provide two extra emergency back-up units. Both backup units

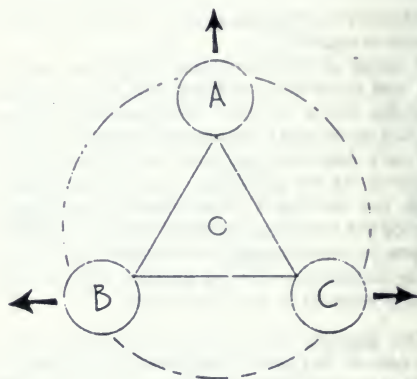
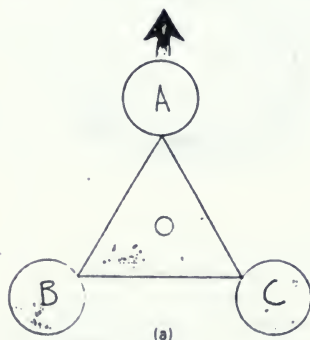
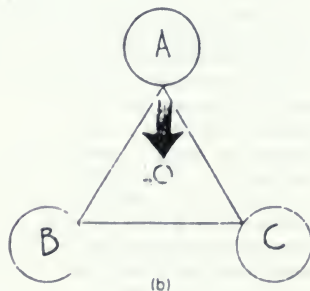


Fig. 7-19

Units A, B, and C spaced at 120° intervals in a circle.



(a)



(b)

Fig. 7-20

(a) Unit A activated in the forward mode while B and C remain neutral. (b) Unit A activated in the reverse mode.

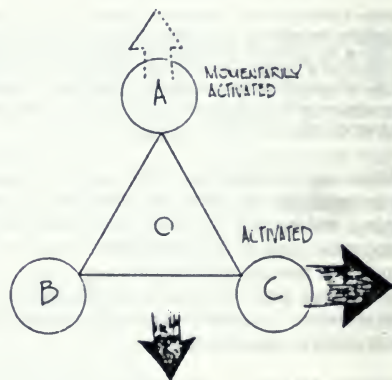


Fig. 7-21

A fast right turn.

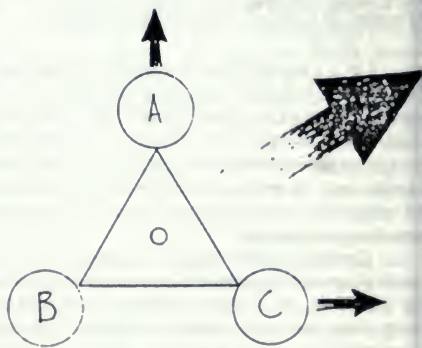


Fig. 7-22

A combination of units A and C combine to produce a northeast force (A is pointing north and C is pointing east).

ould be fully energized in the neutral mode, so if the main vertical unit in use failed in a gravitational field, and the craft began to lose altitude, a sensing device ould automatically activate one of the back-up units hile the defective unit was repaired. The third unit ould now become the back-up unit. Another safety dvantage gained by energizing the extra units would e the potential to drain kinetic energy from them in ase their prime mover failed. When energized, the otors of the system will act as energy storing wheels.

To lift straight up, neutralize the horizontal units and activate one of the main vertical units, and up you o. To hover in a gravitational field, simply balance the ertical force with the gravitational force and you hover pace.

The type of craft we envision for space travel ould be built like a dome-shaped saucer. The dome ould house the main propulsion or sustainer units hereas the smaller horizontal propelling units could

be positioned in their own spheres under the craft (Fig. 7-23). The larger floor area provided by the saucer shape would yield more space than a cylindrical shape for passenger movement on long-range trips. After leaving our planet's gravitational field for a long space voyage, the craft's main sustainer unit accelerates it, preferably at 1 g. By maintaining this rate of acceleration the space ship would automatically produce an artificial gravity, and as long as the floor pointed away from the direction of acceleration, this artificial gravity would hold the occupant to the floor. The space traveler couldn't distinguish between being on the earth in our gravitational field or in an accelerating spaceship. By flipping the craft over, halfway to their destination, so the floor area now faces the direction of travel (and decelerating at 1 g), the space traveler now wouldn't be able to distinguish between deceleration and gravity (Fig. 7-24).

Let's consider acceleration potential. A series of these rotors spinning at high speed store tremen-

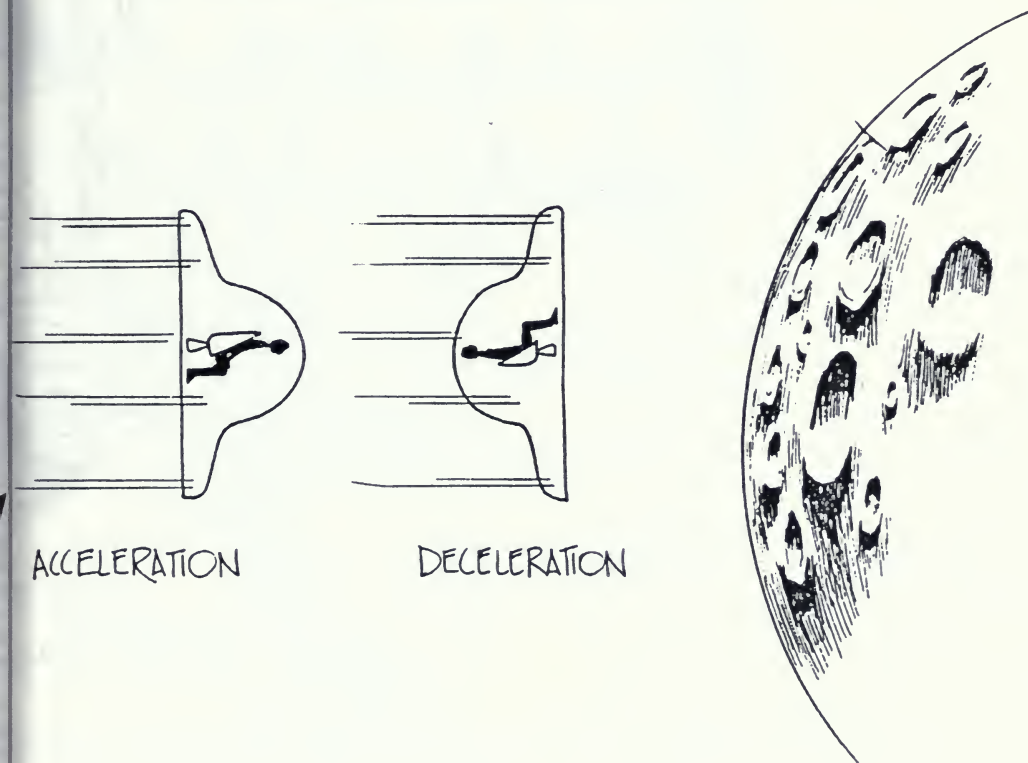


Fig. 7-24

Artificial gravity produced by acceleration and deceleration at 1 g

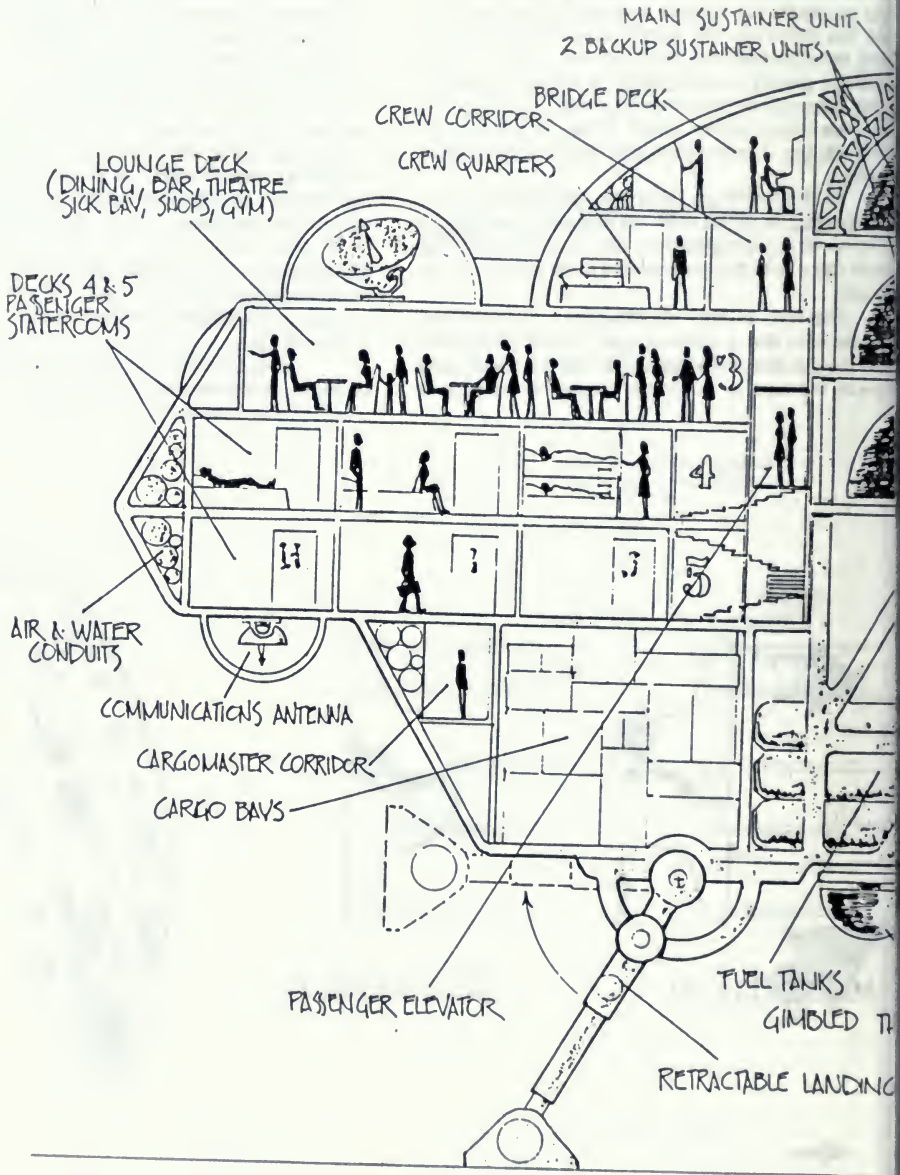
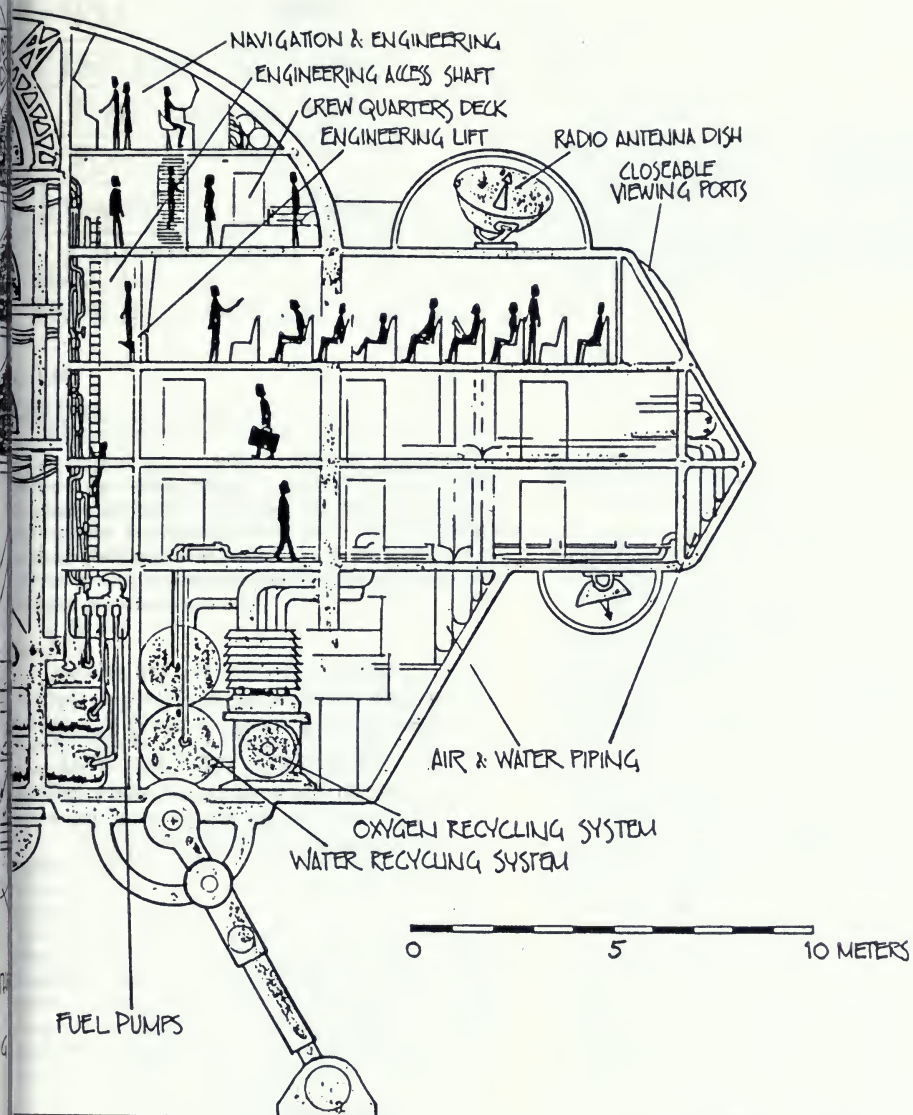


Fig 7-23

Artist's rendition, cross-section of spacecraft powered by the CIP
(Robert Cook's conception of propulsion unit placement)



dous kinetic energy similar to a segmented flywheel. With proper bearings and lubrication almost all friction would be eliminated.

If we wish to keep a unit energized without producing a force, we can do so by preventing the propellant masses from exchanging and thereby preserving our kinetic energy for instant emergency use. With a flip of a switch we can instantly activate force in the rotors by triggering an exchange of the mass.

A huge force could be developed instantaneously. Remember it will be possible to make exchanges at over 4,000 per minute per unit. Whatever the rotor speed, recall that the exchange is made while the exchangeable mass and lower arm are in a zero relative inertial energy state to each other. Force could be developed instantly, and the craft could accelerate at speeds no human could tolerate. You could also stop instantly by activating an energized unit at the appropriate force setting. This makes a right angle turn possible. One unit can knock out the positive momentum while another unit can accelerate it instantly to the right or left.

For a safety feature a clutch could engage or disengage the unit from the main drive, permitting a series of rotors to be de-energized and stopped for any needed purpose, including repairs.

Because of their light weight and compactness any number of back-up units could be carried. With these extra standby rotors storing kinetic energy and ready for instant use, emergency landings and total system failures would be almost unheard of. When this system is fully developed units weighing as little as 2,000 to 3,000 pounds could have a force potential of 250,000 pounds. Gigantic forces such as these may be needed to overcome the large gravitational fields of certain massive bodies in space.

Three 12-rotor units could also be mounted on a gimble (Fig. 7-25). A needed unit could simply be rotated into place. Here unit B replaces unit A while A is repaired, serviced, or periodically rested. Vertical units could also be made to function in a similar fashion. Even with several units malfunctioning you could still get out of town.

It's easy to see that a craft employing this system could be designed and built to produce almost unlimited acceleration and unlimited maneuverability. Cook's invention now makes this application a reality.

What would be the speed limit of this system in deep space? Einstein predicted that nothing could travel faster than the speed of light. He set an ultimate speed limit of 186,000 miles per second.

But why would there be a speed limit on an internal propulsion system? What would restrict its acceleration? Einstein's theory predicts that mass becomes infinite as it reaches the speed of light. For a propulsion system where energy is fed externally (or mass is exchanged with the environment as a

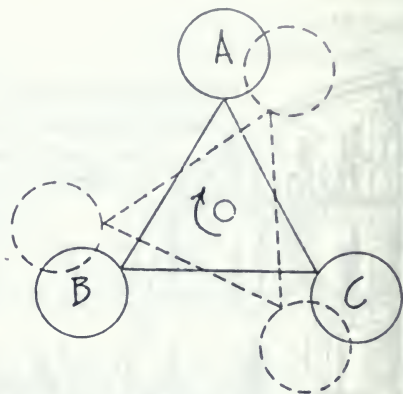


Fig. 7-25

Normal configuration of horizontal propulsion units with gimble. Direction of force for each unit A, B, and C can be varied 360°.

rocket), Cook can accept the speed of light as a barrier because to accelerate the craft by external means to the speed of light would require infinite energy. But the force propelling a reactionless system is produced internally. Why should there be a speed limit when we

... Einstein's theory of relativity established the speed of light as the ultimate speed limit. However, the foundation of his theory was based on the erroneous assumption that all force capable of accelerating objects had to be external.

do not have to exchange momentum with the environment? The potential here appears to be mind-boggling. We have to readjust our thinking.

We should view the acceleration of objects in space with this new law of motion in mind:

$$F_i = ma$$

Perhaps the connotation of this simple equation could mean finally achieving or exceeding the "impossible" speed of light. The reader should remember that Einstein's theory of relativity established the speed of light as the ultimate speed limit. However, the foundation of his theory was based on the erroneous assumption that all force capable of accel-

HORSE COACH (1800)		5 MPH
TRAIN (1850)		50 MPH
AIRPLANE (1920)		150 MPH
JET AIRPLANE (1960)		500 MPH
ROCKET (1970)		25,000 MPH
UNMANNED CRAFT (1974)		100,000 MPH
CIP POTENTIAL		?

* JUPITER'S GRAVITY ENABLED CRAFT TO REACH THIS VELOCITY



Fig. 7-26

the evolution of speed.

ating objects had to be external. Had Einstein known that internal forces could be produced to accelerate objects would he have expressed himself differently in his regard? Perhaps had he known, he might have been able to solve the mystery of the unified field theory that he had worked on for over 30 years until the time of his death in 1955.

Speed limits have consistently been broken (Fig. 7-26).

When the principle incorporated in Cook's invention is fully understood it will result in a re-evaluation of many basic principles of physics and mechanics. We are not authorities in quantum mechanics or nuclear physics and are not qualified to fully interpret our experiments, but we would like to provide you with a glimpse of our speculations.

We believe that the principle involved here deals with the study of the mechanical structure of the atom—quantum mechanics. In principle the machine resembles an atom reconstructed on a gigantic scale. The main center of the machine can be viewed as the nucleus of an atom and the propellant mass of the small rotor as the mass and energy particles revolving round a smaller but separate nucleus (on the machine, the nucleus mass attached to the center of the rotor). Our machine has certain spin requirements, orbital requirements, energy state requirements, and nucleus requirements, which should have meaning to the experts in the field of quantum mechanics.

Some of the basic concepts of quantum mechanics explored by such men as Planck, Schrödinger, Maxwell, and Heisenberg can be viewed in this machine. Consider symmetry, parity, and counterrotation. What about selection rules and the spin orientation of

particles? Remember the quantization of energy and angular momentum?

This principle when thoroughly studied (and demonstrated by a complete system) will certainly display some intriguing correlations with the principles of quantum mechanics.

Could this discovery lead to the solving of the mystery of gravity? What is gravity? Gravitation is defined as the mutual attraction between all masses and particles of matter in the universe. Einstein said all forms of energy are subject to gravitational attraction. We can determine that an object weighing 60 pounds on earth would weigh 10 pounds on the moon and 16,740 pounds on the sun. But what are the actual mechanics of gravity? How do the particles of matter actually respond when under the influence of gravity?

This confused Newton, who at one time suggested the supposedly "mechanical" properties of extension and inertia are, after all, themselves "perfectly incapable of being explained mechanically."³

Some of the scientists we had discussions with have assumed that great men such as Newton and Einstein have clearly answered the questions of gravity. Here is Newton's observation on gravity: "you sometimes speak of gravity as essential and inherent to matter. Pray do not ascribe that notion to me; for the cause of gravity is what I do not pretend to know."⁴ This dilemma confronted Einstein: "The idea that there should exist two structures in space, independent of one another—the gravitating space and the electromagnetic one—is intolerable."⁵

It's obvious that these foremost experts on gravity did not have the full answers regarding the mechanics of it. For this reason, scientists should not

have been so dogmatic in rejecting the theory of the possibility of internal propulsive forces. From our own experience, it's now becoming more and more obvious to us that gravity is an internal propulsive force of some kind. Let's consider for a moment the classic cannonball and feather experiment.

Newton was questioned about why a cannonball and feather fell at the same rate when dropped in a vacuum (Fig. 7-27) but, when they were accelerated horizontally, why the cannonball required so much more force than the feather to accelerate. Newton stated that in the case of gravity Mother Nature very conveniently provided just enough force to propel each object at the same rate. What he didn't explain was what he meant by "Mother Nature," or just how it was

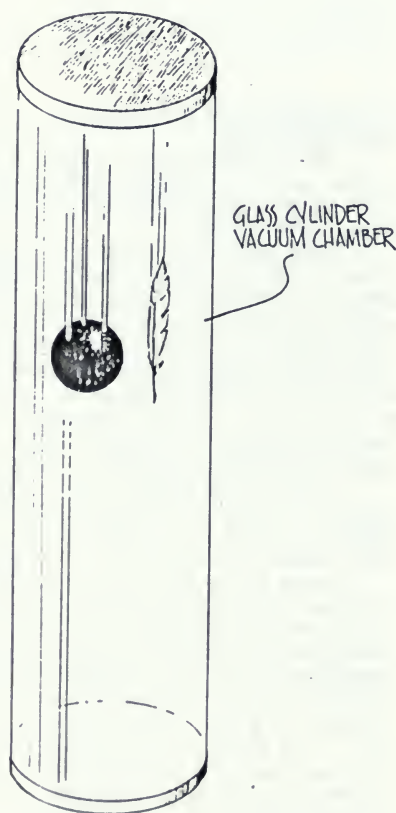


Fig. 7-27

Famous cannonball and feather experiment.

able to effectuate the equal acceleration of the objects.

Gravity as an external force doesn't seem logical to us, especially when you try to explain how objects respond to external acceleration.

Why don't we—for a moment—consider gravity as an internal propulsive force? Assume mass and energy are interchangeable, as Einstein showed. Since the cannonball contains more mass particles or weighs more than the feather, it has more energy contained within than the feather. (Remember there has to be energy to accelerate a mass.)

From this we can now develop a new theory involving force, mass, and energy in producing these gravitational effects. Let's assume the mass particles that spin about the nucleus of each atom are somehow caused to accumulate more of their number on the side of the nucleus closest to the "foreign object." Since any particle of mass that spins produces a centrifugal force, by having a greater number of mass particles on one side of the nucleus (nearest the foreign mass) we can assume an unbalanced centrifugal force is produced in that direction. This affects both masses simultaneously, and consequently they propel toward each other if similar in mass. In the case of the cannonball or feather versus the earth, the smaller mass will move toward the greater mass due to the inertia of the greater mass (Fig. 7-28).

The fact that the energy and mass ratios of the cannonball and feather are identical conveniently explains why a feather and cannonball fall at the same rate when accelerated by their own internal propulsive forces. When accelerated horizontally by an external force, the greater mass requires a greater energy and force.

Here is the distinction we are trying to make between Force Internal and Force External. With this distinction in mind we believe that in one case the cannonball was accelerated by an external horizontal force and, in the case of gravity, by an internal vertical force.

Einstein's theory of gravity predicted the existence of gravitational waves or gravitational radiation. Einstein's gravitational waves travel at the speed of light, carry energy, and can exert forces on matter in their path producing, for example, very small vibrations in elastic bodies. His theory predicts that the wave is produced by the change in the distribution of matter. It is not produced, Einstein believed, by a rotating sphere, but would result from a rotating body not having symmetry about its axis of rotation.⁶

Cook's theory of gravity predicts that the unbalanced centrifugal force produced within each atom is triggered by energy wave radiation of some sort. This energy is similar to an electric current producing a magnetic effect in an electromagnet. Although the electrical current is not a magnetic wave, it does result

producing magnetism. (It is known that whenever an electric current flows in a wire, magnetism can be detected around that wire.) This current can be compared to Einstein's gravitational waves or radiation. Similarly, energy radiating from all masses in the universe is quite possibly the trigger of gravitational effects just as electrical energy is the trigger for electromagnetism.

We can make this distinction: Cook's theory views gravity as an internal force whereas Einstein's theory views gravity as an external force.

We believe that, on a gigantic scale, we have duplicated to a certain extent the mechanics of gravity. Every atom has inner force potential due to the swirling sea of motion it possesses, and spin has been ascribed to practically every type of fundamental particle in the universe. That inner force potential of the atom is similar to the CIP engine spinning at high speed while in neutral (Fig. 7-29). You have to trigger the gravitational effect that produces motion, which is similar to signaling our rotors electrically to exchange the propellant mass. Our mechanism, when producing repulsion, is a rotating body or system not having symmetry about its axis of rotation (Fig. 7-30). But when spinning in the neutral mode the mechanism is symmetrical in both mass and spin.

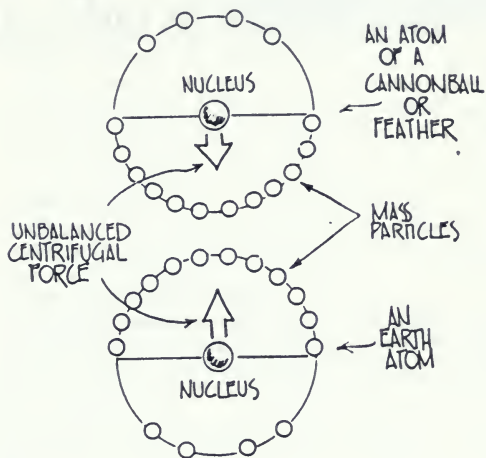
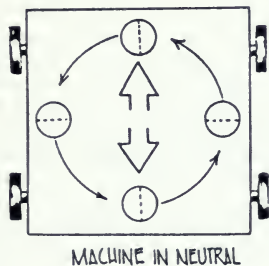
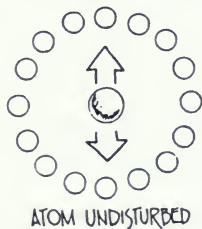


Fig 7-28

The unbalanced centrifugal force within each atom may be gravity.



MACHINE IN NEUTRAL



ATOM UNDISTURBED

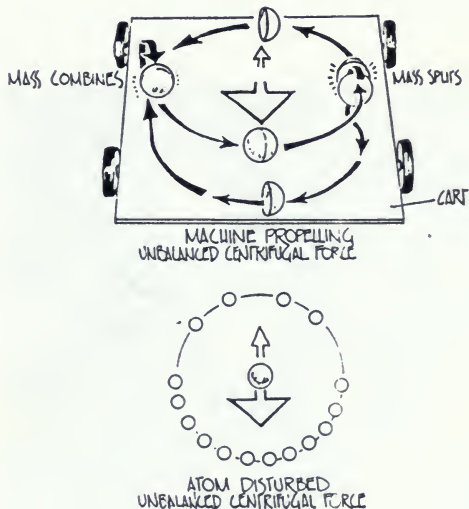


Fig. 7-30

The CIP engine producing propulsion compared to a disturbed atom (gravity?).

Fig 7-29

The CIP engine in neutral compared to an undisturbed atom.

It is interesting to note that the internal force generated by the CIP engine is produced in a wave-form by centrifugal force, which in a sense is artificial gravity. And what are the mechanics of magnetism? In many ways these mechanics are certainly similar to gravity. Cook is convinced that *both* gravity and magnetism are internal propulsive forces. His theory is that magnetism primarily affects the electrical or energy particles spinning about the nucleus of the atom whereas gravity primarily affects the spinning mass particles.

Our research and experiments have raised these conjectures and many more. We will need help, however, to fully unravel these mysteries and unlock some of the related secrets of nature.

Citations, Chapter 7

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3. Ernan McMullin, *Newton on Matter and Activity* (Notre Dame, Indiana: University of Notre Dame Press, 1978), p. 72.
4. Robert Bosancon, ed. *The Encyclopedia of Physics* (New York: Van Nostrand Reinhold Company, 1974), p. 558.
5. Antonia Vallentin, *The Drama of Albert Einstein* (Garden City, N.Y.: Doubleday and Company, Inc., 1954), p. 161.
6. McGraw-Hill *Encyclopedia of Science and Technology* (1977), "Gravitation," p. 300A.

8. The History (Part II)

So, late in 1974 an idea with the potential to shape the future course of history was formulated.

In December of that year Cook returned to his patent attorneys in Oakland to disclose his new idea. Mr. Gardner was astonished. After 33 years in the business, and having studied over 400 mechanical motions, he had never seen anything like it. He asked Cook, "How do you ever think up these things anyway?"

Gardner promised to give the idea top priority and put the project ahead of all others on his agenda. He was so enthused that he wanted to help in any way he could. Unfortunately, he died in 1975. An entry in his diary showed that he had planned to introduce Cook to several industrialists.

In February of 1975, Cook, my brother Brett, and I revisited Dr. Brian Williams in Pleasanton, California. We were all extremely excited because this was the first opportunity to introduce the new principle to a member of the scientific community. Serious conversation lasted for many hours.

Williams performed a mathematical analysis of the two propellant masses designed to propel the machine. He evaluated each mass independently. The force produced by the fixed mass balanced over 360° of travel. The exchangeable mass produced positive centrifugal force for 180° , but Williams concluded that the two negative impulse forces produced by reversing the masses' direction of travel exactly canceled the positive force produced by the combined masses. Unhappily, our time together had to be concluded just as we were beginning to discuss the oscillator and nucleus, which were designed to cancel the negative effects. These are the secrets of why the system works and how we recycle the mass without producing negative effects. Cook felt we had overworked Dr. Williams, who offered to continue the analysis. However, after such long hours of intense concentration Cook felt it wrong to encourage him to press on. The visit ended.

On our trip home, we decided that before we unveiled the final elements of the solution we wanted to support our theory with a working model to avoid any further confusion. Thus, in 1977 and again in 1979 Dr. Williams was reissued invitations to view the newly completed oscillator, a key feature of the machine, and

continue his unfinished analysis. His busy schedule prevented him from attending.

Circumstances forced Cook to return to Pittsburg, California from Fallon. Here, he began work on his first handmade model incorporating the new principle. Unfortunately, the air pollution in Pittsburg was intensifying and again, for health considerations, Cook moved, this time to Vallejo, California located on the northern part of San Francisco Bay. The move was a lonely one for Cook, who left his friends, but he had to find a place near the water with a more plentiful supply of fresh air to relieve his allergies. Two months after he settled in Vallejo, the *Sunday Vallejo Times-Herald* ran a story and a picture of his new, crude first model (Exhibit 8-1). Again, Cook takes issue with Newton's third law of motion.

The difficulty with this first handbuilt model was that the exchange mechanism (required to make the mass split and transfer) necessitated more precision than a "handmade job" could provide. The first model never worked, not even good enough to allow the principle to be tested.



Cook making adjustments on first handbuilt CIP prototype in early 1975.

Cook knew a machine could be built that could consistently make exchanges at 1,000 per minute or more. He had done something similar when he had worked in the printing trade. The presses Cook had operated could cut, fold, transfer, and deliver flimsy paper at similar speeds. He reasoned that if he could make high-speed exchanges with paper, he certainly could build a propulsion system capable of transferring a condensed mass at high speed.

Late in June of 1975 Cook realized that it would take a professionally built model with a precise exchange mechanism and oscillator to prove the principle. The second model was thus built in Berkeley, California by a friend at a cost of \$200. When the machine was completed and returned to Vallejo we still found ourselves with an unworkable model. The wrong ratios and proportions had been used. Modifications had to be made. A friend—Harold Furlo of Concord—assisted us building some needed parts in a small shop in his garage. Unfortunately, the changes weren't sufficient to correct the severe deficiencies in the second model, but with a budget of several hundred dollars we couldn't expect miracles.

The model, however, wasn't a total failure. For the first time we confirmed that the exchange mechanism could transfer and reverse the direction of the mass between the arms in both directions. Even though we couldn't keep the exchanges consistent, we did actually witness it done. More than ever, we realized we needed a precise mechanism.

The principle had not yet been completely verified by a working model, so late in 1975 with a few thousand dollars investment, Cook was ready to make one more attempt at a more precise handbuilt model.

This time, the correct ratios and proportions were used. Additionally, on this third model, Cook, incorporated a splittable drivetrain that could be disconnected in such a way to allow only the small rotor to turn. Cook was now able to study the oscillations and determine the requirements for the nucleus mass. From these experiments, we proved that the nucleus mass was going to do its job. Because the nucleus mass could be kept relatively small, we believed beyond any doubt that for all practical purposes the theory had been successfully proven. This convinced us that the so-called impossible internal propulsive force would be successfully demonstrated in the very near future. Little did we realize that we faced a four-year struggle.

This model also confirmed that the exchange mechanism would positively work at higher speeds and with much larger masses. One difficulty was to keep the masses exchanging between the arms uniformly. Here, we only had limited success, and couldn't maintain the exchanges consistently enough at high speed to positively produce propulsion.

Most of these experiments were accomplished during 1976. Funds again ran out early that year and the progress was often dictated by availability of money. If funds were there we could purchase the necessary parts; if not, we were stalled. Because of the controversy with Newton, the potential investors we approached would lose interest when they sought scientific advice as to the validity of Cook's seemingly impossible invention. From early 1976 to the middle of 1977 progress was delayed for lack of funds.

Until the summer of 1976 Cook had been living alone with his three dogs—Bismark, a German Shepherd; Shadow, a black Labrador; and Teeny Tiny, a Great Dane. That June, Cook married Scherl Carr.

Because of the controversy with Newton, the potential investors we approached would lose interest when they sought scientific advice as to the validity of Cook's seemingly impossible invention.

Early in 1977, with additional living expenses Cook began to sell firewood part-time to support his family and experiments. As the year continued, he was compelled to partially abandon his experiments to prevent financial disaster.

In June of that year, Richard Bower, a retired tax collector and potential promoter, offered to lend Cook his assistance. He arranged for Roy Renner (an outstanding consulting mechanical engineer and one-time consultant to the State of California on the steam bus project) to investigate Cook's model and study the principle. Renner, upon examining the model, concluded that he could see nothing wrong with the principle, and strongly recommended that a precision model be built.

With these conclusions, Bower assured Cook that financial needs would be met. Unfortunately Bower could not come through financially. Cook again faced financial deadend. Discouraged and exhausted he was forced to terminate his experiments completely. He moved everything to Esparto, California (a town approximately 45 miles north of Vallejo) to become involved full-time in the firewood business.

The situation was bad. Here was an inventor of unlimited creativity living near poverty logging and selling firewood. His ideas were extraordinary. Cook had

Inventor Builds The CIP Engine

By CAROL CROSS

Times-Herald Staff Writer

A new device which its inventor says could revolutionize propulsion systems on land, at sea and in outer space currently is undergoing tests and further refinement in the home of Robert L. Cook of 605 Wilson Ave., Vallejo.

The Texas-born 41-year-old Cook arrived here two months ago from Pittsburg, and although his vocation is that of a printing pressman, he has been working full-time for the past three years and part-time for four years before that, on his rather odd-looking contraption.

The inventor, a bachelor whose formal education ended with his graduation from Mt. Diablo High School in Concord, has enough faith in the potential of his engine that he is having a new model built in Berkeley. He estimates his investment in the engine over the years to have totaled some \$80,000.

Cook apparently took issue with Isaac Newton's third law of motion when he started out to perfect what he calls "the CIP engine."

"This highly controversial system, once considered totally unworkable by most scientists, is now beginning to get more attention from them and they are not so sure that it can't work," he said.

NEWTON'S LAW

"This controversy is caused by the fact that Newton's laws of motion

imply that in order to move an object (or mass), you must either push it or pull it with an outside (external) force.

The CIP engine is an internal force system which converts centrifugal force into a linear thrust. Experiments conducted with an early concept model, using highly sophisticated equipment at a modern laboratory, proved that a very weak internal force was being produced.

"Later experiments have led to a tremendous breakthrough and now show great possibilities."

As a result, Cook sees "a ray of hope for the future at this time in history when so many people are trying to solve our energy and pollution problems without much success."

The inventor said the U.S. Patent Office granted a patent on the original concept in 1972 and that a new patent is pending on the "breakthrough" which he believes "could very well prove the CIP engine to be the world's most efficient system for propelling anything from submarines to spacecraft."

He adds that certain recent experiments indicate such high efficiency can be achieved and that if so, the following things can happen:

1. "The cost of building and operating cars will go way down. Cars no longer will need transmissions, drive shafts and differential gears. The CIP engine car will be moved by an internal force similar to artificial

gravity.

"It will use 25 to 50 per cent less fuel because of less moving parts and less friction."

2. "Surface vessels as well as submarines will benefit from this system. Submarines are plagued by the change of viscosity of water at great depths — which causes great resistance to the turning of their propellers."

"With this system, which doesn't require propellers to react on water in order to move, this problem will be eliminated."

3. "Space work is where the system could provide some science-fiction-like performances. Up until now the fastest man-made object, Pioneer 10, has reached a speed of 100,000 miles per hour.

"This is great speed, but compared to the speed potential of an internal force system it is nothing. Engineers who have studied the CIP engine believe that in space it could reach or exceed the speed of light (186,000 miles per second)."

HIGH SPEED

"One engineer calculated it would take the system two months to reach that speed (in space) if a constant 22.2 feet per second of acceleration was maintained. Some believe this is the type of engine used by certain UFOs, since they are not rocket-powered and the high-pitched sound they

make undoubtedly is that of rotors turning at high RPM — just like a 'CIP' engine."

Cook describes his system as "very simple" and says this is how it works:

"It will consist (in most cases) of eight units synchronized and phased to produce a constant force. Each unit will consist of two counter-rotating arms, with one arm having a spinning rotor. This rotor will have a weight (mass) that can split in two.

"An effective working force will result (when the mass is together) for 180 degrees of arm travel and then the mass will split. Half of the mass will go clockwise and the other half counter-clockwise. This will neutralize the effective working force for 180 degrees of arm travel.

"The two masses are then rejoined on the spinning rotor and the cycle is repeated. The system can be powered by gasoline, electricity or just about anything that can make the arms and rotors spin.

"It will have almost unlimited force potential. To give an idea of this potential — if you spin a one-pound weight in a two-foot diameter circle at 7,000 RPM it will produce 14,000 pounds of force and at 40,000 RPM about 80,000 pounds."

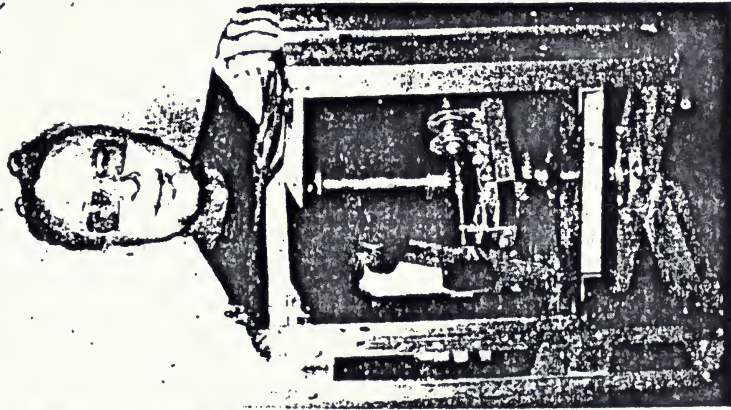
"If you convert that into linear thrust, you can propel almost anything."

Cook is being assisted in his work on the engine by Joel Dickinson, 27, of Concord.

Ex. B-1

The first published Vallejo Times-Herald story on the CIP.

*These figures were not calculated correctly



Robert L. Cook, of Vallejo, is an inventor working on a brand-new propulsion system that can be used on land, at sea and in outer space. Here he is seen with a mock-up of a portion of his device. He said it would take eight of these gadgets to complete his entire system. — Times-Herald Photo.

concepts for new propulsion systems, new energy sources, and new methods of water purification. His radical mechanical ideas were backed by a 23-year history of success. Obviously, something was terribly wrong with our nation's methods of evaluating new and great ideas with phenomenal potential. Here was a lifetime of experimental knowledge possessed by a mechanical expert in rotary motion going to waste oiling chain saws. What a crime! What injustice!

Events in late 1977 and early 1978 got Cook back on the track of perfecting his machine. The franchise to the range Cook was logging was lost as a result of a friend's death and that, coupled with a wet winter, knocked him out of the firewood business. Cook laughs when he recalls that 1977 with all its financial problems was probably the healthiest year of his life due to all the exercise. Without his logging work Cook had no reason to remain in Esparto so he returned to his previous residence near the water in Vallejo.

He was again on the financial hotseat. He now had a wife and one baby boy, Robert, Jr. (born April 10, 1977) to support and another, Victor Alexander (born July 1, 1978), on the way. Because of these tremendous obligations, Cook, in early 1978, swallowed his pride and returned to visit his ex-partner Bob Stall in San Francisco in an effort to restimulate interest in his new invention. Stall was much too busy with his projects to become involved, but he treated Cook cordially.

In the spring of 1978, while in Vallejo, Cook's allergies again put him out of action for several months. While recovering and although extremely weak, he prepared a small article for the Vallejo paper in hopes of stimulating some additional interest and possibly financial support for his idea. The small article printed in the Vallejo *Times-Herald* during April 1978 did eventually bring the desired results: Cook was invited to lecture at the Vallejo adult center.

The lecture was well received and the instructor, Mrs. Eva Pallesen, later discussed investing in the invention with her husband, Dr. Jim Pallesen of Pt. Richmond, California. After meeting with Cook, Dr. Pallesen wanted to help and suggested that Cook incorporate. An appointment was set with attorney Gary Knudsen in San Francisco, but, since Knudsen became ill, Cook discussed his desire to incorporate with Knudsen's partner, David Paul, a prominent San Francisco corporate attorney. Subsequently, Dr. Pallesen spoke directly to Paul regarding the details of incorporating. Dr. Pallesen was so enthusiastic about the project that David Paul himself became interested in investing.

Ultimately, Dr. Pallesen did not invest but David Paul did. Paul added a friend, Bryce Olson (the owner of an accounting firm in Milbrae, California) and Olson in turn added a friend, Bill Wayne (a pilot for United Airlines). The three signed a partnership agreement



The Cook family. Left to right: Victor, Scherl, Bob, and Bob, Jr.

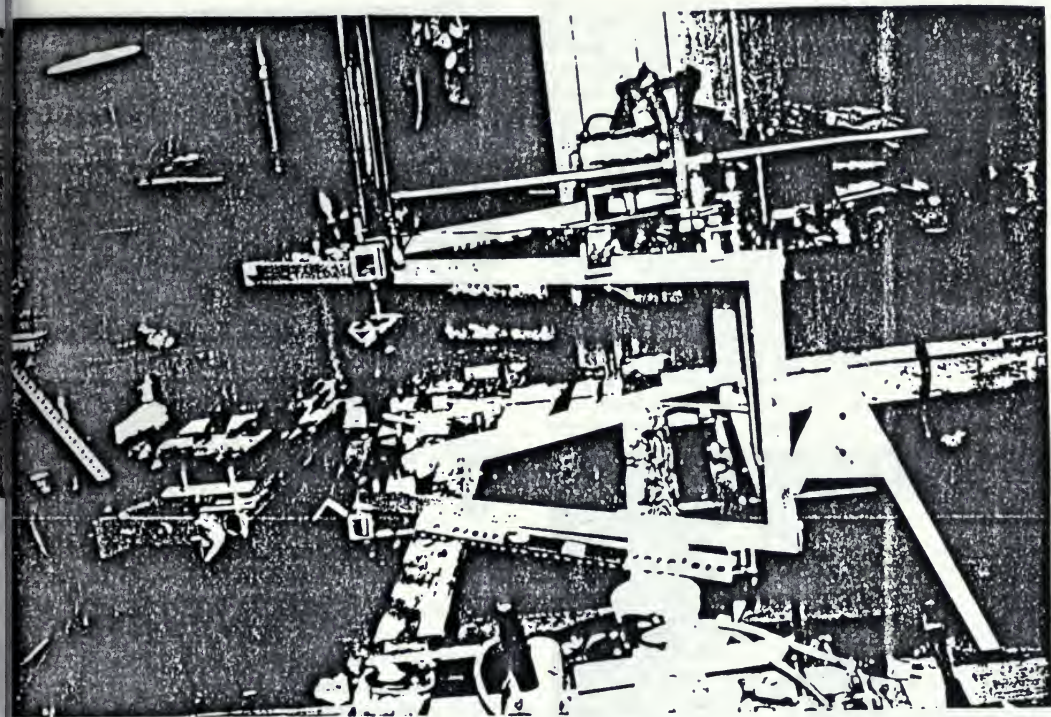
with Cook for a whopping 18% interest in his patent and put \$15,000 in a trust fund to be used for construction of a model. This agreement was signed early in July of 1978. Cook had little choice; he had to get the project back on its feet.

Late in that year a fourth prototype model was started by Earl Kelly in his machine shop in Riverbank, California. Kelly had been recommended by Roy Renner. As Kelly completed the major components Cook would pick them up for assembly.

In December of 1978 Cook returned to his hometown of Presidio for the holidays. There, he visited his friend Tomás Noriega, editor and publisher of the weekly newspaper *Renovación* (Ojinaga, Chih. Mexico.) As a result of this visit the following news article was published (Exhibit 8-2a and 2b).

Back in Riverbank, Kelly was delayed in his work by sickness, so it wasn't until May of 1979 that Cook received all the completed major components. The machine itself was yet to be completed, so a new machine shop was located to finish the model. Jim Harmsworth, owner of H & D Machine and Engineering (Benicia, California) was engaged to build the machine. His work began where Kelly's had ended.

By June, with approximately \$18,000 invested, Paul, Olson, and Wayne became disenchanted with the slow progress. One of the major factors disap-



The latest CIP prototype under construction.

September 1978 at Earl Kelley's machine shop. Left to right: Cook, Kelley, and Roy Renner. (Picture courtesy of Richard Bower.)



pointing the investors was the project's delays (caused by Kelley's illness), which had cost both time and money. Paul wrote on June 15: "You must bear in mind, Bob, that we have sustained you for a full year now. We must impress on you that no further funds will be available for your support in the immediate future. Therefore, you must plan to seek independent employment to provide for the maintenance of your family. During this period we (Bryce, Bill, and I) will undertake the task of exploiting the invention by the best possible means."

Cook was angry. He had given a full 18% interest in a multimillion dollar idea and this was all the support he was given. Not one expert had been hired by Paul to analyze Cook's principle. He felt betrayed because, he now believed that experiments conducted on the almost-completed model had proven the great worth of the idea. By the time of Paul's letter, the oscillating mechanism as well as the exchange mechanism had started to work, and by the middle of July

an eight-pound propellant mass would be exchanged consistently. These fairly consistent exchanges would begin to register the first propulsive forces on the system as well as the workbench it was bolted to.

For a year, the investors had sent Cook \$1,200 per month to cover his family's living expenses so that he could work full-time on the model. The \$18,000 total, less the \$14,400 living expenses sent Cook for full year actually meant the machine had been constructed for a puny \$3,600. This figure is incredible when compared to the staggering 1 billion, 98 million spent in 1979 by NASA on the problem-riddled space shuttle, a system the CIP engine will make obsolete.

After several months of working on the machine and familiarizing himself with the principle, Jim Harmsworth of H & D Machine and Engineering had

*David Baker, "Programming the Shuttle to Future Needs," *Spaceflight* (Vol. 22, No. 3, March 1980), p. 137

Ex. 8-2a

A friendly newspaper story on Cook's work.

Ex. 8-2b

A translation of the 1979 story.

Nos Visitó Connotado Científico

La semana anterior estuvo a visitarnos en nuestra Redacción, el joven científico-inventor Roberto Cook Rodríguez originario de la vecina población de Presidio Texas y que ahora reside en Vallejo, California, E.E. U.U., y de quien ya en otra ocasión anterior nos habíamos ocupado, en relación con un aparato de su invención para adaptarse a todo vehículo combustión interna y que no había podido perfeccionar por la falta de recursos económicos.

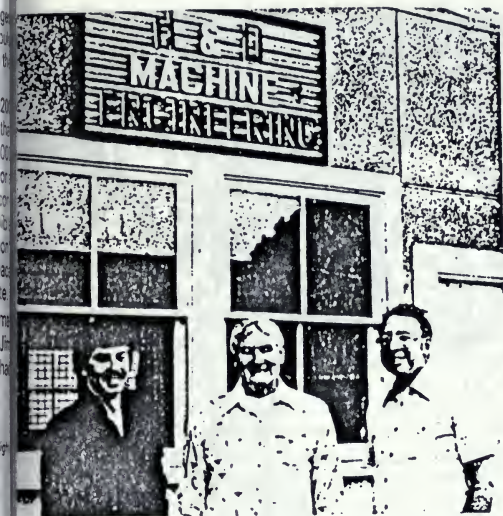
Este aparato, nos dice el señor Cook, es para reducir considerablemente el gasto de combustible de los motores de los vehículos (automóviles, aviones, cohetes espaciales, etc.) y que al mismo tiempo les da mucho mayor potencia y por lo tanto más velocidad por menor gasto, y que ahora, nos sigue diciendo, que ya se ha organizado una empresa internacional de capitales fuertes estará en condiciones seguras de poder dar a conocer al mundo su invento, lo que hará por todos los medios de publicidad, habiéndonos ofrecido enviarnos próximamente más detalles, pues él desea que su tierra natal, que es Presidio, se vaya dando cuenta de lo que está en vías de evolucionar toda clase de transportación a motor.

We Were Visited by Noted Scientist

Last week we were visited at our residence, by the young scientific inventor Roberto Cook Rodríguez* who originates from the neighboring population of Presidio, Texas and who now resides in Vallejo, California, U.S.A. and who on another past occasion had brought to our attention an apparatus of his own invention to be adapted on internal combustion (engines) vehicles but had not been able to perfect it because of lack of economic resources.

This apparatus, Mr. Cook tells us, is to reduce considerably the cost of fuel for vehicle motors (automobiles, airplanes, special rockets, etc.) and at the same time will give them higher efficiency and also more speed for less cost, and now, he continues to tell us, an international organization with strong financial backing has been formed. He will be in a secure condition to let the world recognize his inventions, which he will do through all public news media, having offered us more exact details, because he desires that his native land, which is Presidio, become aware of what is about to revolutionize all types of motor transportation.

*Note how the name is given in Spanish. The mother's maiden name, Rodríguez, is added after the surname — Cook



Dickinson, Harmsworth, and Cook at H & D Machine and Engineering.

become a believer. An inventor himself, with over 30 years experience designing and building machines, Harmsworth was impressed and declared the idea the most outstanding invention in history. He recognized Cook as a mechanical genius and wasn't about to give up improving the machine because David Paul had ended funding it. He continued to build parts for the model, knowing that Cook had no immediate funds to reimburse him for his work.

Exploring all avenues to stir up interest in his idea, Cook attended the 10th Annual MUFON (Mutual UFO Network, Inc.) Symposium on July 8, 1979 in Burlingame, California. Cook talked briefly with both featured speakers, Stanton T. Friedman, a nuclear physicist of Hayward, California, and Dr. J. Allen Hynek (of Northwestern University), director of the Center for UFO Studies in Evanston, Illinois. Dr. Hynek complimented Cook on being the first person he had met in 34 years that claimed to actually have working hardware to demonstrate his ideas on space propulsion and hadn't asked for 20 million dollars and 10 years to develop them. Dr. Hynek asked to be kept informed of Cook's progress.

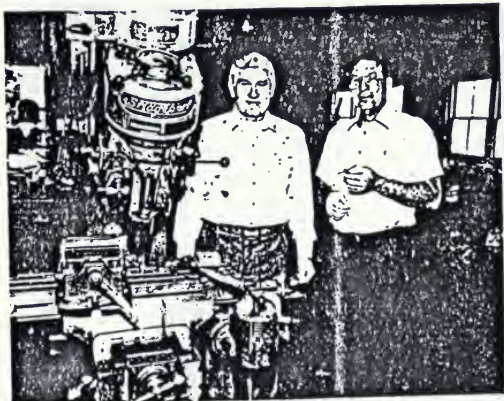
Cook also had a longer discussion with James M. McCampbell, director of research for MUFON. McCampbell took notes of the conversation but nothing came of it.

In July of 1979 the first conclusive experiments verifying the soundness of the principle took place, four and one-half years after the concept was conceived. That month we positively confirmed that the oscillating mechanism and its nucleus could eliminate

all negative effects. Even though the machine hadn't actually propelled itself across the floor yet, Cook knew that the principle was proven: It had to propel once it increased its exchanges about 20 more per minute. The situation echoed the position of the Wright brothers: Even before their first plane flew (with an engine), the brothers knew it was going to be successful. (Their first plane had a drag of 98 pounds in order to create enough lift to fly. Once they knew the motor could develop 132 pounds of thrust they knew it was going to fly.) Cook relayed the good news to his partners: The principle had been proven to his satisfaction. What was satisfactory to Cook, however, was far from satisfactory to his financial backers. They had to see a fully demonstrable model, which they insisted should be composed of two counterrotating units.



Cook and Harmsworth pouring over the blueprints at H & D.



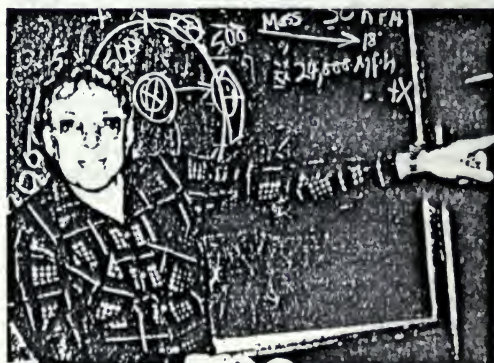
Cook and Harmsworth near the Bridgeport milling machine used to manufacture some of the parts for the CIP engine.



Left to right: Cook, Dickinson, Harmsworth, and Bob Woodward.



Jack and Bob Woodward at a Delta Bearing outlet.



Cook at the blackboard during the November, 1979 lecture.

Cook now made it clear that he needed additional funds to continue work on the machine, and if his partners didn't wish to cooperate he wanted to buy back their 18% interest and find new backers. A meeting was arranged with Cook early that August so Paul, Olson, and Wayne could decide what course to follow.

Present at the meeting were Jim Harmsworth, the machine shop owner, and Seth Hodson, a retired NASA engineer. Both men had come on Cook's behalf to help the investors better evaluate the inventor's conclusion. At the meeting also was David Paul's son, a biophysicist, who was already familiar with the disappointing Dean Drive. Cook received the impression even before the meeting began that Paul, Jr. had concluded that the machine was a worthless assortment of gears and weights that had little more potential than a vibrator to propel, and that his father had been foolish to finance this wild creation. The evaluation of the machine by the "expert" the investors brought lasted less than 25 minutes. Cook wasn't given a chance for a full explanation and almost nothing was asked of Harmsworth or Hodson. Later, we learned that Paul, Jr., a totally unqualified expert in mechanics, indeed had pronounced the machine just another Dean drive and had soured his father and partners on the future potential of the invention.

Later that month Cook was notified his partners wanted out, and for \$18,000 they would gladly release all their interest.

During October of 1979, at H & D Machine and Engineering, the exchange mechanism was "fine tuned" to the point where a consistent exchange was possible at high speed. Finally, with both the oscillator and exchange mechanisms well adjusted, the machine was given its first true test.

Late in the afternoon of October 15, 1979 Cook and an employee of H & D, Fred Petty, made final adjustments of the machine on the welding table. Dead tired from the heat and a full day's work, they were about to quit for the day but before leaving they gave the machine one last try.

The gears began spinning, the mass began exchanging, and the nucleus began to perfectly control the oscillations. Finally, the machine reached the necessary rotor speed required to overcome friction on the wheels and propel. Unbelievably—after all those years of frustration and ridicule suffered by the inventor—the machine began to surge forward. History had been made. A weak internal propulsive force had been fully demonstrated and the foundations of physics and mechanics had been proven wrong!

Cook and Petty stood there dumbfounded. They couldn't believe what they were seeing. The machine had moved when they least expected it. Could it really have happened? A few minutes later Bob Woodyard, a friend and investor, dropped by. He, too, witnessed the machine propel. They ran it several

times and each time the experience seemed unreal. Cook was exhausted, but extremely happy.

You can imagine how Thomas Edison's workers must have felt after finally succeeding with the light bulb. They had become accustomed to labor without hope. They never dreamed that their long months and years of hard work could be ended abruptly and almost by accident. The suddenness of it all took their breath away.

Cook was sure these results would re-interest his partners. He told them of his success but reminded them that further improvements needed to be made before proper demonstrations for business interest could be conducted. Since the machine was not yet perfected to the point of enduring a full promotional

History had been made. A weak internal propulsive force has been fully demonstrated and the foundations of physics and mechanics had been proven wrong.

schedule, Paul, Olson, and Wayne still couldn't get too excited about the experiments. They would still rather have their money returned and get out of Cook's way. If they couldn't pitch in and help financially, Cook wanted them out. He would seek other investors.

That is exactly what happened. In December of 1979 an agreement of release and discharge was signed by Paul, Olson, and Wayne who were given three \$6,000 money orders by Cook. The signed agreement concluded, "The undersigned acknowledges that they have had the full opportunity to inspect the model and all data connected therewith, have had experts inspect the same and advise them concerning the device, that at all times during the relationship Robert L. Cook represented to the undersigned that the invention is workable and valuable."

New investors had entered the picture. The Woodyard family, owners of Delta Bearing Company of Pittsburg and Benicia, California purchased Paul, Olson, and Wayne's interest in the idea and initially supplied Cook with the \$18,000. The Woodyard's had gotten to know Cook as he purchased gears, bearings, and various materials from them for his machine. They took a tremendous interest in his work and were considering investing. In November both Jim Harmsworth and the Woodyards hired Dr. Charles Reeg, one of the heads of a department of physics at a large university, to attend a small lecture Cook was planning at H & D Machine and Engineering. Harmsworth (who had al-

Nov. 29, 1979

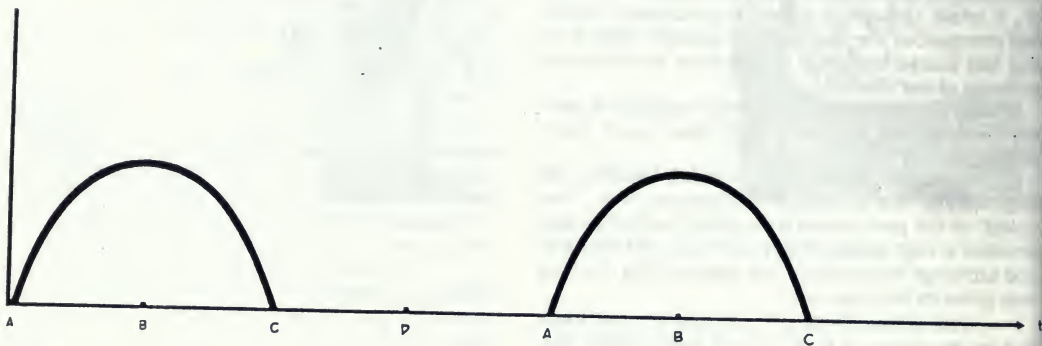
Dear Mr. Woodyard:

I have made calculations which concern the ideal case of the machine invented by Mr. Cook...

...The momentum possessed by the mass has opposite direction to the momentum provided by the fixed mass. This fixed mass produces the unbalanced momentum which can be used to propel the vehicle...

Ex. 8-3a

Report verifying Cook's successful rectification of centrifugal force.



Ex. 8-3b

Dr. Reeg's graph of the unbalanced momentum.

ready helped substantially) and the Woodyards both wanted a professional written analysis on Cook's principle in order to assist them in making future investment decisions regarding the invention.

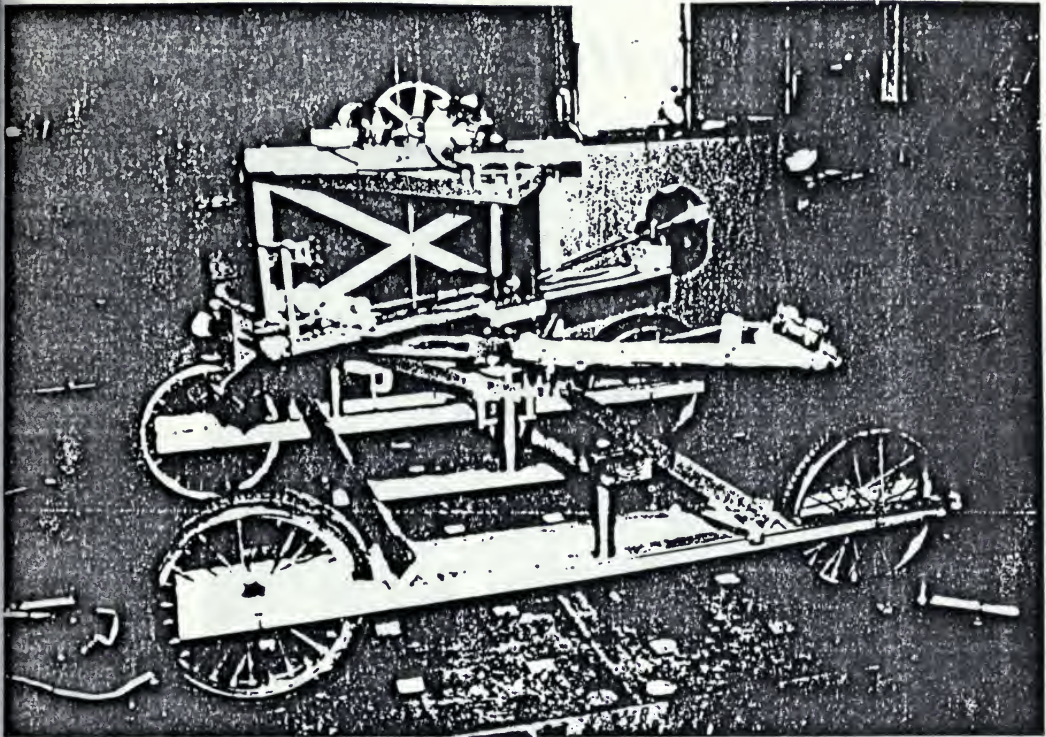
Dr. Reeg attended and seemed to react favorably to the lecture-demonstration. In a signed report dated November 29, 1979 (the first written report ever done by a qualified scientist *on the new principle*), Dr. Reeg concluded: (1) The principle is sound, and (2) the efficiency potential exceeds 50% (Exhibit 8-3a). Dr. Reeg's graph of the momentum follows (Exhibit 8-3b):

Dr. Reeg was the first professor to sign a report unequivocally concluding that the idea was workable. This report prompted the Woodyard family to provide the funds necessary to buy out Paul, Olson,

and Wayne's interest.

Seeing his theories proven and having a professor's endorsement made Cook even more confident in his discussions with physicists. That November, during a phone conversation with Dr. Williams Cook made his strongest challenge yet. He told Dr. Williams that he was so convinced of his principle that he was willing to wager \$10,000 on it. Dr. Williams asked Cook if he disproved his theory would he get the \$10,000. "Yes," Cook replied, "but its a two-way street. If you fail to disprove my theory, then you owe me \$10,000."

Cook asked Dr. Williams to clarify the wager. "My argument against your idea," Williams said, "is the fact that you're saying force is not equal to mass times acceleration." "No," Cook replied, "I'm not say-



The CIP engine mounted on wheels.

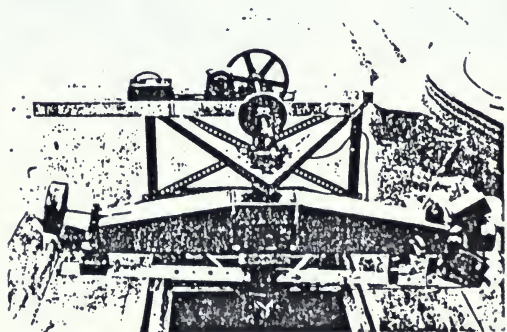
ing that. What I'm trying to establish is the fact that a distinction has to be made between the (newly discovered) force internal and force external. These two forces have to be considered and I say I can produce an internal force. If you want to wager I can't produce an internal force with a mechanism that will affect the momentum of an object get your \$10,000 out and get ready to lose it. I do have a mechanism that will demonstrate this fact."

Dr. Williams responded, "I'd rather not take you up on that wager. I'd rather come to your next lecture and demonstration." A top nuclear physicist had backed down from Cook's challenge. There would be more to come.

So, as the decade of the 1980s began, we were still struggling to have our ideas fully accepted.

Totally frustrated by his failure to obtain a fair hearing from the scientific community (which had been a major factor blocking the avenues of interest from the business world), Cook lashed out at Newton in his strongest attack yet, in the Sunday *Vallejo Times-Herald* of February 3, 1980 (Exhibit 8-4):

When the truth of the matter regarding his (Newton's) blunders is fully known, it will be seen that his erroneous teachings have misled those in the field of mechanics into designing terribly inefficient systems of transportation. The laws have blinded the scientists.



Close-up of the arms and rotors of CIP engine mounted on a boat.

Vallejo-Benicia
edition

Times-Herald

Solano and Napa
counties' morning
newspaper

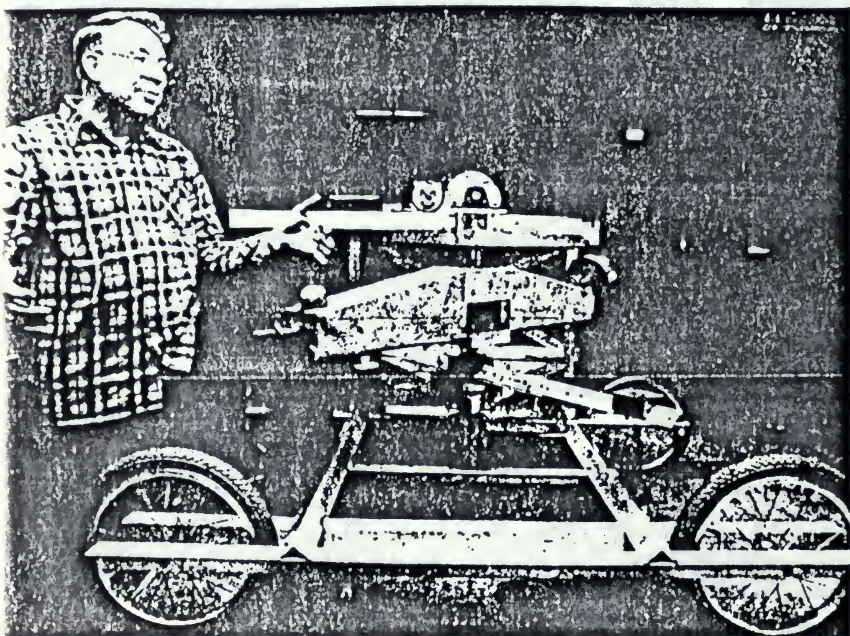
Year: 1960

70 Pages: 7 Sections

Sunday, February 2, 1960

Vallejo, California

316 Sunday



Bob Cook with an invention he hopes may one day power space crafts and submarines.

Inventor propelled by engine

By SEAN McVEY
Times-Herald Staff Writer

VALLEJO — It looks more like a Rube Goldberg fantasy than the engine of the future. It is a concoction of gears, machined metal parts and wire. When switched on, it shakes its frame as a massive arm with weights on both ends turns.

But Vallejo inventor Bob Cook predicts it will efficiently hurl space craft through space at or near the speed of light, propel

nuclear submarines through the world's oceans and speed cars and trucks along highways.

The invention is called the CIP (Cook Inertial propulsion) engine. Cook explains that the engine harnesses centrifugal force.

Imagine whirling a stone on the end of a string. A tremendous amount of centrifugal force is created with very little use of energy.

But problems occur if this unconverted power is to be used. As long as the stone keeps whirling in a circle, the forces cancel them-

selves out with each revolution.

Cook explains the CIP engine captures these forces. At one point in the cycle, an imbalance in the centrifugal force is made, creating a forward thrust.

The internal combustion engine in a car turns the wheels and the car moves forward because the turning wheels move against the ground. This is called two dimensional force.

With the CIP engine, there is one dimensional force because the engine is

thrusting itself along. There is no need for a drive train. The wheel simply gives the car something to roll on.

Cook said the thrust will work the same whether the CIP engine is on land, in the air, at the bottom of the sea or in space.

For cars, the greater efficiency of the CIP comes from the lack of a transmission and differential, both of which take tremendous power to turn, Cook said.

"With a 200 horsepower internal combustion engine, less than half of it reaches the rear wheels," he said. "The other horsepower is used up in the transmission and differential."

Years ago, one of Cook's seven CIP engine prototypes was tested by United Airlines. Recently a United engineer told Cook if the engine could save one cent per gallon of fuel, it would save the airline \$20 million annually.

Presently, the best jet engines are 8 percent efficient and rocket engines are less than 2 percent efficient, Cook said.

Saying he has refined the engine since United tested it at 1 percent efficiency, he said the next prototype could have an efficiency rating as high as 85 percent.

Dr. —, chairman of — physics department, using the United Airlines report, predicted the invention would produce about a 30 percent efficiency, about the same as an internal combustion engine.

"It is possible that as much as \$200 million per year could be saved by United Airlines once the new system is fully utilized by commercial aviation," Cook said. "The entire transportation industry would save billions of dollars because the system will eventually be used on just about everything that moves."

However the principle behind Cook's invention — the one dimensional force — is contrary to Isaac Newton's laws.

In 1687 Newton wrote an explanation of the laws of physics in a book called "Philosophiæ Naturalis Principia Mathematica," the foundation for the science of motion.

The first law states every body in a state of rest or in a state of straight motion will remain in that state unless acted on by external forces.

Ex. 8-4

Cook's strongest attack on Newton gets published.

The second law said the acceleration of a given body is proportional to the force causing it, and the third law said that for every action, there is an opposite equal reaction.

In the past, Cook has run up just a scientific stone wall from engineers and physicists because CIP violates several of these laws. However, the walls are beginning to crumble since Cook has developed a theory for his CIP engine that he has a working model.

The CIP's thrust is caused by internal force, not an outside force, which is contrary to Newton's first and third laws.

"This law (the second), from which the universally accepted formula of F=MA is derived, leaves no room for internal forces to affect acceleration of an object," Cook said. "The 'F' in F=MA was always intended for granted to mean an external force."

"The new system clearly and without doubt demonstrates that a force has to be considered by scientists, namely that a distinction has to be made between force external and force internal."

Cook calls Newton's third law the biggest blunder of the three laws.

"It states for every action or force, there must be an equal and opposite reaction," he said. "In other words there can never be a force acting in nature unless two bodies are involved. One exerting the force and the other on which the force is exerted. But I'm creating a force with just one body involved. The force is created within the system."

Because he is bucking the father science, Cook said he has encountered tremendous resistance in obtaining scientific approval and financing for his invention.

"One reason why this system has taken me almost 12 years to prove is the fact that the principle is contrary to Newton's law," Cook said. "The science community will not consider it possible until a working model was finally functioning and this theory was properly put forth to explain it in a rational way."

"Until one year ago no one of any stature in society would lend a helping hand to me and I had to go it alone for all of that time."

Although Newton's laws have been studied by countless generations of students, and his theories

have been the basis for disciplines of mathematical studies, Cook has harsh words for Newton's laws.

"When the truth of the matter regarding his blunders is fully known, it will be seen that his erroneous teachings have misled those in the field of mechanics to stop designing terribly inefficient systems of transportation," he said.

"The laws have also created the tremendous wasteful use of fuel by these inefficient systems... which in turn have created a situation in the world, which is now setting up a world war."

"The laws have also blinded the scientists to the point of being unable to recognize an invention that is able to reduce the fuel needs of the transportation industry."

Joel Dickinson, one of the investors in the CIP and a mathematics major in college, softens Cook's criticism of Newton.

"Bob is hard on Newton," Dickinson said. "I'm not. It has been the people who have interpreted Newton's laws that have been wrong."

Seith Hodson, who assisted in the design, fabrication and overseas installation of deep space tracking equipment for NASA, and who first became familiar with Cook's invention while drafting the plans for it, is enthusiastic about its potential.

"Yes I think it definitely works," Hodson said. "It is one of the greatest breakthroughs. I have no doubt that it works."

James Harmsworth, owner of H&D Machine Shop in Benicia, has 30 years experience designing and building prototype machines. He became a believer when Cook approached him a year ago about building a model.

"It is going to revolutionize the transportation industry, especially the airline industry," Harmsworth said. "It is going to make an impact, especially in this time of energy problems."

One defect Cook had against him while working on the CIP engine was the Dean Drive. The Dean Drive, named after Norman L. Dean, a bureaucrat, was a machine that was also supposed to use centrifugal force.

Investors flunked to Dean and gave him approximately \$250,000 to develop his project. However it turned out to be a sham.

When Cook started work on his centrifugal force machine, the memory of the Dean Drive was

fresh in the minds of investors and scientists.

"It caused me a lot of problems," Cook said. "I had to fight against that for a long time."

He is ready to expand beyond his present one-rotor prototype. His next project is a six-rotor CIP engine.

Cook will be receiving his United States patent on his latest CIP engine soon. He said he needs money to make foreign patents and develop the new six-rotor engine.

"I'm mad as hell. We have a solution to the energy problem," Cook said. "I'm not some lunatic and this isn't some pie in the sky idea. The scientists and engineers should be helping us. After all, they are United States citizens. Here I am working my tail off. They should be helping me."



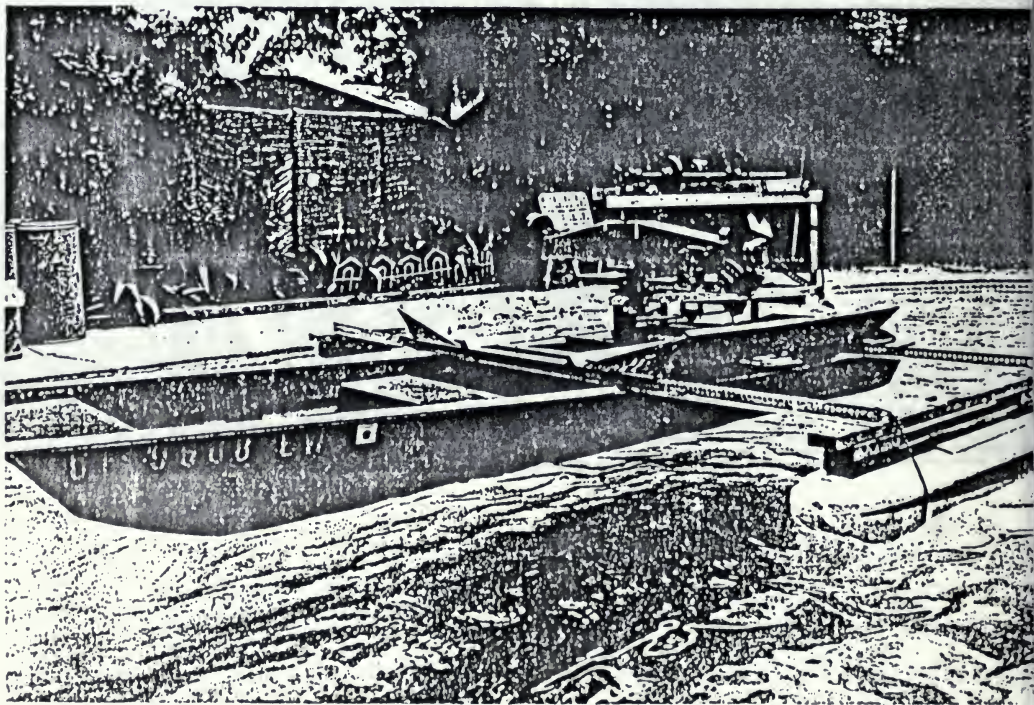
BOB COOK
"...Newton's third law was a blunder"



Jim Harmsworth, owner of H&D Machine Shop, said he became a believer.

By early June all the necessary adjustments to the CIP had been made to complete a special experiment with the model mounted on a boat. As usual, the experts had predicted that on water this new mechanism would produce bounded motion. This time—on June 9, 1980—the machine not only propelled the length of the pool in a continuous motion, but for the very first time actually accelerated. These amazing results further reinforced Cook's contention of the existence of an internal propulsive force.

Robert Cook has earned an unprejudiced analysis of his theories and his working models.



On June 9, 1980 the latest CIP engine accelerated this boat across a pool.

9. Epilogue

How does an inventor with a great breakthrough invention get a fair hearing from the scientific community or the institutions of higher learning?

Cook has done his research openly and honestly. His models have at all times been available for inspection, testing, and evaluation. We have contacted dozens of scientists and professors in an effort to obtain fully honest evaluations of the models. We have desperately tried to get the proper fundings and make the needed business arrangements to build a flying prototype. So far we have succeeded in getting only limited funding. The idea has been presented to NASA, United Airlines, and many universities. As a result of dealing with United Airlines, Cook has been provided with both a dynamic analysis and accelerometer test report, both of which agree that the machine works. We also have a written analysis by the chairman of a physics department at a major university concluding that the latest principle works. We have conducted every test that scientists and professors have suggested—with positive results—and those results have been rejected in most cases. What does it take to get acceptance of a desperately needed breakthrough idea?

We have been very careful in presenting the truth. Every effort has been made to document Cook's legitimate struggle and substantiate the authenticity of his work. This book is about real people and real events. Anyone can confirm its contents by examining public documents.

The public should demand that accurate models be built to prove or disprove Cook's ideas. Professional research in this "forbidden" area should begin in earnest immediately.* Cook deserves a just evaluation. Most of those who examined his models have agreed that whether they work or not, they deserve proper study. But who in the areas of science or big business has helped?

It has been a struggle. Cook has survived 12 years of frustrations, unnecessary detours, and terrible disappointments. Recklessness and underhanded chicanery by certain professors and "experts" have already ruined several promising business relationships, as you have witnessed.

*Cook is concerned that the United States will be slow in recognizing the enormous military and social value of the CIP. Cook's attorneys have already filed the CIP patent specifications and claims in several countries.

Fuel saving ideas such as the CIP engine should be given top priority by all countries of the world for speedy development. We need to embrace new and original ideas. Slowly improving "accepted and proven technology" is only temporary medication for a potentially fatal wound.

One of the major delaying factors in our case has been the world's attitude toward evaluating and accepting new and controversial ideas. Remember just this century the Wright brothers flew for years before the world's experts thought it was "possible to

How does an inventor with a great breakthrough invention get a fair hearing from the scientific community or the institutions of higher learning?

fly." In this day and age, it is predominately "teams" that develop ideas; we seem to have forgotten how to encourage the freedom necessary for pure creation (which has in almost all cases required individual thought and sacrifice). Modern education has created an atmosphere of fear that tends to strangle individual creative thoughts. Listen to the words of John Steinbeck:

Our species is the only creative species, and it has only one creative instrument, the individual mind and spirit of man. Nothing was ever created by two men. There is no good collaborations, whether in music, in art, in poetry, in mathematics, in philosophy. Once the miracle of creation has taken place, the groups can build and extend it, but the group never invents anything. The preciousness lies in the lonely mind of man.

And now the forces marshalled around the concept of the group have declared a war of extermination on that preciousness, the mind of man. By disparagement, by starvation, by repressions, forced direction and stunning hammer-blows of conditioning, the free roving mind is being pursued, roped, blunted, drugged. It is a sad suicidal course our species seems to have taken. And this I believe: that the free exploring mind of the individual human is the most valuable thing in the world. And this I would fight for: the freedom of the mind to take any direction it wishes, undirected. And this I must fight against: any idea, religion, or government which limits or destroys the individual.

This book is a message of hope. It provides badly needed answers for the frightening possibilities inherent in a world energy crisis. Cook's ideas can lead to changes in our world that will benefit us all. The tremendous excitement and adventure of exploring our solar system and galaxy completely, is an opportunity given our generation by the CIP engine. Humans can now work together for common world goals of space exploration, such as mining the planets.

We cannot overemphasize the fact that the gross blunder by Newton is perhaps one of the greatest and costliest mistakes ever perpetuated. Newton's errors have misled and limited scientific thought and expectations for almost 300 years—an unbelievable situation, to say the least. The *new laws of motion*, when fully understood, could lay the foundation for solving the great mysteries of gravity and magnetism. They could also pave the way to success for the three mechanical inventions most desperately needed by our world today:

1. A new nonpolluting energy source capable of producing energy without using fossil or nuclear fuels. (Proper understanding of the mechanics of gravity and magnetism could soon make this a real possibility.)
2. A new propulsion system similar to the CIP engine
3. A highly efficient method of water purification

These are the ideas that the governments of the world should concentrate their resources on rather than weapons of mass destruction and worthless rocket development. These are the areas of research Cook has concentrated his studies and unique abilities on. Arthur Palmer's 1931 description of Thomas Edison may some day soon apply to Robert Cook:

*He has led no armies into battle. He has conquered no countries. He has enslaved no peoples. Yet he wields power the magnitude of which no warrior has ever dreamed."*²

Citations, Chapter 9

1. John Steinbeck, *East of Eden* (New York: the Viking Press, 1952) p. 132.
2. Lawrence A. Frost, *The Thomas A. Edison Album* (Seattle: Superior Publishing Company, 1969.) p. 8.



The author (left) Joel Dickinson, 30, holds a Bachelor of Science in Mathematics from Dana College, Blair, Nebraska. The inventor (right) Robert Cook, 46, has no formal education but has been a journeyman in the following four trades: flatbed web pressman, rotary web letter pressman, stereotypist, and rotary offset pressman. (Ordinarily, journeyman status in each of these trades takes five years to achieve.)

THE SPACE-DRIVE PROBLEM

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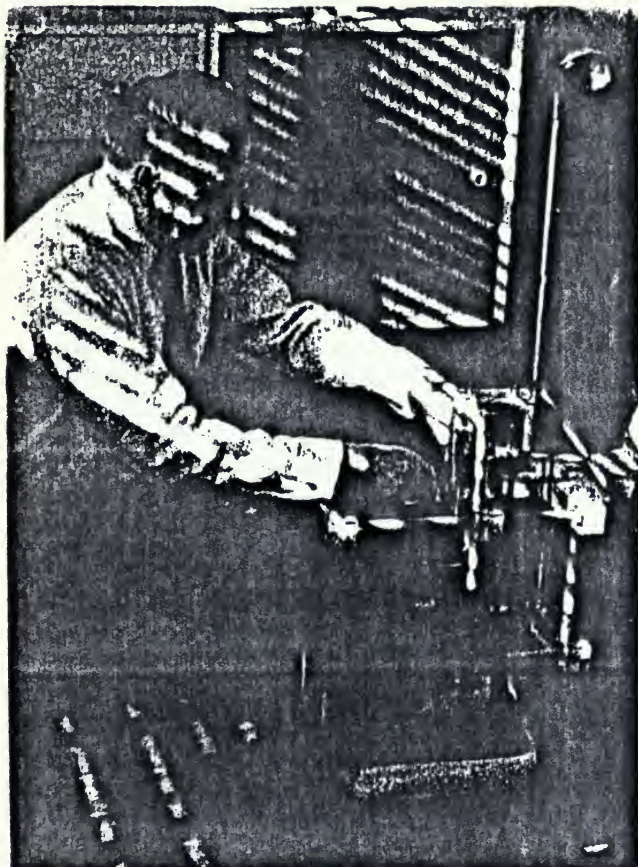
by JOHN W. CAMPBELL, JR.

The problem of Space—as any daily newspaper will clearly demonstrate—is NOT simply a technical problem. It's violently surcharged with emotional and political tensions.



IT MAY seem, at first thought, that the problem of a space drive is a purely technical problem. It seems clear enough that if we want a mechanism, or principle, by which a vehicle can be propelled in free space—a device not a rocket, but something acting on the level of force fields, that does not have to carry reaction-mass to throw away—this is a pure, physical-science problem.

It isn't. It's a violently emotional problem, first, a red-hot political



Norman Dean setting up the space-drive demonstration model.

problem second, and only incidentally a technical problem. Basically, the technical problem is the easiest of the three.

The reasoning behind that statement is quite simple; Nature invariably gives an exact correct and truthful answer to a properly phrased question, always without fear, prejudice, or dishonesty. The technical problem is simply that of asking Nature the right question.

The other two aspects of the problem do not have the same clear-cut simplicity. Both involve human emo-

tions—which, as various philosophers have reported over the last six millennia of recorded history, are anything but clear-cut or simple.

In the first place, the most honorable and ethical of men can be a bald-faced liar, if he's misinformed himself. Even a man so inhumanly honest as to be able to overcome completely any personal emotional bias can still be misinformed.

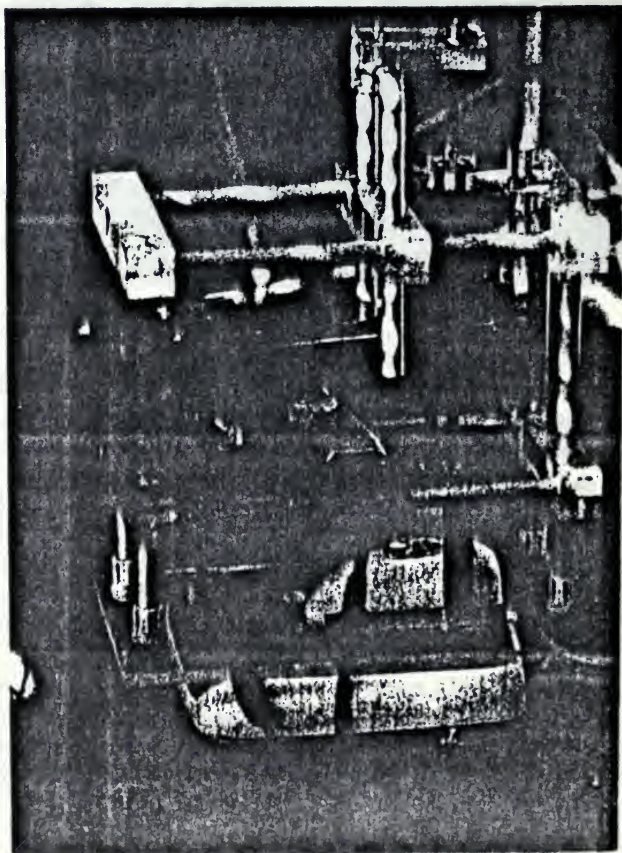
If you think that there is no emotional problem entailed in the space-drive problem . . . please think again, including more of the rele-

vant facts. Is it an unemotional problem to a man who has devoted fifteen years to rocket-engine research and development? To an executive who has been responsible for authorizing the expenditure of hundreds of millions of the national wealth on the development of launching-pad facilities? Take a careful look at the ads in any this-year's issue of such a magazine as *Scientific American* . . . with the thought in mind, "These men don't know it yet, but a true space drive has already been developed. All this research, all these proposals, are meaningless now."

Please note carefully: it is not necessary that a space drive *has* been developed for you to try that little test. Just assume that you did know that one had; the point of that suggested test is to appreciate that the introduction of any true space drive is a red-hot emotional problem.

The buggy-whip manufacturers didn't believe, when the Model T Ford appeared, that their industry was finished. The fact dawned on them only slowly. But gradually they did come to realize that there was no possible improvement in buggy-whip design that could, by brilliant superiority, regain the dwindling mar-

The Dean Drive demonstration model. The wire to the left supplies battery current to operate the solenoid-clutch; a variable transformer gives speed control of the standard one-quarter inch drill motor.



ket. It wasn't a matter of competition with their product; it was the horse—without which buggy whips had no meaning—that was innately incompetent to compete.

There is no possible brilliant improvement in rocket design that can make it competitive with a true space drive. The fact is perfectly, and unarguably clear to any rocket engineer. Unlike the buggy-whip manufacturer, who only slowly came to realize that his industry no longer existed, the rocket engineer can see at once that rockets are reduced to a very small-time, hobby or special-effects business. If you want to drill a hole a few inches in diameter through one hundred feet of hard rock, a rocket—double-ended type—is far and away the simplest, cheapest, most portable and quickest technique.

But the space rockets are out completely, if a space drive of any kind is, invented.

Of course rocket engineers don't constitute a very great faction in the population—even in the population of Science. Now I have been told, many times, by many people, frequently with considerable heat, that there is no such thing as "Science"; there are only human scientists. I don't entirely agree—but we can all agree that there are human scientists. With the specific recognition that there may be Martian scientists, Riggellian scientists, and even Eddorian scientists, for all we know—but the only kind of scientists so far encountered are *human* scientists. They

start out as men, not computing machines, and they remain men with a scientific training.

They, too, have emotional problems, biases, prejudices, and powerful desires.

I was asked, recently, to talk to one session of a seminar series at one of the major technical schools. The series was held at night; it's for professionally employed scientists and engineers who are working toward higher degrees. The group is made up largely of chemical engineers; the overall theme is an effort to study the technique of solving problems, rather than education in any specific field.

I was to send in two questions—problems for the men to work on; their answers were sent to me to be graded and returned the evening I participated.

The second of the two questions was:

An inventor has patented a device that converts rotary motion to unidirectional motion. And he means just that: *unidirectional* motion. If driven by a motor, this device produces one-way thrust. It is a bootstraps' lifter. A sky hook with elevator attachment. It makes a monkey's uncle out of Newton's law of action and reaction.

Now: assume for discussion that the device actually does work. (Laws of science have been overthrown before—even old, established ones!) Many other fundamental principles of modern theory would necessarily

change with the fall of the law of action and reaction. What other consequences to fundamental scientific theory would be implied?

One of the answers came from a chemical engineer working in one of the major oil refineries in the New York Metropolitan area. His reaction was:

Answer:

"The most bitter consequence, if this invention was possible and did work, is this would be a hell of a place to live. The basic laws of centrifugal and centripetal action would not hold. There would be no method of predicting the path of planets through the Universe, or of a rocket ship. The laws of fluid flow or mechanical work would not hold. In essence, this is the reason why I do not read science fiction. Scientific curiosity and fantastic experimentation should be encouraged, but pure fiction . . . This statement was probably made about the work of Leonardo da Vinci and Jules Verne, who were forward-looking men of high caliber, but they stayed within the limits of reason. This problem exceeds reason."

So far as he knew, the question was purely hypothetical; that I had in mind a specific invention he did not know. His reaction was, clearly, emotional, not technical. The emotion stems from the fact that the proposed device attacks one of the fundamental tenets of his world-picture.

Who wants a true space drive, then? Not the rocket engineers! And

not the scientists in general—not when it means the destruction of the foundations of their science. If one can't rely on the eternal validity of Newton's Laws of Motion . . . what stability is there in the world of Science? It's not just a space drive; it's a thing that casts doubt on the validity of the laws of fluid flow, the conservation of energy, the laws of thermodynamics—on everything!

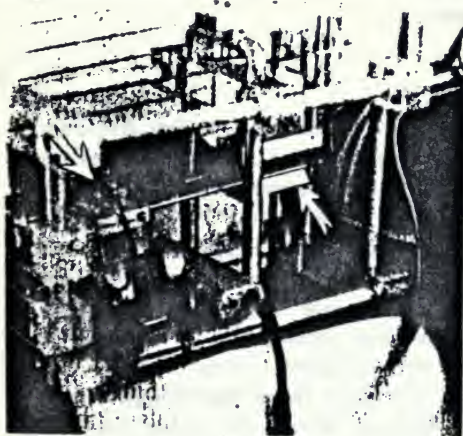
"Better the Devil we know, than the Devil we know not of!"

The space drive is an emotional problem of the highest order, to anyone who has a major emotional investment in *any* field of science.

Because to be a space drive—not antigravity, which isn't a drive, but simply something that takes off the parking brake, so to speak—the device must, in some fashion, negate the Newtonian laws of motion. It can't drive in space without drastically rearranging the Law of Conservation of Momentum, and the law of action-and-reaction. And anything that leaks through the Law of Conservation of Momentum automatically challenges the Law of Conservation of Energy. The laws of thermodynamics are based solidly on those; invalidate, or even seriously challenge them, and thermodynamics is a structure without a foundation.

Relativity is based solidly on the conservation of momentum, mass-energy, and electric charge. Any true space drive throws two of the three into doubt.

This is something to make a scientist feel happy and contented?



Arrow on the left marks the commutator mechanism; arrow on the right indicates one of the two ten-ounce brass masses.

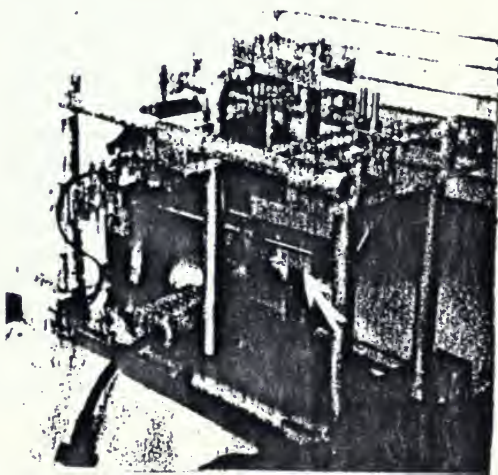
"Look, who the hell wants that damn space drive, anyway?!"

The political aspects of the problem are more readily stated and accepted as realities. It's not easy for the intellectual man, who believes very sincerely, that his life is entirely rational, to accept or appreciate that he remains a *human* scientist, and that his reactions are emotional. The politician is different; his business, like that of the dramatist, is largely emotional. He *knows* he has emotional problems—and that only a part of those emotional problems are his own. It's perfectly true that schools that flunk out the incompetent, and give special encouragement to the unusually able, are going to do a better job for the nation—but any

politician knows the emotional dynamite lying inside that proposition. It isn't his emotion—but it's his to deal with, whether he likes it or not.

A true space drive, just at this point in history, is international political dynamite. Several nations, now, have weapons too powerful for use on Earth; if one of those nations, and only one, also had a drive that gave them free, full, economically practical access to the entire Solar System—the concept of "massive retaliation" would be invalidated. If nation Alpha has a true space drive, one that can move ten thousand ton space-liners from Earth to Mars in three days—five days if Mars is on the far side of the Sun—or reach the Asteroids in five days, while nation Beta can't get so much as one man-carrying vehicle into orbit . . . Beta can't talk about "massive re-

Arrow marks one of the two contra-rotating masses; the second is parallel, obscured by aluminum-tube support.



tiation" as a deterrent any more.

Do you think any sane politician would want a true space drive developed in the laboratories of his country? If the scientists of 'Alpha' develop it, it's practically certain that before a full-scale use of it could be begun, the intelligence agents of Beta would know *about* it, even if security were so tight that they couldn't know *it*.

And quite clearly no sane politician would dare suggest that the Great Secret was too hot to keep a secret—suggest that it be freely shared with Beta.

"Look, dammitall—who wants this space drive now, of all times?!"

It's fairly probable that, if Beta found that Alpha had a true space drive, the Betans would figure their only remaining hope was to force Alpha to her knees before the space drive was developed into use.

Sometimes, somehow, a magnificent ineptitude can solve problems that no wisdom could touch.

I believe the true space drive has been discovered, tested in models, and patented. It's the most colossal breach of national security I can imagine, just offhand; a true space drive is the well-oiled key to the entire Solar System—cheap, quick, and practical. If Fermi & Company had, in 1941, gotten a United States Patent, published by the Government Printing Office, detailing precisely how to purify U-235, how to manufacture Plutonium, and how to make an atomic bomb, it wouldn't have been a security breach of the same

order. After all, as the Air Force pointed out in 1946, the fire raids on Tokyo did more actual damage than the Hiroshima and Nagasaki bombs. Nuclear power is still more expensive than coal. The atomic devices didn't actually do anything we couldn't achieve, though in a harder way, without them.

A space drive does things we can't achieve at all any other way. No rocket can carry reaction-mass enough to maintain a one-gee acceleration all the way from here to Mars—or from here to Neptune. Lack of reaction-mass makes it effectively impossible for a rocket to do more than the minutest maneuvers in space. A rocket's course is about as flexible as a glass rod; it can be bent a little, of course.

Under the concept of national security, publication of the detailed mechanism of a true space drive constitutes an absolutely intolerable breach of secrecy.

Fortunately, magnificent bumbling, combined with emotional rejection of the ideas, have led to the publication and open distribution of the principle.

Frankly, I think that we are most incredibly fortunate; it would have been suicidal for anyone to suggest releasing such a discovery if it had ever gotten under Security—and almost equally suicidal, I suspect, to try to keep it secret.

Can you imagine anyone proposing to give away the Solar System—a *usable* Solar System, when there is a true space drive!—if it were clear-

ly recognized that the invention was precisely that; the key to the full utilization, to the ownership-in-fec-simple, of the Solar System?

Now it's happened by bumbling and resistance, of course, there can be screaming, wailing, and explosive accusations . . . but the critical danger point is passed; it isn't a secret.

It wasn't, however, by wise intent that it was released; it was *not* high-order statesmanship that saved the situation.

The story, in essence, is this:

In the summer of 1956—over a year before Sputnik I took off—Mr. Norman L. Dean, of Washington, D. C., applied for a patent on a device for converting rotary motion to unidirectional motion.

He tried, naturally enough, to interest various government agencies in his discovery. He was still trying in July, 1959, when the patent was finally granted, and the United States Government Printing Office made it available to anyone with twenty-five cents and a desire to see it. Dean had also, naturally, applied for British and German patents by that time.

To get from almost any Government building to Mr. Dean's residence is a fifty cents taxi ride. Mr. Dean has a working demonstrator model at his home; it's been there while various and sundry government agencies busily didn't look at it.

I drove down from the New York area to take a look; the accompany-

ing photographs show what I saw.

Please consider carefully the following point; it's crucially important, and anyone seeking to evaluate the point of this article misses the thing entirely if he does not bear this in mind:

1. The foregoing statements about the emotional and political consequences of a space drive are valid, *whether Dean's device is such a drive or not.*

2. The failure of any government agent, of any bureau, to inspect the working model, or allow a demonstration of the model, remains a violation of the fundamental doctrine of Science, *whether the device works or not.*

It is my present belief that Norman Dean has made a major breakthrough discovery; that's a personal opinion, based on observational data, which is more than the government scientists have to back their contrary opinion, but remains an opinion of one individual.

But that no government agency either accepted a demonstration, or bothered to inspect the device, until after the patent was published, and it had been discussed in the December, 1959 editorial, is not opinion. It's checkable fact.

The thing Galileo fought for—the thing for which Science has honored him, classified him as a martyr of Science—was the fundamental proposition that demonstration must be accepted; that observational data must never be suppressed for the sake of Authority and Theory.

The scientists of the National Aeronautics and Space Administration specifically violated that fundamental for which Galileo fought. They wouldn't look.

Neither would the Office of Naval Research.

Neither did anyone from the Senate Space Committee. Which is perhaps more remarkable; a Senate Committee that rejected an opportunity to investigate something!

Who is Norman L. Dean?

Well, the really important thing is that he's a Mr., not a Dr.; he doesn't even have a bachelor's degree in science. Obviously incapable of doing any useful scientific thinking. No need to investigate *his* ideas.

The fact that he is, professionally, a major executive in the Federal Housing Administration, specializing in mortgage appraisal, indicates that he can, however, do some very cogent thinking indeed.

But in his machine, he is a hobbyist at work—an amateur. He's so much of an amateur that, unlike the professional, he could, and did, challenge the fundamental assumptions of physics. Being an amateur, he does not have any appreciable emotional investment in the validity of Newton's Laws; he had no block against challenging them.

His device—the patent number is 2,886,976 and you can get it from the United States Government Printing Office for twenty-five cents—will, when driven by a rotating shaft, produce a thrust without an equal and opposite reaction.

His demonstration model is specifically designed to be just that—a demonstration model. It's not made for maximum efficiency, lightness, compactness, or beauty; it's designed to be a completely open-work unit, in which every component and operation is clearly visible.

It does *not* lift itself; it isn't intended to.

At this time, he has no operable models that do lift themselves; he has photographs of models that did. In measuring engineering performance factors, to get necessary engineering data, these models had to be tested to destruction—and were.

Mr. Dean's primary education and experience have been in business; he, with that orientation, is not particularly interested in the space drive feature. A device capable of producing force without reaction has several million work-a-day, down-on-Earth uses; the heavy-industry use of the Dean drive will be on Earth. Space applications will be, so far as the economics of the matter go, a minor side line.

X rays, electronics, cyclotrons and electron microscopy all stemmed from Faraday's development of the generator, the transformer, and the motor. They have been the great new-fields applications of electric power.

Radio, television and radar—these are new and wonderful things. But what keeps the power-house generators spinning is the heavy horsepower demands of industrial appli-

cations like electric heating, driving machine tools, and doing similar jobs that fire or steam power could do . . . but not as well or as conveniently. It's not the new-and-glamorous that uses the megawatt hours; the biggest broadcasting station throws out only about as much power as is used in a domestic electric system. Fifty thousand watts sounds big; my home draws 125 amperes at 230 volts on occasion, and that's 28,750 watts.

The heavy-duty use of the Dean drive, as Dean is businessman enough to recognize, is not in glamorous space-exploration—however important that may be in human history but in the slugging, heavy, hard work of the world; simply lifting things that have to be moved; for industrial material-handling devices.

The gadget that can drive a spaceship will be more often needed to lift a massive steel girder into place. With a Dean drive unit on the end of a fishpole-like control rod, a man could lead a 100-ton bridge-girder into place.

If you've used an ordinary one-quarter-inch electric drill at all, you have probably run into the problem that the drill was willing to work—but you couldn't, because of the location, put enough pressure on the bit to make it cut. It's easy enough to make a motor and chuck capable of turning a two-inch drill bit . . . but how, with a portable unit, can you apply the sort of pressure it takes to make such a device bite into a steel girder?

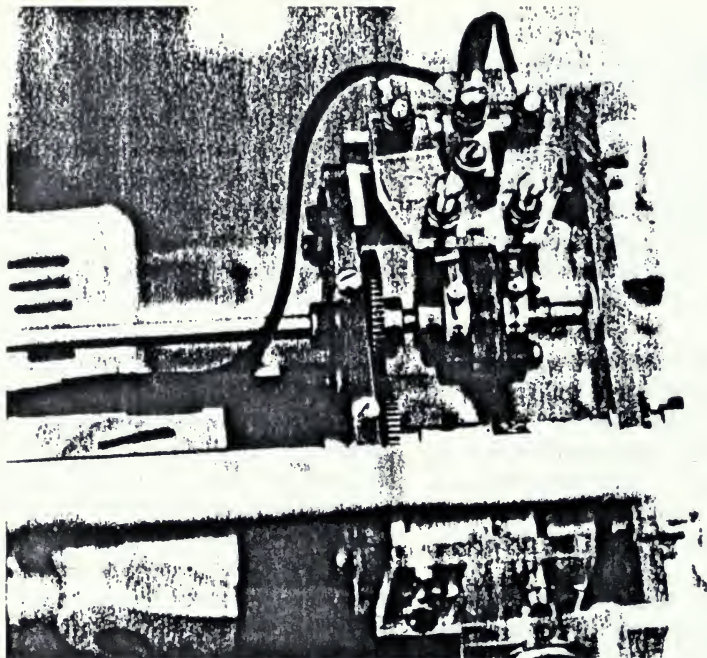
The Dean drive is simply a device that generates a one-way force; it lifts if you point up, but it pushes in any desired direction, without need of something to take the reaction force. There isn't any.

Dean's engineering data indicated that, neglecting friction losses which are simply a matter of design, not principle, and therefore highly variable—a 150 horsepower engine could develop a 6,000 pound thrust.

My automobile has approximately 400 horsepower, and weighs approximately 5,800 pounds. Allowing a fifty per cent loss due to mechanical friction, that means that the car could be equipped with a Dean drive, and come up with an acceleration of one gee. The passengers would need not seat-belts, but a strapped-in cocoon. The one-gee acceleration would mean going from rest to about sixty-five miles an hour in three seconds flat . . . and it would, of course, mean braking action that would stop the car, on the slickest of glare ice, in the same three seconds, in a distance of about one hundred and fifty feet. If the passengers weren't cocooned into place, they'd need hospitalization, however.

By comparison; the maximum possible acceleration with rubber tires on dry concrete is about 0.2 gee; the maximum braking is about 0.4 gee. That's simply the coefficient of friction of rubber on concrete.

Obviously, the device would also allow airplanes to leave their wings behind; a true hovering machine



Commutator mechanism of the Dean Drive demonstrator.

capable of Mach 10 is perfectly feasible.

These, not the space applications, will be the really major applications of the device. We've been needing a portable sky hook for centuries; it looks like Dean has one.

Dean's demonstration model is intended to show the principle; that a pair of counter-rotating eccentric masses can, in his system, generate a non-reactive force. The simplest way of demonstrating it is to show that some of the weight of his machine goes . . . somewhere . . . when it's

turned on. The simplest device for showing that is an ordinary bathroom scale. There's no pretense that this is an accurate measuring device; it's intended to establish merely that some considerable force is being generated.

The photographs show that what I saw was not illusion.

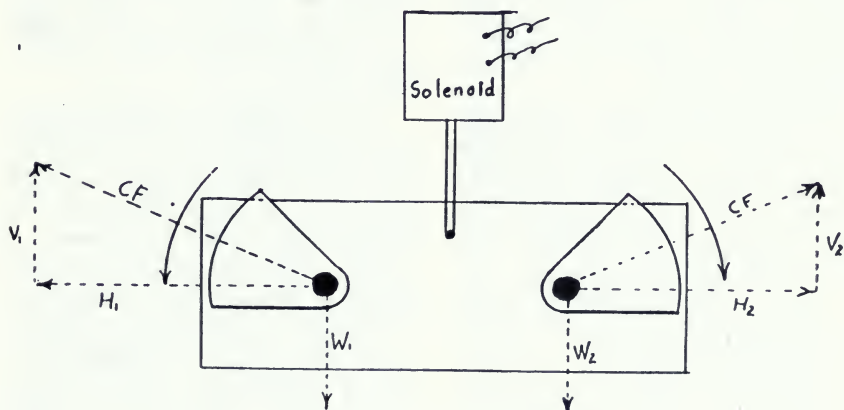
The principle of operation is, of course, what's in dispute. Science holds the device to be a "not-member of a non-existent class"—a non-existent class of "devices that don't conform to the Law of Conservation of Momentum."

I do not understand Mr. Dean's theory very clearly; my personal impression is that he doesn't understand the thing in a theoretical sense, himself. But then the Roman engineers never did understand the physical chemistry underlying the setting of mortar. (And for that matter, modern physical chemistry doesn't either!) Dean doesn't have to understand it; he can make it work. As a businessman, he has every reason to sell an immensely useful, workable device, whether it's understandable or not—whether it's rational, or not. That chemical engineering student may be right; perhaps it is "beyond reason." A thing doesn't have to be reasonable to be useful.

I believe, however, that a very broad, general explanation of the direction to look for an explanation is possible.

Essentially, the device consists of two counter-rotating masses, on shafts rotating in a light frame, as shown on page 94. Now such a gimmick has been used to generate a powerful oscillating force in one plane; the horizontal vectors of centrifugal force generated by the two eccentric masses will always be equal and opposite, so that there is no net horizontal force. But the vertical force vectors add; with this mechanism alone, Dean would get a powerful up-and-down oscillation, the upward force being equal to the downward force at a later instant. Useful for

How to make two masses and a solenoid add up to a three-body problem.



$$\text{Vectors } H_1 + H_2 = 0$$

$$\text{Vector } V_1 + W_1 = 0 \text{ and } V_2 + W_2 = 0$$

driving shaker-tables for vibration tables, but nor for getting anywhere.

Now the great trouble with efforts to make centrifugal force yield a net resultant is that it insists on adding up, through a full 360° , to exactly zero. If you try accelerating the weights at some particular part of their rotation, thus changing the centrifugal force, the force used in accelerating and decelerating them then proves to balance out, very neatly if sadly, the added centrifugal force.

Oh, the centrifugal force is great enough! Centrifugal force can, without any trouble at all, tear a high-tensile steel wheel into shreds. In the super-centrifuges, they develop accelerations of 2,000,000 gce and more.

The trouble is to make it not add up to zero. What we need is something like a rectifier for alternating electric current; ordinary AC adds up to exactly zero, too, through a full 360° —but with a rectifier, you can get DC output.

Dean's device is quite simple; you simply can *not* push those weights around to make the centrifugal force come out unbalanced, without using a force equal to and opposite from the added centrifugal force.

But . . . what happens if, instead of moving the masses, you *move the center of rotation*?

The center of rotation has no mass; it's a geometrical concept, not a material entity. Pushing it around doesn't require force.

In the rotation of those counter-rotating masses, there is a particular

phase-angle such that the horizontal vectors are cancelled, and the vertical vector is upward, and exactly equal to the weight of the two masses. At that instant, the light framework can be moved upward *without exerting any force on the masses*.

In the demonstration model, a small solenoid, activated by a commutator, moves the frame carrying the two masses, at the required instant. It does *not* have to exert any force whatever on the masses; it does not move them. It moves their centers of rotation.

And what the effect of that is, *no modern mathematical analysis is competent to determine*. Reason: Dean's converted the problem into a "three-body problem," and that's one that mathematical techniques have never been able to handle.

The two masses, in Dean's machine, are forced to rotate about *two different centers of rotation simultaneously*.

When Newton did his work, he had, buried under it all, an unstated, and unanalyzed assumption; that there was, of course, one, and only one possible frame of reference.

The whole of Newtonian and Classical physics rested on that assumption; it worked fine until toward the end of the nineteenth century; in the beginning of the twentieth century it was really in trouble.

Einstein correctly spotted, and challenged the assumption, and showed how to handle many unsolvable problems, in terms of multi-

ple frames-of-reference. But . . . with one underlying catch. Einstein had no mathematical tools competent to analyze more than one relationship at a time; therefore he was forced to simplify the problem of reality by saying "there is no simultaneity."

The three-body problem can't be solved, because we have no techniques competent to handle the simultaneous interactions of A, B, and C. That's why astronomers, trying to compute planetary orbits, have to do it by successive approximations. First figure the orbit of Venus as though only Venus and Sol existed. Then compute the effects of Earth-Moon on that orbit. Then correct the assumed Earth-Moon orbit for the effects of Venus on it, and then correct the orbit of Venus for the perturbed orbit of Earth. Then compute the effect of Mercury, and—

Our mathematics can handle any two bodies at a time—any one double-ended relationship.

But it can *not* handle simultaneous multiple relationships.

So Einstein said, "There aren't any." It was a simplifying assumption which made the problems manipulable, and was justified by the great advantage gained thereby.

But Einstein never did like statistical mechanics; the nuclear physicists did, however. In nucleonics, and in solid-state physics, you can't consider one-thing-at-a-time; you are forced to consider multiple-simultaneous relationships, the general

n-body problem. It can be done if the numbers are large enough, by handling it statistically.

Two counter-rotating brass weights aren't numerous enough for statistical analysis, however.

Actually, our whole present system of physics is, without Dean's help, rapidly approaching a situation where it must acknowledge gross defects. It has, to date, sort of sidled around them, without looking directly at them—but the situation remains.

It is impossible to express the horsepower output of any reaction engine, either rocket or jet, but let's stick to the pure rocket.

The trouble is, horsepower is defined as work per time-unit. Work, however, is defined as force-through-distance: $W = F \cdot S$. Now consider a rocket delivering a thrust of one thousand units, on a trip from Earth to Mars. Its velocity is one mile per second relative to Earth, and ten miles per second relative to Mars. What horsepower is the rocket engine delivering?

Well, of course—if you consider two different frames of reference, you're bound to get different answers! Einstein showed that . . .

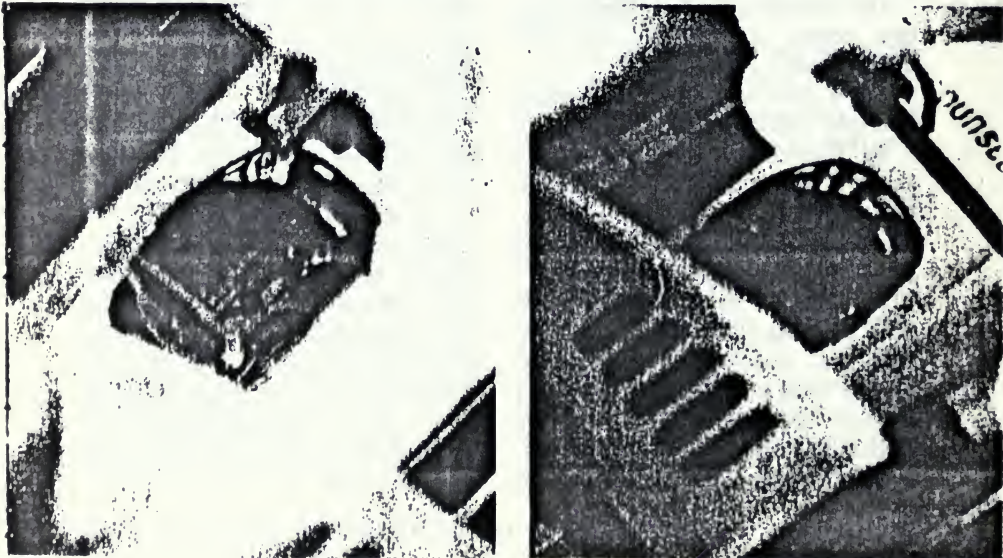
Yes, but Einstein said you weren't allowed to consider both simultaneously; the real-universe fact is that the rocket *does* have a relationship to both Earth and Mars at all times. Just because you don't know enough to be able to comprehend the interaction doesn't make that interaction cease to exist!

Let's go from the matter of horsepower—which is, after all, a nice, simple, linear function—to the matter of kinetic energy. Since kinetic energy is a quadratic function— $KE = \frac{1}{2}MV^2$ —that Earth-Mars rocket has another peculiarity. For a given change in velocity, the kinetic energy changes by two very different amounts. If kinetic energy is energy, and energy is conserved . . . *which* kinetic energy do we have to be conservative about?

Note that while the greater added kinetic energy appears with respect to the Mars frame of reference, *no momentum or energy* is being transferred between the ship and Mars at the time. The ship is reacting against its exhaust gases, not Mars. But, if that ship is going to land on Mars, that kinetic energy change must be accounted for at that time.

Which kinetic energy value is conservative—the ship-Earth value, or the ship-Mars value?

Photographs of the weighing scale. These shots were taken with a 105mm F2.5 Nikor telephoto lens, reaching down through the entire demonstrator; the out-of-focus mass at the lower left is the handle of the drill. The exposures were on Panatomic X film, 1/30th second at F2.5. On the left the solenoid mechanism is off; on the right the solenoid mechanism is turned on. The shutter speed involved is of importance, as is the use of the 105mm lens; at so slow a shutter speed, if the scale were merely vibrating to a different weight-reading, the fine two-pound interval lines would not be sharp and distinct; it's difficult to hold a 35mm camera with a telephoto lens sufficiently steady for 1/30th second, but forcing the conditions in this way assured that any vibration of the scale would most certainly register clearly.



Einstein's entire theoretical structure breaks down if simultaneity is imposed as a requirement, just as Newton's broke down under the requirement of more than one frame of reference.

What happens to centrifugal force, when, in one cycle, a pair of brass weights is forced to rotate about two non-identical centers of rotation? What amount of force is required to displace a geometrical concept?

When Mr. Dean submitted his proposals, a physicist of National Aeronautics and Space Administration reported that his mathematics was unsound.

You know, personally I'm inclined to agree with that physicist on one thing; I, too, think Dean's mathematics is unsound. The point of disagreement is that I'm darned sure the physicist's mathematics is incompetent; all modern mathematics is! I have lots of positive evidence that no one can solve a three-body problem a bit better than Mr. Dean can. What Dean has done is to present the physicists with a device that imposes a three-body problem. Their mathematics is just as incompetent to handle it as Dean's—but Dean isn't trying to solve it mathematically. He's applying it engineeringly, which is somewhat different. His machine solves the problem perfectly—and the answer is rectified centrifugal force.

Understandably, the emotional impact of the concept that such a device actually exists is one that leads to

powerful rejection on the part of any human being with a heavy emotional investment in "known laws of physics." It always appears, when one first encounters such a thing, that *all* the old values have been crushed—destroyed—swept away.

They haven't, of course—except for those who have pinned their entire value system to pure theory. Electronic engineers, computing transit time in ordinary vacuum tubes, don't use Einsteinian concepts; Newtonian work fine, just as they always did, within their proper range.

We've known for a century or more that our mathematics wasn't able to solve the three-body problem; it's perfectly obvious that sooner or later we're going to have to develop a technique of analysis that can handle such problems. And equally clear, from all the history of science, that that new technique will, applied to old problems, yield totally new and far more general understandings.

It just happens that, apparently, an amateur experimenter has come up with a device that belongs in the set of devices that would be normal consequences of a multiple-simultaneous-relationship mathematics, before we achieved such an analytical technique.

The theoretical physicists couldn't solve the problems of neutron behavior in a thermal-energy-level moderated nuclear reactor mathematically. That is, obviously, a multiple-simultaneous-relationship problem. To

handle the problem, they used what amounts to a rule-of-thumb engineering-style technique; they called it the "Monte Carlo System." A roulette wheel proved to be a fine analog computer for the problem.

I *think* Dean's device is a true space drive; that it does work.

But I *know* no modern physicist is competent to make a theoretical analysis of any system involving multiple-simultaneous interactions—and that there are, in the universe, precisely such systems. The number of binary stars is very, very large; there are, also, many trinary star-systems. Can such systems have stable planetary systems?

Since no serious effort has been made to crack the problem, we do not, actually, know whether the energy-interchange relationships in the Solar System are progressive, cyclic, or what. We simply cannot compute the positions of the Solar planets either 10,000,000 years ago, or 10,000,000 years hence, by that laborious system of successive approximations.

And even so—they do those calculations on the assumption that momentum and energy must be conserved. But . . . which kinetic energy of that Earth-Mars rocket is to be conserved?

The essence of the situation is—whether modern orthodox physics likes it or not—that our Laws of Conservation of Energy and Momentum are, in fact, very special cases of much more general realities. Newton we already know was funda-

mentally in error; it is essential, in cosmological physics, to consider more than one frame of reference. Einstein demonstrated that.

But since our laws of conservation stem from Newtonian concepts—they are suspect anyway, and were before Deaif's device came along.

It is already a known fact that our mathematics is incapable of handling the three-body problem—or, in general, the problem of n simultaneous relationships, where n is greater than one. We can't, actually, handle true simultaneous equations; we can "solve" simultaneous equations only for those points at which they are not simultaneous, but identical—i.e., the points of intersection.

While I was in Washington taking a careful look at Dean's gadget, I went around to the Senate Space Committee, and to the Office of Naval Research. Both agencies had a file on Mr. Dean and his efforts to get some attention paid to his device.

Again I emphasize; *it is not important whether Dean is right or wrong; what is important is that the agencies did not find out.*

The Space Committee's file apparently shows that the idea was referred to a National Aeronautics and Space Administration scientist. His report was that Dean's mathematics was unsound; in other words, Dean's proposal was rejected on the grounds of pure theoretical consideration. That's the same grounds on which the Church Fathers rejected Galileo's proposals, and refused to look through his telescope.

At the Office of Naval Research, it was first suggested that I see the National Inventor's Council. This is a government agency set up for the primary purpose of serving as an alley into which to divert screwballs, crackpots, and assorted nuisances. It's very effective; psychologically speaking, it has the stopping power of warm tar. It's too soft to break, and too viscous to move. Remember the famous La Brea tar pits stopped mammoths, saber-toothed tigers, and practically everything else that lived at that time. You can find them still embalmed there to this day.

Instead, I went to the ONR department dedicated to evaluation of proposed inventions.

I ran an editorial here recently about an ONR research report, pointing out that the fundamental attitude of the ONR was that theoretical understanding is absolutely necessary *before* any invention can be made. On direct contact with the ONR inventions evaluations department I found that philosophy dominates their evaluations. If the device or principle cannot be explained in full, clear, acceptable theoretical terms, why, under that philosophy, it doesn't exist as an invention.

A dog can't explain the theoretical enzyme chemistry of digestion; therefore, clearly, a dog can't digest anything.

From the ONR representative to whom I spoke, I gathered that Mr. Dean, when he had been told—by letter—in a kindly but firm manner that his device was mathematically

impossible, and that his explanations were unsound, had reacted somewhat irritably. This, of course, immediately prejudiced the ONR scientists against him. Clearly, if you tell a man he is wrong, and explain carefully the theoretical facts that prove his device doesn't exist, and he gets annoyed—he having the working model sitting beside him at the time—this proves that he really is wrong.

There is a widely believed legend—how it ever got started I'm sure I don't know—that only crackpots and fanatics get angry when they're told they are wrong.

It might be helpful if all science students were required to study, as part of their college indoctrination, the papers of Galileo and the Church Fathers who were kindly, but firmly correcting him. Also some of the choicer bits of Newton's and Hooke's remarks concerning the mental competence of their opposers.

As I say, no one from either NASA, or ONR, or the Senate Space Committee bothered to look at the device. It was explained to me that they were all *much* too busy.

Perhaps it is, actually, fortunate; a true space drive, as a national monopoly, might have precipitated the nuclear war. But if Dean is right, the ONR, NASA and the Senate Space Committee just co-operated in giving away the key to the Solar System . . . if not to the stars. (Einstein's work accepted the laws of conservation; if they are not valid, then perhaps the

speed-of-light limitation isn't either.)

The important point right now is this: No government agency knows anything at all about whether Dean's device works. They *think* they do, on the basis of theory—but there is plenty of reason to suspect that theory is as airtight as a slice of Swiss cheese. That it fits Reality the way plane geometry fits the Earth's surface—only in local areas.

Washington is a fascinating state of mind; it operates purely on the pain-avoidance principle. Animals operate on two fundamental drives—pain-avoidance and pleasure-seeking. Each tempers the other; it's a sort of "two-party" system. Thus a lion will attack a water buffalo, seeking the pleasure of a full meal, despite the fact that the buffalo is an enormously powerful and dangerous animal. The pain-avoidance drive is, in that situation, overcome, or at least greatly modified, by the pleasure-seeking drive, so that the lion will take the risk.

In Washington, there is only the pain-avoidance drive. A bureaucrat who does exactly what his directives specifically require, and absolutely nothing else—neither more nor less—avoids the pain of being fired. You can't fire him for failure to accomplish what *might have been* done; you can fire him only for not doing what his orders require.

Since nobody, in any government agency, had specific instructions "Investigate and evaluate the Dean drive," no one can be fired for not

doing what he was not specifically told to do. That means not-investigating it fulfills, one hundred per cent, the requirement of pain-avoidance.

It's very rarely indeed that someone in Government can stick his neck out, and achieve something over and above his assignment. The last notable instance was Admiral Rickover's remarkable achievement of forcing the Navy into nuclear propulsion. As is now well known, he very nearly had his career crushed by the high-brass opposition; Congress saved his bacon, not a "grateful" Navy.

The best-known previous instance, of course, is that of Billy Mitchell—who was court-martialed for proving he was right, against the orders of his superior officers. That time, Congress didn't act.

Our government has the interesting characteristic of holding—with great determination—that monopoly is an evil, and, through the Federal Trade Commission, enforcing competitive situations. But, of course, this doesn't apply to *them*; government bureaus mustn't be subjected to competition!

Of course, Congress and the Senate do have competition; the two-party system is the only method that seems to work. Animal life, in the course of the last four billion years, has tried a lot of systems—but the two-party technique, known as bisexual reproduction, has overwhelmingly won the race. Male and female constitute the mutual "loyal opposition"; they are absolutely forced to

co-operate, if they want to continue their genetic existence, and yet are so constituted that they cannot possibly fall into identical viewpoints. A man can't think like a woman, nor a woman like a man, no matter how desperately each wants to; they have to work out a binocular viewpoint that integrates two inherently different understandings.

That is the only known, practical technique for assuring that orthodoxy won't set in and crystallize.

It doesn't matter, for this point, whether Dean is right or wrong. It's quite obvious that anyone who did present a true break-through concept in terms of a working space drive would be rejected in precisely the manner Dean has been, for precisely the reasons Dean has.

They are precisely the reasons Galileo was rejected.

An Orthodoxy isn't something religious; it's something associated with a True Faith, whether that faith refers to a religious concept, or a True Belief in certain Laws of Nature.

Now Mr. Dean is an excellent and successful business man; he has achieved considerable success financially in his own right. He's got the money it takes to build expensive, carefully machined test-models—and anyone who thinks that's a small-time hobby expense has never hired a machine shop to do work for him. Models are expensive; just from looking at the photographs of Dean's ex-models—the ones that had to be tested to destruction to obtain engineering data, since no modern

mathematical technique can handle the problem—I'd make a wild guess—estimate that they must have cost him in the neighborhood of \$100,000.

No, they're not big. But a self-lifting job requires six rotor-pairs, with the associated driving gearing, commutators, et cetera. Try building a little six-cylinder gasoline engine by hand, and see what it costs—say just duplicate the little Ford Falcon engine in a commercial machine shop. The complete Falcon costs about two thousand dollars; think you could hand-tool the engine alone for even twice that?

Dean—or anyone with a break-through idea—will be stopped by the Orthodoxy effect. But someone like Dean, who is also a darned sight more successful business man than top-notch physicists—remember that Einstein had to have help in working out his income tax?—has economic resources by which he could force a way through to test his ideas. (I've heard, since, from four other men who had ideas closely paralleling Dean's, but didn't have the money to build and test models.) As Dean said, "If they continue to refuse to pay attention, I can, and will, build a full-scale vehicle, and hover over Washington until they do."

(Side comment on that: he'll probably be forced down, and arrested for violating a restricted air-space, while his vehicle is impounded where no one can get at it. If he goes up to an altitude where they can't reach him, they won't mind; who'll see it one hundred miles up?)

Now what Dean has, is *not* anti-gravity; it's a drive.

Anyone here want to make any large-size bets that the secret of anti-gravity hasn't already been cracked by some backwoods unorthodox amateur—who isn't, as Dean is, a highly competent business man as well? How many individuals can afford \$100,000 worth of private test-model building?

There are other fields of science where things are under even "better" monopoly control; the physical scientists do not very frequently run into a brilliant amateur with more money than they have. But the medical society has things sewed up even tighter; the brilliant amateur with money can be stopped legally from demonstrating his achievement.

Russia has out-achieved the United States so far in the development of new techniques. Furiously as the intellectual-scientists despise the system whereby politicians can legislate for or against scientific beliefs—the Lysenko controversy, for example—the wry fact is that it has produced some results. It took action by Congress to get Admiral Rickover off the hook; the problem of whether or not nuclear propulsion should be used in the Navy was a technical-scientific problem—and it was resolved in favor of the United States *only by legislative action*.

The probability that ONR or NASA will, at this late date, willingly accept the Dean device for actual test and study, is vanishingly small.

If they do so, it will constitute an admission that it merits testing—and, of course, it is then acknowledged that it should have been tested in the summer of 1956. (NASA is off that hook, of course; they didn't exist in 1956. But they have been around for some time, now—and existed before the patent was publicly issued.)

Again, it's going to take a legislative act, not a scientific act, to get the device tested. The scientific groups are forced to maintain "Testing it is not, and never was, within the limits of our directive; you can't say *we're* responsible for trying it."

Because Russia's scientific system is new—effectively only about twenty years old—it hasn't had time to establish a solid orthodoxy. Therefore it gets nudged—but good and solidly!—every so often, and gets things done, however unhappily.

We don't. Our satellite program, for instance, the Vanguard Project, not only turned out to be a "Mc Too" project—it never did succeed in doing what the Navy said they were going to do. Not one full-scale Vanguard satellite was put up in orbit during the International Geophysical Year; they never did accomplish what they had loudly and publicly stated they would do.

We got satellites up only after public and legislative—not scientific!—howls of anger at Russia's success.

But this time I think the Orthodox Science system has flopped so egregiously—pulled so screaming a boner—that something may be done.

By sheer Orthodoxy refusal to con-

sider the possibility that their theory *might* be inadequate—they never found out about the Dean drive.

Our cover shows what could have been done—and still could be done, for that matter.

A modern nuclear-powered submarine needs only relatively minor adaptations to make an ideal spaceship; it has everything needed, save for the space drive.

The Dean drive requires a rotary shaft drive; our nuclear submarines turn nuclear energy into heat, produce steam, drive a turbine, and generate electric power. Electric power is perfect for running the Dean drive.

The modern submarines are—we have learned from past sad experiences—equipped with lifting eyes so that, in event of accidental collision, quick salvage is possible. Pontoons can be towed in place, sunk beside the ship, and hitched to the built-in lifting eyes, and the ship refloated. The eyes are, of course, designed into the ship so that the structure can be lifted by those eyes without structural damage to the hull.

Dean drive units could be attached directly to the existent eyes.

The pressure hull of modern submarines is designed to resist at least six hundred feet of water pressure; its actual thickness is a piece of classified data, of course, but we can guess—it must be at least four inches thick. After the second Bikini bomb test, the old submarine *Skate* was still in pretty fair condition; the light-metal streamlining hull looked like the remains of an airliner crash . . .

but the pressure hull was perfectly intact. Stout stuff, a sub's pressure hull.

And very fine stuff indeed as protection against the average meteor; the light streamlining hull would stop the micrometeors, of course.

Not even four *feet* of steel would stop primary cosmic rays, of course . . . but those inches of armor steel would have considerable damping effect on the Van Allen radiation belt effects.

The nuclear submarines have already been tested with full crews for thirty continuous days out of contact with Earth's atmosphere; their air-cycling equipment is already in place, and functions perfectly. What difference if the "out of contact" situation involves submersion in water, instead of in space?

The modern nuclear submarine is, in fact, a fully competent space-vehicle . . . lacking only the Dean drive.

With the Dean drive, the ship, if it can lift off Earth at all, can generate a one-gee vertical acceleration. Since that acceleration is being generated by engines capable of continuous operations for months—if not years—at a time, the acceleration can simply be maintained for the entire run; there would be no period of free-fall for the ship or crew. Therefore the present ship structure, equipment, and auxiliary designs would be entirely satisfactory. (Plumbing facilities satisfactory for use in free-flight haven't been designed as yet!) Also, a sub has various plumbing devices with

built-in locks so the equipment can be used under conditions where the external pressure is widely different from the internal.

In flight, the ship would simply lift out of the sea, rise vertically, maintaining a constant 1,000 cms/sec/sec drive. Halfway to Mars, it would loop its course, and decelerate the rest of the way at the same rate. To the passengers, and to the equipment aboard, there would be no free-flight problems.

There is one factor that has to be taken into account, however; the exhaust steam from the turbine has to be recondensed and returned to the boiler. In the sea, sea water is used to cool the condenser; in space no cooling water is available.

In the cover picture, the huge semi-silvered sphere is the condenser; it's a plastic-film balloon silvered on one—the sunward—side, and blackened on the other. There being no air-resistance in space, the condenser balloon can be three hundred feet, three thousand feet, or whatever is needed to yield the required radiation surface. If it were made of elastic material; it would be automatically self-adjusting; if the steam pressure rose, the balloon would expand, increasing the radiation area, until the temperature—and hence pressure—dropped. (And it wouldn't freeze and grow brittle; it's a steam-condenser, remember.)

The tough part would be the first hundred miles up from Earth; there, air resistance would prevent use of the balloon condenser. However,

since spare water has to be carried anyway, the ship could take off with the spare water in the form of ice; it takes considerable heat-energy to melt, say, one hundred tons of ice. Before it was melted, the ship would be at an altitude that would, if necessary, allow direct discharge of the steam into the thin upper atmosphere, until the balloon could be inflated.

As a crash program, this could have been done—if work started when Dean first applied for his patent—in fifteen months. The application went in in July, 1956; fifteen months later would have been October, 1957.

Under the acceleration conditions described above, a ship can make the trip from Earth to Mars, when Mars is closest, in less than three days. And even when Mars is at its farthest possible point, on the far side of the Sun, the trip takes only *five days*.

It would have been nice if, in response to Sputnik I, the United States had been able to release full photographic evidence of Mars Base I.

I do not insist that I am incontrovertibly right, but it is my opinion—based on observational data that the United States Government has avoided acquiring—that we actually had everything necessary to do just that. We certainly had the nuclear subs to use—and I believe the Dean Drive can do it.

Even more important, now that we've given away the Solar System, is the fact that the fundamental principle underlying Dean's device *is* fundamental. It's not just the key to a

space drive; the principle of simultaneous multiple relationships is enormously broader than that.

The psychologists have complained that there was no mathematical technique for their work. Quite so; they too, obviously need a math capable of expressing multiple simultaneous relationships.

No electronic device can recognize a pattern; that's why no machine can be made to recognize words spoken by widely varying voices. (The ten-year-old Southern girl and the drunken longshoreman with a bad cold may both be saying "I want to go home!", as any human fool can plainly understand. But no machine can.) A pattern exists where there is multiple simultaneous relationship.

It is the inherent nature of any Orthodoxy to freeze at the level it has achieved, developing only the ramifications and details of that level. The dinosaurs developed a million variations on the theme dinosaurism . . . but none of those variations was mammalianism.

The question really is: How can orthodoxy in Science be ended? Of course, we can have acts of legislative bodies impose new ideas by fiat—the system we've been using recently, and that the Soviets use. It isn't good; it's just better than none.

Life forms solved it quite some megayears ago; they use the two-party system. We've found that works in political systems, and in religious

systems. (Religion hasn't been harmed by having Catholic and Protestant Christian churches, though it took some bloodshed and violence to put over the idea.)

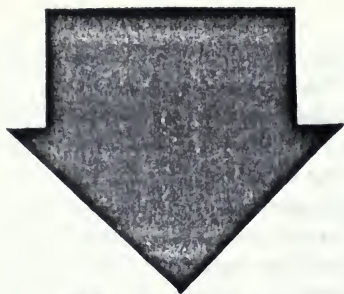
Perhaps we could make a lot better and faster progress if Science and Engineering were recognized and established as distinct, and—by legislative fiat at first—made two separate and distinct parties. Who can better criticize a Scientist's theory, than an Engineer who tries to make the thing work? And who can better criticize an Engineer's efficiency than a Scientist, who analyzes with exact precision what it is the Engineer is really doing—and not what he *thinks* he's doing?

The scientists, in Edison's day, had mathematical proof that the maximum possible efficiency of an electric generator was fifty per cent. They still had the mathematics after Edison started manufacturing ninety-eight per cent efficient generators.

You know, there's nothing like a good Republican to spot a Democratic grafter—or a good Democrat to expose the incompetence of a Republican. And everybody benefits except the incompetent and dishonest individuals.

Look, don't we believe in the fundamental validity of two-party competition? Then what's wrong with a two-party Science, to permanently terminate the freeze effect of orthodoxy?

THE END



Detesters, Phasers and Dean Drives

This is the latest word
on the controversial
Dean Drive.

The last word
has yet to be written.

G. HARRY STINE

ANALOG

1974, or later

NOTE: This article is not—repeat, NOT—science fiction. The names, places, events, and inventions herein were real, and no attempt has been made to protect anyone, living or dead, from the eventual evaluation of historians. All of this really happened. This article is more than just a personal memoir to set the record straight; it is also an attempt to get things moving again . . .

In common with many other people, I once carried on a prolific correspondence with the late John W. Campbell, former Editor of *Analog*. We discussed lots of things, and it was stimulating because we were usually thousands of miles apart. Even today as I re-read the letters, it is high intellectual adventure. If anyone thought that Campbell's Editorials were controversial, he would have considered the Campbell correspondence outrageous, because JWC often tried out Editorial ideas first in correspondence with friends and readers.

However, John's single-page letter of August 21, 1959—highly unusual because his letters normally ran to a minimum of four to five pages, sometimes more, rarely less—was to change my life and that of several other people beyond our wildest imaginings.

To quote the letter directly: "If you recall, some while back I said I believed we wouldn't use rockets to reach the planets—we'd do it otherwise . . . This week, I saw photographs of a working model of a space drive engine. It makes a

monkey's uncle out of the law of conservation of momentum as we know it. The working model demonstrated the principle but was, understandably, not very successful as a flying machine. The inventor couldn't afford the auto-pilot system to stabilize (sic) it in mid-air . . . The device was powered by a standard 1/4-inch electric drill . . . A non-flying model resting on a tabletop, on ball-bearing wheels giving effectively zero friction, exerted a push of some 85 pounds—also 1/4-inch drill-motor powered. Set on end on a standard weighing machine, it weighed 135 pounds. With the motor activated, the weight dropped to 50 pounds.

"Engineering calculations—made by an outside firm of professional consulting engineers—show that a 3,000-pound machine could rise with an acceleration of 37 ft/sec^2 — 5 ft/sec^2 net over g —when driven by a 25-horsepower engine at 2,800 rpm. With a 150 hp engine at about 4,000 rpm, it would have a gross vertical acceleration of $2g$, net of $1g$.

"The device is purely mechanical. It depends on an elegant application of principles of centrifugal force in orbiting masses when the center of orbits is changed in a precisely phased manner. The actual result is that momentum appears at the expense of energy.

"I am getting more detailed information as rapidly as I can."

Naturally, I was excited. My re-

turn letter asked all sorts of questions. But it became a secondary thing in my life because I had just lost my pioneer model rocket company. I was starting work as an engineer at Stanley Aviation Corporation in Denver, and we had a new baby on the way. Looking back on that letter today, I realized that I had since learned that John Campbell was an excellent editor, fantastic writer, outstanding scientific dilettante, and somewhat confused physicist when it came to the Dean Drive . . . which has confused a lot of physicists.

My work at Stanley was not totally unconnected with what later happened. We were developing the crew escape capsules for the supersonic B-58 "Hustler" bomber. As the escape capsules were blasted out of the plane, they were aerodynamically stabilized by yokes with fins that snapped up. This was necessary to keep the rotation rates and accelerations within the stiff USAF criteria for human factors established by Colonel John Paul Stapp on his rocket sleds.

Well, that was the way it was supposed to work, but we couldn't keep the damned yokes from breaking off.

All calculations by the stress group proved that the cables and booms were more than strong enough to absorb the expected loads. But when they were catapulted out of the rocket sled at Hurricane Mesa, Utah, the yokes

left the capsules as the booms and cables snapped. When I ventured meekly to point out to the stress engineers that there might be some additional forces involved because of the rapidity with which the loads were applied, the reaction was, "You mean to tell us that stress isn't proportional to strain?"

I got more deeply involved when we decided to challenge the USAF human factors limits which were based on a maximum of 15 g's with a 1,500-g-per-second rate of onset. It seemed to us that ordinary athletes exceeded these limits regularly. So we put accelerometers on the shoulder pads of two burly University of Colorado football linemen and recorded what happened when they tackled each other. They performed with gusto in the CU Fieldhouse one cold February day in 1960. The data revealed that they had sustained accelerations of over 45 g's at rates of onset of 5,000 g's per second. This was written up in *Time* magazine, and we got the USAF to relax their human factors specs so that we could build a capsule that would stay together.

But before the Stanley capsule was qualified, I went to an American Rocket Society meeting in Los Angeles and met an old friend, Dr. William O. Davis, retired Colonel in the USAF, former director of the Air Force Office of Scientific Research, and mentor of Project *Farside*. He had just taken a posi-

tion as Director of Research for a small, obscure company on the East Coast called Huyck Corporation. He asked me to join him in New York City as his Assistant Director of Research. I did so, moving to Connecticut and commuting to New York City for the first time in July 1960.

In the meantime, John Campbell set the SF world on its ear again—it was still recovering from Dianetics and psionics—with an Editorial in the December 1959 issue of *Astounding Science Fiction*, as *Analog* was called then. In brief, he revealed to the readers what he had told me in his August 1959 letter.

The science-fact article in the June 1960 issue was written by Campbell with photographs that he had taken. It concerned this wonderful machine which he dubbed the "Dean Drive."

The inventor of the device was Norman L. Dean, a civil service employee residing in Washington, DC. He had no formal training as an engineer or scientist; he was a typical amateur tinkerer and inventor. In common with most inventors, he didn't know that it couldn't be done, so he went ahead and tried.

Dean obtained US Patent #2,886,976 on his device, and even today it can be obtained from the US Patent Office. But it will not tell you much about how to build a Dean Drive.

Basically, the Dean Drive consisted of a pair of eccentrically-mounted, counter-rotating masses driven by an electric motor through a pair of slipper-type universal joints and a slip or sleeve joint. The rotation of these masses produced an oscillating motion commonly known as simple harmonic motion. The use of rotating masses to produce oscillatory or vibrating motion is widely-used in industrial practice and is commonly called a "Buchler Drive." However, in the Dean Drive this oscillating carriage was not permitted to oscillate freely. At one point in its cycle, the oscillating frame was hard-coupled to the main frame of the machine or to the force rod coming out of the side of the frame. During the remainder of the cycle, the mechanical oscillator was free and unclutched.

The operation of the Dean Drive is very complex and is not amenable to quick-and-dirty analysis. It is a dynamic system.

Although Campbell's article dwelt mainly on the fact that no government agency, especially NASA or DoD, had ever bothered to take a look at the Dean Drive, Campbell stated in his article: "I *think* Dean's device is a true space drive; that it does work . . . Again, I emphasize, it is not important whether Dean is right or wrong; what is important is that the (government) agencies did not find out." However, Campbell stated

that he did believe that the Dean Drive was not a practical device, but a "proof of principle" machine. He also stated that he really didn't fully understand why the Dean Drive seemed to work and that he really didn't believe Dean's own mathematical analysis or operating theory. This is an important change in attitude on Campbell's part between his August 1959 letter to me and the June 1960 ASF article. Perhaps the difference can be laid to the fact that in his letter he was writing privately to a fellow space nut while his article was written for ASF readers.

Because our responsibility in Corporation Research was to investigate for Huyck Corporation any promising area of science or technology that might lead to the development of new industrial products for the company, Dr. Davis and I drove to Washington, DC from New Canaan, Connecticut on the evening of September 27, 1960. At 10:00 a.m. on the morning of September 28, 1960, we drove to Dean's apartment located on Wisconsin Avenue in the northwest area of DC.

I quote now from the laboratory notebook of Dr. William O. Davis dated September 30, 1960 and signed by me as a witness, indicating that it amounted to a joint report:

"Visited Mr. Norman Dean in Washington on September 28 at the suggestion of John Campbell to

see the Dean Drive in action. The device he showed us did not levitate, but applied a lateral force to a mass. Harry Stine accompanied me, and both of us approached this unlikely device with skepticism. The mechanism was constructed of metal and lucite in such a way that the moving parts were clearly visible. We checked for the usual gimmicks of air hoses and the like but found nothing. The model rested on the waxed floor of Dean's apartment on the eighth floor of a modern apartment house. Hidden magnets seemed unlikely and in any event could not account for the magnitude of the forces displayed, particularly since there appeared to be very little ferritic material in the device.

"The drive was arranged so as to apply its output to a push-rod which was fastened to a reaction mass (also open) which appeared to weigh approximately three times as much as the drive unit. We inspected both the drive and the reaction mass before and after the demonstration and are convinced that both were free to move on the polished surface of the floor. There was no observable tilt to the floor. Both masses rested on flange type feet and no scratches were observed on the floor when either was slid.

"When the drive was brought up to speed and the clutch mechanism activated, the drive was observed to produce a force such that the reac-

tion mass was moved several millimeters in a gradual, steady manner while the drive unit did not move at all when observed closely with the naked eye from a distance of only a few inches.

"A second experiment was performed where the reaction mass was replaced by each of our hands in turn. When the drive operated, a definite force was felt which increased with pressure and produced motion of the hand against the pressure. With the drive turned off, this same pressure easily moved the drive unit several inches."

(Yes, the Dean Drive *did* push against my right hand as described. After all these years, I can still recall it vividly.)

"It was the conclusion of both Harry Stine and myself that we had witnessed a real anomaly and that the possibility of fraud in the demonstration was slim. When this is combined with the testimony of other competent witnesses, some of whom have witnessed the weight reduction experiment, it seems increasingly likely that Dean has produced a genuine new phenomenon. His explanation, as given in his papers on the subject, does not strike me as valid, but whether or not his theory is correct we have seen something new which I do not believe can be accounted for with classical Newtonian analyses. For this reason, I have decided to undertake a theoretical study of dynamic systems to see if a concept



J. W. Campbell

The author (left) and E.L. Victory with the rocket powered pendulum at Huyck Research Center, Milford, Connecticut on October 19, 1962.

Author is pointing toward rear mass with rocket motor, strain gage thrust cell, and photo cell installed. Front mass (by Victory) has photocell installed. Light trough on floor produced light gradient sensed by photocells to determine pendulum position.

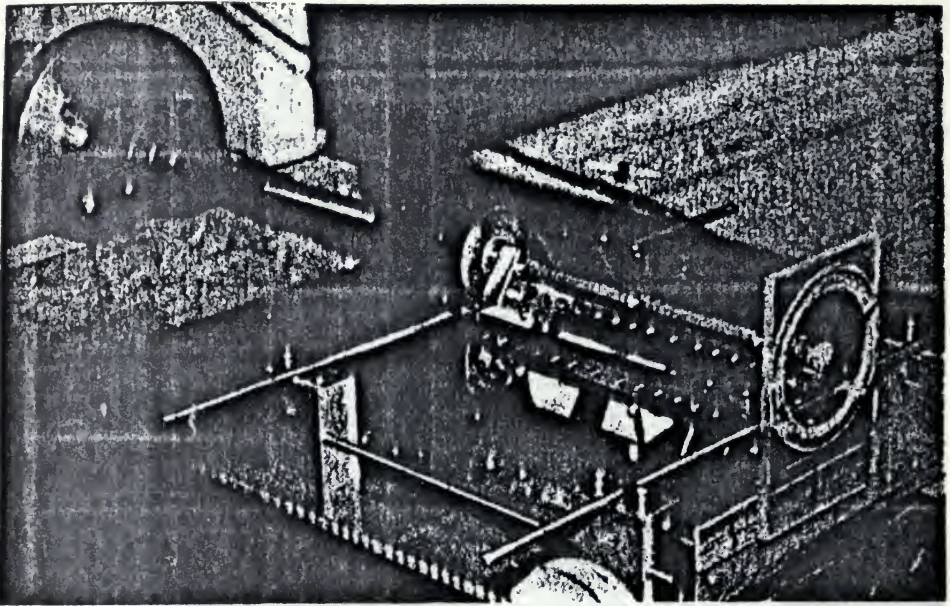
(opposite page) The Phaser Mark I, photographed in the Huyck Research Center, Factory Lane, Milford, Connecticut on May 9, 1961. This is the first Phaser that showed a phase angle of 3 degrees, but it never showed the 45 degree phase angle claimed by Norman L. Dean.

can be evolved which will describe a world in which Dean's Drive can exist and yet where other known facts are not contradicted."

I have taken the liberty of quoting extensively from written notes made within a day or so of witnessing the phenomenon of the Dean Drive in operation because they more accurately express our joint observations of the time and do not exhibit the ravages of time on the memory. They serve to key other significant memories as well.

On the way back to Connecticut that night driving up US 40 just northeast of Baltimore, I can still vividly recall Bill Davis suddenly blurting out, "I wonder if there is a force proportional to the rate of change of acceleration?"

His question led him right back to basic Newtonian mechanics



G.H. Stine

where he added a fourth term, a third derivative, to the general equation of motion. By October 14, 1960, Davis had worked out the basic mathematical equations that he later published in his May 1962 Analog article, "The Fourth Law of Motion."

His notebook entry for October 21, 1960 contains an important note:

"One point suddenly occurs to me. One consequence of the foregoing analysis, if it later proves to be correct, is that the operation of the Dean Drive does not depend upon the rotating weights, but *only on the motion of the axle*, however induced. In other words, if a simple harmonic driving force is applied to a point with suitable cyclic variation of viscous drag and other parameters, then an unbalanced

force should result. Obviously, this driving force might be applied by other mechanical means, or by means of magnetic and/or electric fields. Thus it becomes possible to design an entirely new kind of inertial drive which does not incorporate the principles of Dean's machine as outlined in his patent claims!"

This was an important theoretical breakthrough because Davis had had no success at all in attempting to deal with Norman L. Dean. Most inventors want a million dollars and Dean was hardly an exception to the rule. We could not get our hands on a Dean Drive with which to experiment. Nor could we legally attempt to construct one from the patent data, John Campbell's excellent photos, and our own memories.

Although Davis had worked out a theoretical universe in which a machine like the Dean Drive would be possible, we both knew that mathematics will lead you only to the logical conclusions of your basic assumptions. The theory had to be backed up with experimental evidence, and we didn't have the Dean Drive to work with. Bill Davis and I spent months searching for an elegant experiment that would either prove or disprove Davis mechanics—Robert A. Heinlein hung that sobriquet on the work in Chapter Nine of *Podkayne of Mars*, so I guess it's official. Professor Serge Korff of the physics department of New York University, a top cosmic ray researcher, and later president of the New York Academy of Sciences and the Explorers Club, was retained as a consultant by Huyck Corporation at Bill Davis' request to "keep us honest" academically; as a top-flight physicist, Professor Korff's duty was to shoot us out of the saddle if the logic was faulty, the math bad, or the experimental program trivial. John W. Campbell was also retained as a consultant with the responsibility of assuming his classical role of a hair shirt; he kept us honest in a different way. We were soon joined by a young Iranian mathematician, E. L. Victory, a graduate of MIT who was working for Huyck at the company's paper machine drier felt plant in Rensselaer, New York. Vic

had just been given the problem of analyzing why the wringer-like press section of a paper machine wouldn't squeeze water out of paper and the Huyck felts at high machine speeds. Vic had come to the tentative conclusion that the rate of onset of force between the press rolls didn't give water time to get out of the paper or the felt, creating a situation akin to the tire hydroplaning that was later described by the British.

The basis of Davis mechanics rests on the hypothesis that the energy of a system cannot be changed in zero time. In other words, there is a "critical action time" during which the system cannot behave in a Newtonian fashion and during which the system as a whole cannot accept the energy. In the case of an applied force in one dimension, Davis mechanics revises the basic Newtonian equation to the following form:

$$F = kx + V \, dx/dt \\ + m \, d^2x/dt^2 \\ + Dm \, d^3x/dt^3$$

This is the basic Newtonian equation of motion with the exception of the addition of the third derivative term where k = Hook's Law spring constant, V = viscous damping coefficient, m = mass, and D = the elusive critical action time.

Once a month, a meeting was held in the Huyck offices in New York City in which the theoretical and experimental programs were

reviewed. Always in attendance were Bill Davis, Vic Victory, myself, Serge Korff, and John Campbell. Because the initials of "critical action time" are CAT, we became "The Cat Pack." These were wild meetings because Davis and Victory were making real progress on the theoretical mathematical background of Davis mechanics, and the work was making logical sense. One meeting really sticks in my mind; in late 1961, I sat astounded and watched Professor Serge Korff derive Planck's Constant and the quantum condition from Newtonian mechanics using the hypothesis of Davis mechanics.

But the experimental program didn't run so well. In late 1960, I set up a small experimental area at the Huyck Equipment Company building, an old World War Two barracks located on Factory Lane in Milford, Connecticut. (Old barracks buildings are great for housing basic research programs; you can't hurt them, and their structure is infinitely adaptable.) With the help of an excellent experimental machine shop downstairs in the building and Wendell H. Stickney, Huyck Equipment's very practical, brilliant, "Down East" Yankee development engineer, I built a series of devices capable of generating simple harmonic motion. We were looking for some indication of the "critical action time," the elusive "D" in the Davis equations.

Obviously, these devices were

known as D-Testers, or simply Detesters.

One by one, these experimental rigs were rejected because we could not account for all of the forces and therefore could not isolate D.

Finally, in May 1961, we decided to take a very close look at precisely the harmonic drive mechanism that was used in the Dean Drive. This is a device known as a "Buehler Drive" and it is commonly used throughout industry to generate vibration or oscillatory motion. It consists of two counter-rotating eccentric masses. I designed the device and had it built in the little machine shop. I still have the original drawings; I could build another one just like it today, and I might do it sometime. It was accurately described in a letter from E.L. Victory and me that appeared in the Brass Tacks department of the September 1963 Analog:

"Mass of the rotating weights was 1,607.3 grams, and the ratio of the mass of the weights to the mass of the carriage was 0.9333. The test device was driven by a 1/4-inch electric drill motor, which was equipped with a six-inch diameter ten-pound flywheel to insure constant rate of angular rotation, thence through a universal joint, a slip joint, and another universal joint. A protractor-type dial was affixed to the front of the device with a pointer on the shaft of the upper mass to indicate angular position of

the weights. A cursor line and scale were used to determine position of the carriage in the lateral direction. Operation was observed with the aid of a General Radio 'Strobotac,' and photographs of the operating device were made. A Variac adjustable autotransformer was used to control the rotational speed of the motor."

What were we looking for? In our meeting on September 28, 1960, Norman L. Dean claimed that the classical situation of a simple harmonic motion drive was incorrect. Classically, when the masses are displaced to their maximum extent to the right, for example, the carriage will be at its maximum displacement to the left. Thus the device operates with a 180-degree phase angle between weights and carriage.

Dean claimed that the motion of the carriage led the motion of the weights by 225 degrees, creating a "phase angle" of 45 degrees.

When simple harmonic motion is considered as the driving force in Davis' mechanics, this phase angle does indeed appear . . . but not to the extent claimed by Dean.

With our oscillating device, we were looking for a phase angle. Hence, the device was called the "Phaser Mark I," with due apologies to Gene Roddenberry because we were first.

Phaser Mark I Mod O was driven with a light 1/4-inch drill rod shaft, two light-duty Boston Gear

universal joints which are also called "slipper joints," and a light-duty sleeve-type slip joint. I ran the device from 150 rpm to 1,500 rpm. I looked hard for a phase angle; so did Davis, Victory, Korff, and Campbell. We never saw the phase angle claimed by Dean using similar equipment. What I did succeed in doing was to tear hell out of those 1/4-inch slipper joints to the point where there was at least 15-degrees of slop in them, a disparity that would have rendered any observed phase angle meaningless.

So I created Phaser Mark I Mod I with a beefed-up drive train using 1/2-inch slipper joints, half-inch drill rod shaft, and really beefy sleeve joint.

At 1,500 rpm, just at the point where the Phaser was about to tear itself to pieces and scatter parts all over the room, I saw a three-degree phase angle.

Although this wasn't the magnitude of phase angle reported by Norman Dean, it cast serious doubt on classical theory which says that there should be no phase angle whatsoever!

I saw the three-degree phase angle several times. So did Bill Davis and E.L. Victory. To eliminate any source of error, I measured the total slack in the entire drive train; it was less than a half-degree.

To prove that this phase angle, which was real, was not a consequence of the rotating masses, I

re-designed the Phaser to Mark II configuration. This used an oscillating mass, a single weight that vibrated horizontally back and forth driven by a small eccentric. The magnitude of its displacement was the same as that of the counter-rotating masses, and I maintained the same oscillatory mass and the same mass ratio as in Phaser Mark I.

With the oscillating weight of the Phaser Mark II vibrating back and forth at 1,500 cycles, the operation was a lot smoother, and I saw the good old three-degree phase angle just as before. It was highly repeatable. It was witnessed by Davis, Victory, and others.

The motion of the carriage led the driving force of the oscillating mass(es).

Looking back on this series of experiments with the Phasers, I now realize that it was probably the elegant experimental proof we were searching for. Victory's calculations said that our Phasers had a critical action time of a half millisecond. We should have built one with twice the dimensions to see if it had a CAT of a full millisecond, or at least a larger critical action time. If we had been able to predict the CAT, we would have had proof.

I believe our big problem was the fact that we had gained a large measure of respect - nay, downright fear of the Phasers. The sight of that seven-pound Phaser shaking

back and forth on a lab bench at 1,500 cycles was more than impressive. It shook the whole building when it went into resonance with the structure. And it kept trying to tear itself to pieces. I kept beefing it up. I can guarantee that when I got through with that drive train, it was strong. Although we should have taken the "American" approach of making it bigger, we abandoned the Phaser experiments. We figured that it would be easier to make measurements on a linear system instead.

So I designed a rocket-powered ballistic pendulum.

It consisted of two five-pound cylindrical masses separated by a 36-inch length of hardened 1/4-inch drill rod. The device was hung as a ballistic pendulum, initially eight feet long. On the rear mass, I mounted an Estes Type B14 solid propellant rocket motor that would produce a peak thrust of nine pounds 150 milliseconds after ignition and had a duration of 300 milliseconds. The mass of the rocket propellant used was less than one percent of the total mass of the pendulum. A Dynisco bonded strain gage load cell was mounted on the rear mass to measure the instantaneous thrust of the rocket motor on the pendulum. This was read out on a high-speed Visicorder light-beam oscillograph. A light trough was placed below the pendulum with a 300-watt spot light at one end of the trough. In each

pendulum bob, a cadmium sulfide photocell looked straight down into the light trough, detecting the light gradient as the pendulum swung. The outputs of both photocells were fed into separate channels in the Visicorder. We calibrated this and discovered that it was a very sensitive pendulum position indicator.

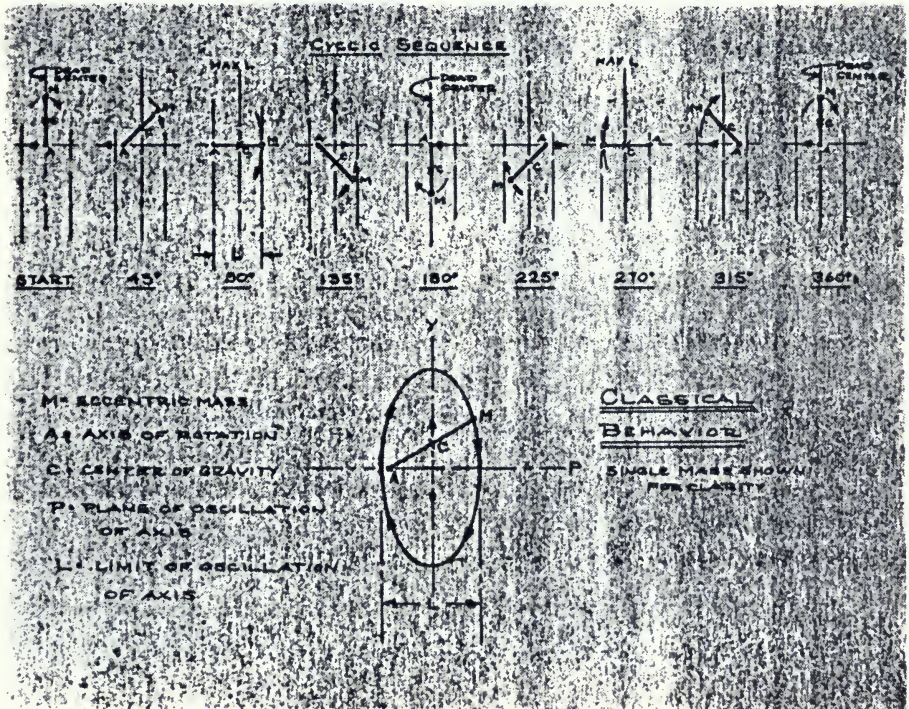
When the rocket motor was electrically ignited, it pushed the pendulum horizontally. The thrust-time curve of the rocket motor was recorded along with the photocell output that was proportional to pendulum position.

Theoretical calculations predicted that there should be a time delay between the instant that thrust was applied to the pendulum and the instant it started to move. Davis

mechanics also predicted that there would be a discrepancy between how far the pendulum swung—based on the total impulse imparted to it by the rocket motor—in reality and how far it should have swung according to classical mechanics.

We chased bugs in that rocket pendulum for over two years. First, we moved it to a new lab at 209 Greenwich Avenue in Stamford, Connecticut where it was re-hung from 16-foot lines. When we moved the lab again to 430 Fairfield Avenue in Stamford, we again re-hung it as a 16-foot ballistic pendulum and developed an even more accurate capacitance position measurement system for it.

In all the hundreds of tests with the pendulum, we never detected

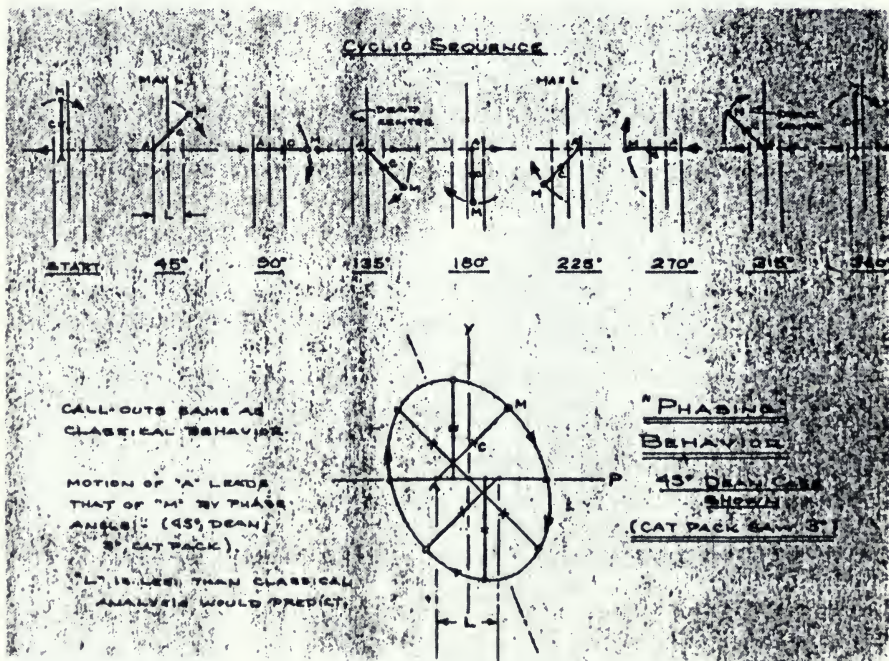


what we were looking for. I know now that it was because the system was too small and that the rate-of-change of force imparted by the rocket motor was too low. We should have hit it with a 16-pound sledge instead. We didn't because I hit it with a one-pound hammer once, and broke a \$150 load cell. In March 1965 when we finally made highly accurate position measurements with the capacitive position system, we learned that the pendulum vibrated in four degrees of freedom when the rocket thrust hit it. We had no way of accounting for all the energy that was leaving the system by means other than linear displacement. So the experiment was abandoned.

However, the rocket pendulum did put us wise at last to the criti-

cal test for all One-Way Machines, Space Drive, Anti-Gravity Devices, and their like. When the word got out that Huyck Research Center would listen to inventors and look at their machines, the fun began. I think that I have seen every sort of shaking, spinning, whirling, vibrating, buzzing, snarling, grinding space drive that the fertile imagination of inventors can dream up. I have seen ones that would climb a slight gradient because of the stick-slip frictional phenomenon. I've seen them scoot across the floor. I have seen them do all sorts of wonderful things *except* when we put them to the critical pendulum test.

For the benefit of any of you who may some day be confronted with a unidirectional drive, here is



the Critical Pendulum Test:

Suspend the unit freely as a ballistic pendulum as shown in the drawing. The longer the pendulum, the more sensitive it will be to any unidirectional force. When the drive is turned on, it must displace itself from the vertical rest position. Furthermore, it must not vibrate back and forth about the rest position. It must displace its center of mass from the vertical and stay there as long as it is turned on.

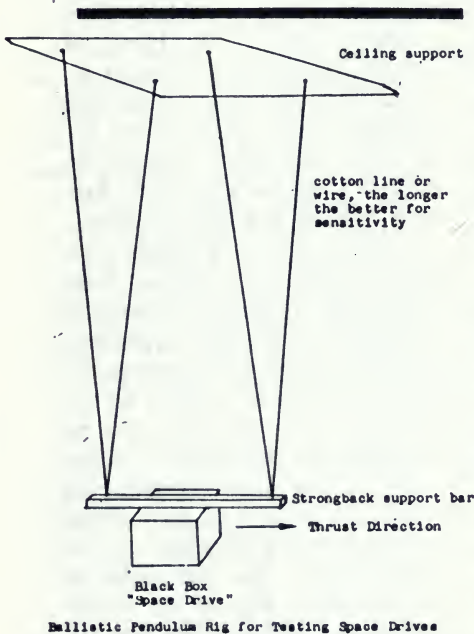
Every space drive that we tested would not pass this test. The inventors were usually very embarrassed. "Gee, it just started to work there when it came apart. I guess

we're lucky that nobody was hurt when it blew up." They all left, promising to fix the invention and return with it. Nobody ever did.

There is one highly unfortunate aspect to this. Because of the total recalcitrance of Norman L. Dean, we were never able to subject the Dean Drive itself to the critical pendulum test at Huyck Research Center.

It was once claimed that the Dean Drive did pass this test. John Campbell made a comment to a letter in Brass Tacks in the November 1960 ASF as follows: "Suspended from a flexible wire, the model will push itself away from the vertical and hang at an angle." But I never saw it do that. I am very positive that Campbell never saw it, either, and that he was merely reporting what Norman Dean told him. Otherwise, Campbell would have had some very pertinent remarks during the many pendulum tests we ran not only with the rocket pendulum, but also with several One-Way Machines.

While I was involved in this frenzied, exciting, frustrating, enjoyable, disgusting, delightful, and maddening experimental program, the CAT Pack wrote a scientific paper. Entitled "Some Aspects of Certain Transient Mechanical Systems," Davis delivered it on April 23, 1962 at the Washington, DC meeting of the American Physical Society. There were no comments. Why didn't anybody hear about



this paper? Why wasn't it published? I don't know, but the APS and *Physical Review* turned it down for publication. I was given to understand that it was nearly impossible to get anything published that contradicted Einstein in the slightest degree, even in philosophical background.

Then as now, there were few avenues for published speculation in science and technology. Analog happens to be one of the few places where a person can toss a new idea to the wolves to see what happens. We knew this, so Davis wrote "The Fourth Law of Motion" that was published in the May 1962 issue of *Analog*. Strangely, the article didn't draw the sort of comment that we had expected; perhaps it was because it contained a couple of partial differential equations.

However, the 1962 publication efforts did finally bring us into contact with an independent investigator.

On July 1, 1963, Hermann von Schelling at the Advanced Technology Laboratories of the General Electric Company in Schenectady, New York, published a paper entitled, "Stochastic Approach to the Laws of Motion." He arrived at the same conclusions as the CAT Pack, but he did it by the statistical or stochastic method rather than by the Davis deterministic method. Von Schelling even went further to postulate a quantum of time, a

time interval during which even the smallest subnuclear particle could not respond to a change in its energy. By von Schelling's method this time quantum was calculated as 6.27×10^{-24} seconds. When calculated by Davis mechanics, the same number came out. Furthermore, this led to the conclusion that the smallest unit of length in the universe was the distance that light could travel in that smallest unit of time, and worked out to 1.88×10^{-13} centimeters.

This number agrees with the estimate made in 1955-1956 by Werner Heisenberg.

In late 1962, the CAT Pack was joined by a most formidable international scientist, Dr. Henri M. Coanda, inventor of the first jet airplane (1910) and father of the field of fluidics (the Coanda Effect). Using Davis mechanics, Coanda developed a rationale for both Reynolds Number and Mach Number.

In May 1963, Campbell published a letter from Norman Dean wherein the inventor explained in details his "phasing" hypothesis and gave implicit instructions on how to build and conduct an experiment so that his data could be confirmed by anyone who wished to try it. The Dean experimental device described in that Brass Tacks letter was identical to the Phaser Mark I. So, just to be on the safe side, I dug out the Phaser Mark I and had our two best lab technicians read Dean's letter, set

up the Phaser Mark I, and re-run the previous Phaser Tests. Both C. Philip Morse and MacLane Tilton, our chief electronic tech and chief mechanical tech respectively, conducted these tests without any supervision from Davis, Victory, or myself. I stood by in the background and just watched. Dean claimed they should see a 45-degree phase angle. They saw the three-degree phase angle that I had seen.

E.L. Victory and I reported this in a letter to Brass Tacks that appeared in the September 1963 issue along with a photo of our Phaser Mark I. Norman Dean must have considered this as a personal attack on him, because he fired back a vitriolic letter to Campbell that was published in the January 1964 Analog. Dean accused us of all sorts of things, including violation of his patent rights. This immediately brought in the Huyck general counsel and patent attorneys. I really wanted to go to see Dean and get it straightened out. But, acting on the advice of the Huyck attorneys, Davis instructed me not to do so.

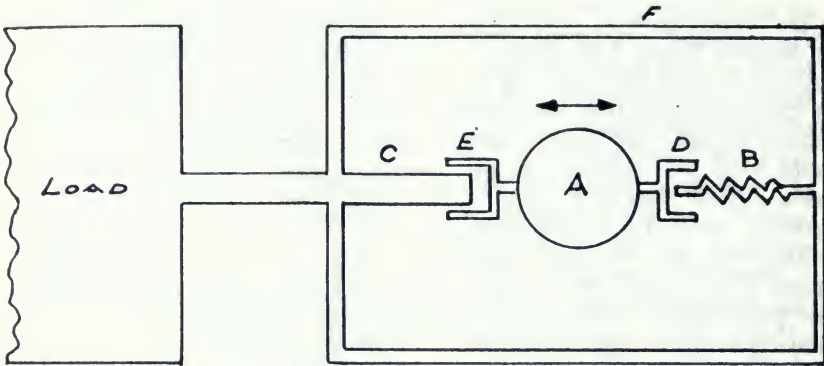
Since that time, I have carefully studied all of the Dean materials that have been published. What did Dean do to get his claimed 45-degree phase angle, and why couldn't we get it, too? Was he using a heavy carriage with centering springs? Was his light quarter-inch drive shaft twisting? We had both

used common universal joints, otherwise known as "slipper joints," that are known to possess lobes of unequal torque and rate of angular rotation when deflected; did this have a significant effect? I wanted to build Phaser Mark III with constant-torque Rezeppa Joints, the sort they use in the front-wheel drives of jeeps. Was my flywheel smoothing out something (Dean did not use a flywheel)?

We really don't know, but I strongly suspect that Dean's light-duty drive train had something to do with it.

We did a lot of theorizing about what a true space drive might be like and came to some interesting conclusions. First of all, if Davis mechanics has a shred of truth to it, the phase angle of Dean's device should have been dependent upon the rotational speed or cyclic rate. Not only should the phase angle increase with increasing cyclic rate, but the drive efficiency should increase as well. This meant that really good efficiencies could not be obtained with any device operating down in mechanical cyclic rates. It meant that a drive should be operated at megacycle or gigacycle rates.

We further came to the conclusion that the Dean Drive—or any machine capable of producing a unidirectional force under the hypothesis of Davis mechanics—would have to consist of a device that was one system during part of a cycle,



- A = Oscillator. Sine-wave or saw-tooth.
Wave shape may be critical.
- B = Long time delay signal path.
- C = Short time delay signal path.
- D = Clutch
- E = Clutch
- F = Frame

Highly schematic diagram of unidirectional thrust device based on Davis Mechanics principles. (You couldn't build one from this diagram any more than you could build an internal combustion engine from most diagrams given in text books!)

and another system during the rest of the cycle. Or a device in which the initial system was deliberately destroyed during one part of the cycle and reassembled during the rest of the cycle.

There is only one thing that will really do this at megacycle rates and above: electromagnetic devices, gadgets based on plasmas and electromagnetic fields.

We thought about how to do this and how to build it. By April 1965, we were just about ready to start putting some experimental hardware together.

Then the nation's economy stumbled a little bit. An economy wave rolled over Huyck Corporation. And in any corporate economy drive, two things get cut back right

away: advertising and research. When we came in the door of the lab on Monday, April 2, 1965, Bill Davis informed us that the research budget was no more, that the lab was closed, and that all equipment was to be disposed of at once. All of us were given severance pay, letters of commendation, and the usual regrets.

Thus ended the only serious research program that I know of that was devoted to an analysis of the Dean Drive and an attempt to construct a theoretical foundation for such devices.

And it is a totally unsatisfactory ending because nothing—*nothing*—has been resolved. The work raised all sorts of questions. It brought together a lot of hitherto inexplicable

facts and gave them some sort of rational foundation. It tied everything up in a neat bundle and just left it sitting there.

Item: The human body responds to rate-of-onset of acceleration, a third derivative force. USAF specs are still based on this.

Item: Stress is not proportional to strain. The classic law holds only under steady-state conditions in testing machines. Under conditions of high-rate loading, the stress-strain curves behave quite differently. Cables snap. Yokes break. The noses of armor-piercing shells hammer their way through armor plate while the back end of the same shells proceeds inexorably forward, not knowing that the front end is hammering away.

Item: The mundane industrial operation of squeezing water out of paper and felt is totally dependent upon the rate of onset of the force in the press roll nip; the application of the principles of Davis mechanics to paper machines permits the system to be changed so that the machine can run faster.

Item: Newton didn't have the instruments to measure high-rate phenomena. Newtonian mechanics is steady-state mechanics. Even at that, any engineer will tell you all about the Finagle Factors . . .

Item: Newtonian mechanics is true only if the energy of a system can be changed in either zero time (which is not a reasonable assumption) or in a time interval long

enough for the entire system to react as a whole. Davis mechanics would merely elaborate upon Newtonian mechanics to include the starting transient, the high-rate case, the situation in which the system is so large or the energy rate so great that part of the system does something while the other is doing quite something else.

Item: The harder they hit the atomic nucleus with particles in high-energy accelerators, the greater the rate of change of energy . . . and the greater the number of wild, wonderful, and unsuspected particles that are generated. It is really difficult to account for all of these new particles . . . except in Davis mechanics where they would be viewed as a consequence of rate-of-change: the energy that the particle system cannot absorb and must then leave the system.

Item: With several very, very intelligent and respected scientists involved in the program, we never once ran up against a flaw in the logic, a trivial consequence, an irrational conclusion, or any result that did not appear to jibe with the real world.

Item: Nobody has yet designed and conducted the elegant experiment to either prove or disprove the hypotheses of Davis mechanics.

Item: Nobody has ever conducted a series of critical, objective tests on the Dean Drive. The Dean Drive has never been subjected to the pendulum test described herein

except as reported by John Campbell and never verified.

Ladies and gentlemen, there is unfinished business here that gets worse every day. Norman L. Dean passed away in the late 1960's. John W. Campbell died on July 11, 1971. Dr. Henri M. Coanda died in November 25, 1972. And Dr. William O. Davis died on May 10, 1974. Korff, Victory, and myself appear to be the only ones left who participated in this most exciting work.

I saw the Dean Drive work, and I think I know how and why it worked. I don't know if it would pass the pendulum test, but *the test must be made* before anyone has the right to sit back and be smug—on either side of the fence.

Until the basic hypotheses of Davis mechanics are either proven or disproven, the nagging specter of the space drive will haunt our scientific curiosity. Will it or won't it? Is a space drive possible or not?

If it is impossible, *what pushed against my hand?*

If it is impossible, what was the 3-degree phase angle that I saw with the Phaser Mark I and Mark II?

I am not talking about Dianetics, Psionics, or ESP. This is physics and engineering and technology. It would take so little time and so little money to find out whether we have nothing . . . or . . .

There is an unpublished series of papers written by Davis and the

Detesters, Phasers, and Dean Drives

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rest of the CAT Pack. They hypothesize a theory of inertia and gravitation that embrace both Newton and Einstein. Based on very preliminary calculations, the theory based on Davis mechanics indicates that the speed of gravitational propagation is at least 30,000 times the speed of light.

The end of this article remains to be written.

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THE FANTASTIC MACHINE OF STEFANO RICCIARDI

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Abstract. I present a machine working with compressed fluid (gas, liquid) invented by Stefano Ricciardi which is neither a turbine nor a piston-engine, and at the same time is a turbine and a piston-engine. Indeed, it can be considered as a turbine, as it has no valves, and it can be considered as a piston-engine, as the gas exerts its pressure in a closed space. Its efficiency (the ratio of the delivered kinetic energy to the consumed elastic energy of the gas) is very high and I evaluated it of being even higher than unity; I presume that, with the improvement which I propose in the paper, the efficiency can be considerably increased over unity. The machine, however, needs further technical development in order to be able to substitute the present steam-engines, turbines and combustion motors.

In April 1989 I delivered a couple of lectures in the Perugia University on my experiments demonstrating violations of the laws of conservation. Many "cranks" from different Italian towns, who heard about my presence in Perugia, attended these lectures and many interesting discussions on different "hot" and "cold" topics in physics and technology took place during the lectures and after them.

One of my visitors was Mr. Stefano Ricciardi from Citta di Castello (province of Umbria). Mr. Ricciardi has brought with the machine shown in fig. 1. He told me that he has invented this machine some twenty years ago and since then he has constructed many different prototypes improving its qualities which the commonly used steam-engines, turbines and combustion motors do not dispose.

As the lecture ended in the late hours, we could not find compressed air to set the device in motion. However I became highly intrigued by the words of Ricciardi and next Sunday I visited him in his home where he has a workshop for filling bottles (his father and his grand-father have done the same job). I spent the whole sunny day with Ricciardi examining and observing several of the prototypes and enjoying the wonderful *pranzo di domenica* of Mrs. Ricciardi.

The principle of action of Ricciardi's machine can be understood easier if looking at one of the earlier prototypes which is "open" and which can be seen in the photographs in figs. 2 - 5. The scheme of the machine is shown in fig. 6.

Compressed air enters into the elastic white tube for which Ricciardi has used a fire-hose (my head in fig.2 replaces the container of compressed air). An elastic metal strip which can change its curvature but cannot change its length encircles the tube from the outer side. Three metal radial levers fixed to the axle-tree at 120° one from another press at their rotation the elastic tube from the inner side. On the tips of the levers there are plastic cylinders mounted on ball-bearings which roll when the levers touch the tube.

When the compressed air inflates the elastic tube, one of the radial levers usually presses the tube against the metal strip to the utmost and thus the compressed air cannot leave the tube. However on this lever and on the foregoing lever (with respect to the sense of rotation) tangential forces (with respect to the trajectory of the lever's tip) act from the side of the compressed air in the tube and generate thus a torque. The machine makes a rotation of about 60° during which one of the levers always presses the tube against the metal strip to the utmost and no air goes out from the machine. I shall call this ^{the} first phase. During the first phase the torque on the axle-tree is maximal. I established this by fixing an external lever to the axle-tree and by estimating the torque when holding this lever by hand.

At the rotation, the "closing lever" comes to such a position that it cannot more press the tube to the utmost and air begins to leak out. On the other hand, the "foregoing lever" has not still reached a position where it can press the tube to the utmost and thus compressed air goes freely from the container through the tube into the free space. This second phase lasts for some other 60° . During the second phase there is still torque acting on the axle-tree but this torque is substantially smaller than the torque during the first phase.

Then the moment arrives when the "foregoing lever" becomes "closing lever" and again a first phase begins.

During the first phase there is no consumption of pressed air. I could not make a

reliable estimation by eye but it seemed to me that even if the volume of the tube at the end of the first phase was bigger than the volume at the beginning, the difference is minimal. Nevertheless the torque during the first phase is very big.

If at the end of the first phase an automatical mechanism will close the way from the container of compressed air, then during the second phase only the air which is in the tube will go out in free space. The quantity of this air is very small. Thus this machine will rotate practically without consuming air, i.e., this machine will generate kinetic energy only by the help of pressure. This assertion seems incredible and it is against all known physical concepts and experiences but the machine exists and everybody can persuade oneself that there is a considerable motion under a considerable pressure without leakage of air and almost without a change in the volume of the air in the tube.

It is difficult to understand how and where the pressing forces of the compressed air act but it is clear that they are "tangential" with respect to the motion of the "pistons" (we can consider the radial levers as pistons). In every steam-engine or combustion motor the forces of the compressed fluid act normally to the pistons.

The torque acting on the axle-tree is different during the times of the first and second phase of 120° (which is the complete "cycle" of the machine), but there is no position where there is no torque. If the above mentioned improvement will be applied, during the second phase no torque will act. Thus the second phase must be passed over by the help of the kinetic energy acquired during the first phase. ^{Consequently} the average torque (and the average produced kinetic energy) will be slightly diminished but the consumption of air will be reduced practically to zero. To have an imagination how big are the forces acting in Ricciardi's machine, remember the elastic "air cushion" with which one lifts the heaviest car filling the cushion with the compressed gases coming from the exhaust pipe of the motor.

I made all my measurements on the prototype shown in fig. 1. The friction in the machine is so big that one cannot move the axle-tree acting with both hands on the axle's ends, one of which is seen in fig. 1 (the other axle's end is on the opposite side).

The machine begins to rotate with pressure of 1.5-2 bar and with the increase of

the pressure the rate of rotation increases.

I made the following measurements to establish its efficiency. I put a plastic bag at the tube's outlet and measured with my wrist-watch that during a time t the volume of the consumed air (estimated by eye) was V_1 at a pressure $p_1 = 1$ bar (the pressure in free space). As the pressure in the container was p , the same air will take in the container a volume $V = V_1/p$. The energy which one loses by letting this air going in the free space is $E = pV = p_1V_1$, and thus the lost power will be

$$P_{\text{elast}} = E/t = p_1V_1/t. \quad (1)$$

The acquired kinetic power will be

$$P_{\text{kin}} = M\Omega, \quad (2)$$

where M is the average moment of force acting on the axle-tree and Ω is the angular velocity of the rotation. I estimated M by hand and Ω by eye.

The figures estimated by me (at a pressure $p = 2$ bar of the air in the container) were: $V_1 = 5 \text{ l} = 0.005 \text{ m}^3$, $t = 10 \text{ sec}$, $\Omega = 4\pi \text{ rad/sec}$, $M = 0.5 \text{ kp m} \approx 5 \text{ Nm}$, noting that 1 kp (kilopond), ^{or} $\sqrt{1} \text{ kg}$ force, is equal to the weight of 1 kg mass and thus is equal to 9.81 N (newton). Thus taking into account that $1 \text{ bar} = 10^5 \text{ N/m}^2$, we obtain

$P_{\text{elast}} = 50 \text{ W}$. On the other hand we have $P_{\text{kin}} = 63 \text{ W}$. Thus the efficiency estimated by me was $\eta = P_{\text{kin}}/P_{\text{elast}} = 1.3$, but taking into account the inaccuracy of my estimation one can be not sure whether Ricciardi's machine violates the energy conservation law. I am sure, however, that if during the second phase the way from the container of compressed air will be closed (as I suggested above), the efficiency will be undoubtedly higher than unity and the energy conservation law will be violated. As in the ball-bearing motor (see my book THE THORNY WAY OF TRUTH, Part II, East-West, Graz, 1986) the thermal extension of the balls is perpendicular to the motion of the races and the whole kinetic energy is produced from nothing, so in Ricciardi's machine the forces of the compressed air act tangentially to the motion of the radial levers and the volume of the air in the tube practically does not change. Thus also in Ricciardi's machine the kinetic energy produced during the first phase comes out from nothing (at least in its predominant part). To give a firm experimental confirmation of the last assertion,

one must, of course, carry out precise measurements with a better constructed machine, supplied by a valve for closing the air supply during the second phase.

Ricciardi demonstrated to me the difference in the efficiency of his machine and of a common turbine: I could ^{easily} stop with the two fingers of my hand the rotation of a turbine consuming the same quantity of air in a unit of time, meanwhile with my both hands I could not stop the rotation of his machine.

The first and more easy application of Ricciardi's machine is as a steam-engine. Of course, one has to find respective material for the tube which has to preserve its elastic quality at the high temperature of the steam.

The application as combustion engine will require a more profound additional research. I can only say that if his machine will be put after the exhaust pipe of a combustion engine, it will deliver some 10-20% power in addition to the power produced by the principal motor, of course, if this inclusion will not distort the work of the principal motor.

I doubt that it will be possible to make a closed energetic circle (perpetuum mobile) on the basis of Ricciardi's machine, as the efficiency of the compressors is very low (0.05-0.1), but a definite answer to this aspect of Ricciardi's machine can give only the experiment.

On the next page there is a paper published in a local journal of Umbria on Ricciardi's machine. Note that the Christian name of Ricciardi in the paper is written wrongly Elio instead of Stefano.

And on the page following the next page I publish the opinion of Prof. R. Balli from the University of Perugia on Ricciardi's machine. If the reader will ask me, why have I published this opinion, the only possible answer which can be given is: "To show how an Italian professor writes three times 'funsionamento'." What else for?

Un tifemate è riuscito laddove fallì anche il grande Einstein?

Servizio di

Pasquale Iaruffi

Potrebbe aver scoperto anche la quarta dimensione; quella, per intenderci, che gli scienziati di tutto il mondo e di ogni tempo, a cominciare dallo stesso Einstein, hanno cercato e cercano da sempre.

Lui il tifemate Elio Ricciardi, novello inventore, è fermamente convinto di aver fatto la sensazionale scoperta. I principi di questa quarta dimensione, definitiva «spazio-tempo», Ricciardi li ha già tradotti in pratica concreta trasferendoli su un «motore bionico rotante alimentato da fluidi», il cui prototipo è già stato regolarmente brevettato e definito da studiosi e docenti universitari di meccanica razionale «degno di serie: considerazione» e «meritevole di studi che ne approfondiscano le possibilità di impiego».

Il motore bionico, secondo il suo inventore, consente di realizzare notevoli risparmi energetici rispetto all'impiego di altri sistemi e meccanismi tradizionali, quali il motore a scoppio o a turbina. Il vantaggio — sostengono gli studiosi che lo hanno esaminato — è prodotto «dalla

riduzione delle vibrazioni dell'albero, vantaggio che, almeno sotto l'aspetto teorico, appare in tutta la sua evidenza».

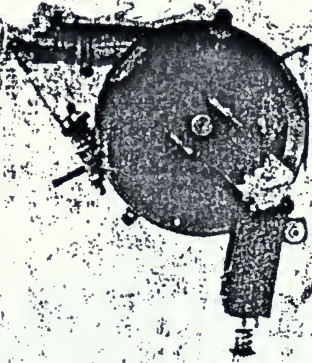
In effetti uno degli svantaggi degli attuali motori-sta proprio nei mezzi di trasmissione del movimento, pistoni, cinghie, catene che trasformano l'energia inutilmente anche in vibrazioni o calore. «Io — dichiara l'inventore — con i mezzi di fortuna sono arrivato dove ho potuto e non posso andare oltre». Adesso è necessario che aziende di ingegneria meccanica sviluppino «i principi» teorizzati dal Galvani e l'applicazione fattane nel prototipo.

L'interesse attorno alla teorizzazione di questa quarta dimensione «della cui esistenza tutti sono convinti ma che nessuno è mai riuscito a provare — insiste Ricciardi —, ed alla sostituita sua applicazione nel prototipo sembrano aver smosso diversi studiosi, scienziati ed aziende leaders mondiali, come quella di una nota casa automobilistica mondiale, dalla quale Ricciardi sostiene di aver avuto il «placet» per l'invio dei principi teorizzati e del prototipo alla sede ed ai laboratori di ricerca centrali».

«QUARTA DIMENSIONE»

Un lavoro durato oltre 20 anni

Una conquista strappata da Ricciardi al tempo libero



Per sviluppare teoria e principi, peraltro già applicati concretamente — come sostiene il suo inventore e teorizzatore — occorrono a questo punto conoscenze, mezzi e supporti scientifici adeguati.

Elio Ricciardi per teorizzare i principi di questa quarta dimensione, ed applicarli nel prototipo ha impiegato i ritagli del suo tempo libero di ben 20 anni.

La sua, in fondo, è una vocazione scaturita dal «sacro» che, in cui ha sempre avuto a che fare con problemi di liquidi e fluidi. E' difatti il piacere di

un'azienda che produce ed imbottiglia bevande. Molto, però, ha agito anche la sua passione per la meccanica ed i motori.

E' autodidatta. In questi lunghi anni si è studiato tutte le leggi della relatività. Parla dei principi di Einstein, della fisica e delle geometrie euclidee, delle teorie dei più moderni scienziati come e meglio di quanto non parli delle sue bibite. Ritiene la sua scoperta «una speculazione fisica rivoluzionaria, una legge meccanica che dà l'armonia dei campi».

che «demolisce al vertice la geometria euclidea».

Sorride quando gli diciamo del rischio di essere considerato un visionario, porta a confronto e mostra i pareri documentati dagli studiosi. Continua a parlare della sua invenzione ricordando che il motore tradizionale alterna il movimento alla pausa, il suo motore invece, armonizza e mette in contemporaneo i movimenti «di spazio e tempo». Se non è una rivoluzione, questa cosa è?



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Perugia, 28/11/1987.

Il sottoscritto Prof. Ing. Raffaele Balli, titolare della cattedra di Meccanica Razionale presso il Dipartimento di Matematica dell'Università degli Studi Perugia ho esaminato su richiesta del Sig. Stefano Ricciardi i disegni del motore a fluido relativi al Brevetto n°. di cui il Ricciardi è titolare ed il prototipo di detto motore costruito dal sig. Ricciardi stesso, prototipo del quale si allegano foto. Ha inoltre discusso sui principi teorici che permettono il funzionamento del motore stesso.

Rinviarlo all'allegato A per la discussione costruttiva del motore e del modo di funzionamento, lo scrivente, dichiara quanto segue;

A) Il motore in oggetto è da ritenersi ad avviso dello scrivente originale.

B) Esso è suscettibile di impieghi in settori in cui è richiesta una bassa potenza permettendo di realizzare risparmi rispetto l'impiego di turbine con analoghe prestazioni.

C) La misura del rendimento è rinviata ad un apposito certificato in corso di redazione.

D) Nel certificato di cui al punto c si quantificherà il vantaggio che il motore in oggetto produce riducendo le vibrazioni all'albero, vantaggi che per ora appare solo dal punto di vista teorico.

E) Sempre nel detto certificato si esaminerà la funzionalità del motore con fluidi del tipo diverso ha conclusione si ritiene che il motore in oggetto è degno di seria considerazione prevalentemente per impieghi di cui è richiesta bassa potenza ed è meritevole di studi che ne approfondiscono le possibilità di impiego:

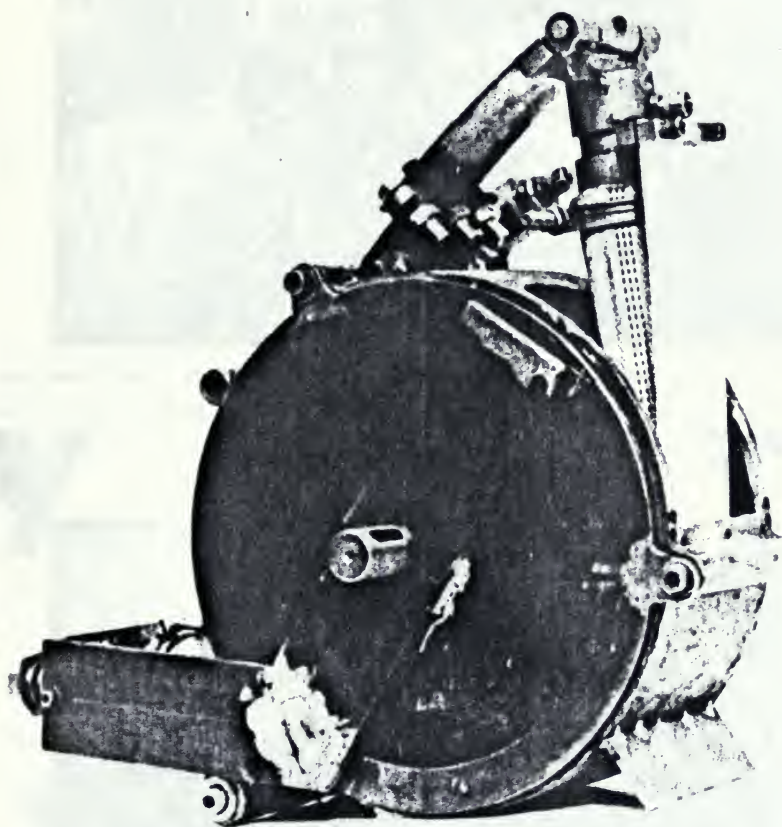


Fig. 1. The latest prototype of Ricciardi's machine.

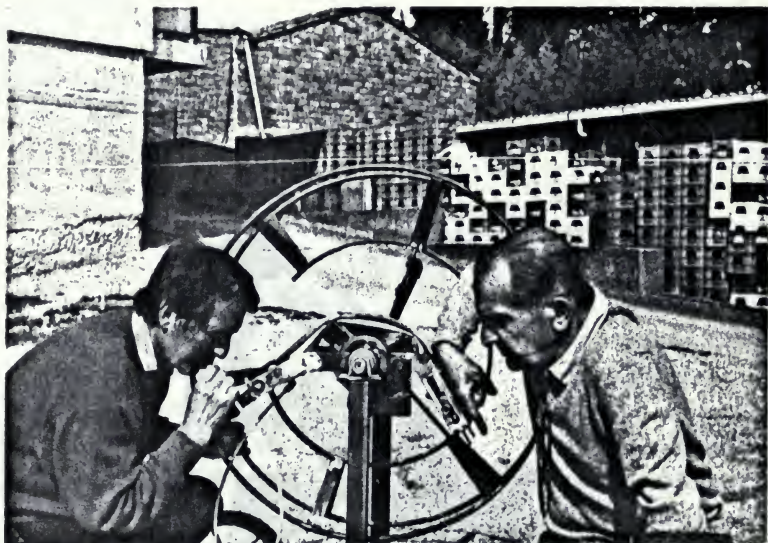


Fig. 2. Ricciardi and Marinov with an earlier machine. Marinov's head simulates the container of compressed air. Ricciardi's finger shows the direction of the outgoing air.



Fig. 3. Ricciardi's machine.

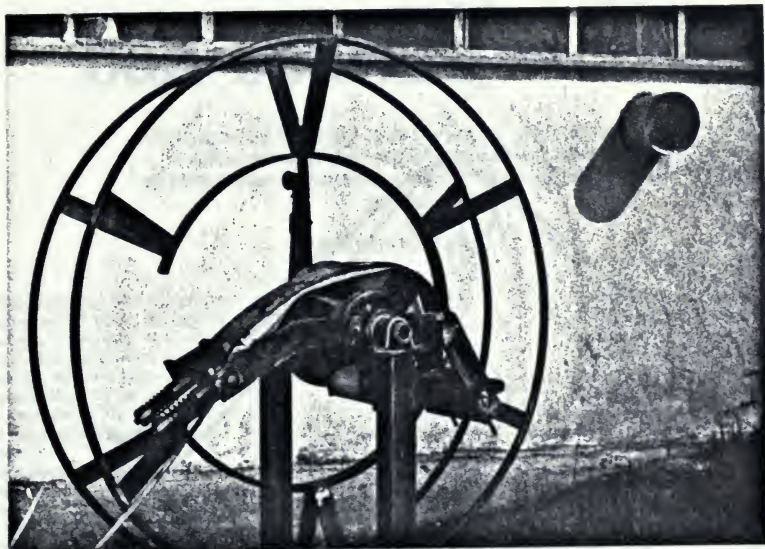


Fig. 4. Ricciardi's machine.

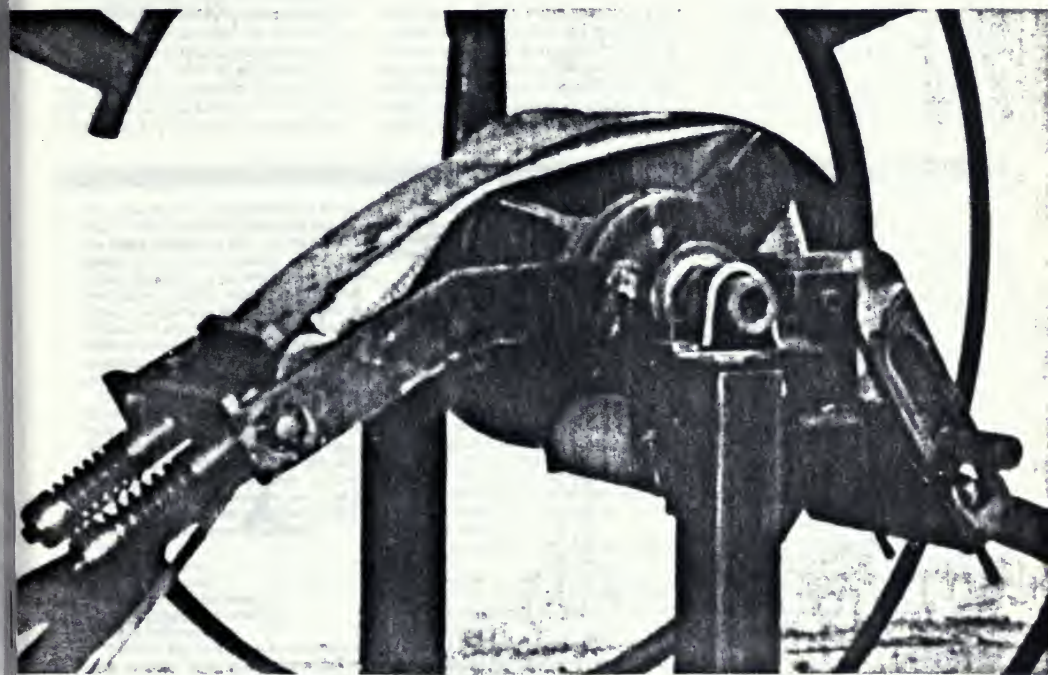
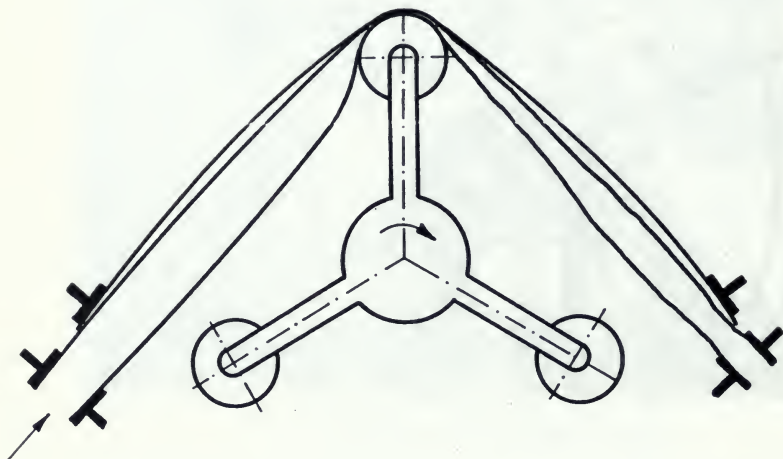
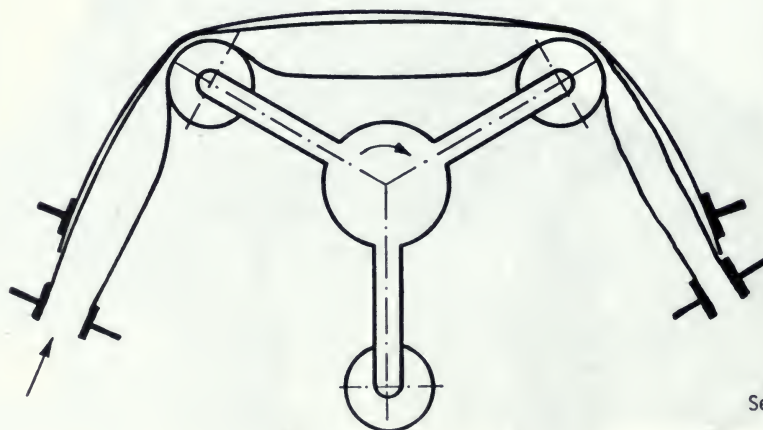


Fig. 5. Ricciardi's machine.



First phase



Second phase

Fig. 6. Principle of action of Ricciardi's machine.

The intriguing ball-bearing motor

Whether or not one can accept the author's contention that it delivers energy produced from nothing, the novel electric motor he describes certainly deserves to be better known.

STEFAN MARINOV

It is almost unknown that if direct or alternating current passes through the ball-bearings of an axle, it is set in rotation. In the few papers where this effect is discussed, the torque is explained as an electromagnetic effect. Yet the torque is due to thermal extension of the balls in their bearings at the points of contact with the bearing races.

The arrangement of the simplest ball-bearing motor is given in Fig.1, where the inner races rotate. With the same ball-bearings, a bigger torque can be obtained by rotating the outer races. In such a case the axle must be made of two electrically insulated parts, and the current goes through a metal cylinder connecting the outer races of both ball-bearings. Such are the small and big ball-bearings motors presented in Fig.2.

I have established that the ball-bearing motor is *not* an electromagnetic motor but a thermal engine. Here the expanding substance leading to mechanical motion is steel, while the expanding substance in all thermal engines used by humanity is gaseous. There

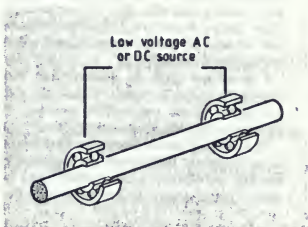


Fig.1. The ball-bearing motor rotates in either direction, on AC or DC supplies. Its mode of operation is thermal, not electromagnetic.

is, however, another much more important difference; the motion in the conventional thermal engine is along the direction of expansion of the heated substance, while in the ball-bearing thermal engine it is at *right angles* to the direction of expansion of the heated substance. Consequently, in gaseous

thermal engines, the gas cools during the expansion and the kinetic energy acquired by the "piston" is equal to the heat lost by the expanding gas. This is *not* the case in the ball-bearing motor. Here not the whole ball becomes hot but only that small part of it which touches the race, at a "point contact" where the ohmic resistance is much higher than the resistance across the ball. Only this small "contact part" of the ball dilates; and the dilatation is very small, only a few microns. (Of course, I have not measured the dilatation, I only *presume* that it is a couple of microns.) Since the balls and the races are made of very hard steel, a slightly ellipsoidal ball produces a huge torque when one of the races rotates with respect to the other.

Usually a push is needed to start the ball-bearing motor. However, on occasions it does start spontaneously (with a greater probability at greater bores) because the surface of the races is not absolutely smooth. With absolute smoothness and geometrical perfection, spontaneous starting is im-

Great balls of fire

The contents of Dr Stefan Marinov's travel-weary holdall did little to dispel the scepticism which greeted the man and his theories during a visit to our editorial offices. We politely listened to a rambling discourse on ball-bearing electric motors which rotated without magnetism and provided work in defiance of energy conservation theory. Dr Marinov unburdened himself as a man proselytising a deeply held yet widely ridiculed conviction.

The two ball races, one set into each end of a tube, didn't look to be the starting point from which new theories are forged. Neither did the thin PVC-covered wire connecting up to the blocks at each end of the tube supporting the ball race inner sections. "Stefan, how much current do you need to make the races turn... Would 5A be enough?"

"No, you need a lot more than that."

"25A?..."

"No. Much more."

"How much more?"

"Have you got a car battery?"

"Only one the fitter in my car."

"Get it. I show you..."

"Stefan, if you connect up a car battery to your machine using those wires, the ball races will present an almost perfect short

circuit and the wire will vaporise in a puff of acrid smoke..."

"They get warm, sure. But I show you. Where is your car?"

"In the multi-storey..."

But Dr Marinov never heard the rest of my protests. He was already down the corridor and halfway out of the building. I headed him off at the revolving doors in the lobby.

"Stefan, the multi-storey is no place to advance science. Let's see if we can borrow a battery from the motor transport department."

We set off across the road, Marinov clutching his holdall. I went upstairs to get permission from the garage manager. When I returned Dr Marinov was nowhere to be seen. I went into the garage to enquire of the duty mechanics the whereabouts of my Bulgarian friend.

"Have you seen a foreigner with a battery fixation?"

The huddle of mechanics pointed to a figure crouched over a stack of batteries in a corner of the garage. The figure looked up without surprise.

"I think this should work. Put your thumb on the bearing tube and, when I connect up to the battery, give it a flick."

I looked doubtfully at the battery, the machine and the wires in turn.

"I'm telling you, Stefan, those wires will simply melt." He didn't answer. He forced the bare ends of the wires hard against the battery terminals. There was a shower of sparks and an eruption of smoke from the blistering cable ends. I gave the tube a flick. It took up a life of its own which all but had the skin off my thumb. The tube connecting the bearing outers spun up to what must have been at least 1500 rev/min before the connecting wire, unequal to the enormous current, disintegrated.

"You see it turn?"

I looked at the burgeoning friction burn on my thumb.

"Yes."

I also looked at the acrid blue haze of PVC smoke which was rolling across the floor towards the group of curious mechanics.

"Your bearing motor certainly works but I shall need a bit more convincing about it being a net producer of energy."

Dr Marinov simply gave me a look which suggested that all his efforts had been in vain.

Frank Ogden

possible.

During rotation the ball's "bulge" moves from the one race to the other, the local overheating is absorbed by the ball and the radius of the "bulge" becomes equal to the radius of the whole ball. At the new point of contact, when current passes and ohmic heat is produced, the radius of the contact point becomes again bigger than the radius of the whole ball and again a driving torque appears. Thus, as a result of the mechanical motion, the ball is not cooled; and consequently, in the ball-bearing thermal engine, heat is not transformed into kinetic energy. The whole heat which the current delivers remains in the metal substance of the machine and increases its temperature. If the ohmic resistance between balls and races is the same both at rest and in rotation, the heat produced and stored in the metal of the machine will be the same at rest and rotation. This resistance, however, increases in rotation; but with further increase of the velocity the increase of resistance is very slight.

I established that the ball-bearing motor produces the same amount of heat at rest and rotation in the following manner. I measured for a definite time the temperature increase in a calorimeter in which the motor was maintained at rest, applying a tension U and registering the current I . Thus the resistance of the whole motor was $R = U/I$. Then I started the motor and applied a tension U' such that at the new resistance R' the current $I' = U'/R'$ was such that $UI = U'I'$; i.e., in both cases I applied exactly the same electric power. According to the energy conservation law, in both cases the temperature increase of the calorimeter had to be the same, as in both cases the same amount of electric energy was put in the machine.

I recorded, however, that in the second case the temperature increase of the calorimeter was higher. Thus I concluded that in both cases the ohmic produced heat was the same; however in the second case there was also heat coming from the friction of the rotating ball-bearings. The temperature increase in the second case was about 8%, while the mechanical energy produced was about 10% of the input electrical energy.

One can see immediately that the ball-bearing motor has no back tension because there are no magnets, and the magnetic field of the current in the "stator" cannot induce electric tension in the metal of the "rotor".

Thus the firm conclusion is to be drawn that the mechanical energy delivered by the ball-bearing motor is produced from nothing, in a drastic contradiction to the energy conservation law.

With a direct current supply, the ball-bearing motor can rotate either left or right. Thus it cannot be an electromagnetic motor, since a DC electromagnetic motor rotates only in one direction, with a given direction of the current. The ball-bearing motor rotates with DC as well as with AC. With a greater current it rotates faster. It is interesting to note that the resistance of the ball-bearing motor depends on the current, and for higher current it is lower. If the current doubles, say, the applied tension

in 1966 I was imprisoned in a psychiatric clinic in Sofia and "cured" by horse-doses of neuroleptics (Magepil), of my unorthodox political thinking. Also imprisoned in the institution to be forcibly cured was another seemingly absolutely normal man. He was a very able mechanic who, refusing to work for a salary in a state plant, had executed special work on his own lathes and milling tools installed in his living room and the apartments of relatives. He had earned good money, but evidently the envy of his neighbours had brought him to the loony-bin to be purged of his vicious individualistic behaviour.

This man asked me once in the toilet (as a very dangerous lunatic I was kept locked the whole day in isolation and watched by a policeman, and so it was only in the toilet that I could speak with other human beings). "Well, Stefan, if you are a physicist, explain why an axle on ball-bearings rotates when current flows through it".

I could not give an answer, and the mechanic shook his head: "What are the professors in the universities teaching. If they cannot explain such a simple thing!"

At that time I did not know that this simple experiment was unknown to the professors; the first publication on this effect was to appear a year later. Ergo, when this extreme

increases only, say, 1.3 times. Here I wish to avoid any confusion between the increase of resistance because of the increase of the rate of rotation, and the decrease of resistance because of the increase of current; although, obviously, a higher current leads to a higher rate of rotation. The torque disappears if the ball-bearings are replaced by box-bearings.

At equal applied electrical powers and equal number and size of the balls (i.e., at equal resistance), the torque is bigger for a ball-bearing with bigger bore. A ball-bearing with two times bigger bore has two times bigger torque. Fig.2 shows two ball-bearing motors with a small and a large bore which have almost equal ohmic resistances (of course, the mechanical friction of the bigger motor is greater). By touching both motors, one can immediately feel the difference in their torques. The bigger ball-bearing has greater number of balls and consequently a bigger torque; however, its current (and power) consumption are higher.

IMPROVING PERFORMANCE

Methods of improving efficiency in the ball-bearing motor include the following:

- The use of balls which are harder and where a smaller amount of heat leads to larger thermal extension. We know that normally a harder solid body has a lower coefficient of thermal dilatation, so that one has to find the optimal solution which nature offers.
- Tighter ball-bearings have a better pushing force. However, at the same time they will have more friction. A compromise is needed. But even if friction is very low, there is always a maximum velocity which the motor cannot surpass. At this maximum velocity, heat from the "bulge" cannot be absorbed by the ball, and the ball retains

ly important effect was discussed by the idiots in the toilet of a Bulgarian psychiatry, it was not yet registered in the scientific annals of the physical world.

Milroy¹ describes the effect without giving an explanation for the torque. Eleven years later Gruenberg² repeated Milroy's experiment and tried to give an explanation. Although he used very sophisticated mathematics, Gruenberg's starting hypotheses are physically nonsensical. A further three years later, Weenink³, in a big article proceeding from the same nonsensical starting hypotheses, drew the conclusion that "the non-zero torque in first order found by Gruenberg is shown to be due to an algebraic error" (p.171).

Another theoretical paper dedicated to the ball-bearing motor was published a further two years later by van Doorne⁴ who tried to explain the torque by electrostatic forces, but concluded that "this torque, however, is too small to keep a ball-bearing motor running" (p.327). In 1980 A. Mills⁵, in a popular journal, showed a photograph of a ball-bearing motor constructed by him and reported almost the same effects as Milroy and Gruenberg. Not once, though, was Mills able to self-start the motor, though this can be done very often (10% probability) when the ball-bearings have a greater bore.

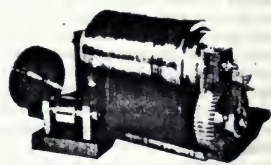


Fig.2. Small and large ball-bearing motors. A low-voltage, high-current supply is suitable.

more or less a spherical shape. It is obvious that the maximum velocity is higher for larger balls.

- The driving force is higher for bigger bores, as the curvature of the races is less.
- The driving force is greater for bigger balls, as their curvature is less.

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EFFECT OF REFLECTION FROM A MOVING MIRROR ON THE VELOCITY OF LIGHT

By A. A. MICHELSON

According to the undulatory theory of light the velocity of light is independent of the velocity of the source, and of the velocity of a mirror at which it is reflected.

According to the emission theory the resultant velocity from a moving source is increased by the component of the velocity of the source. But it appears that different forms of emission theory require different results on reflection from a moving mirror. If the light corpuscles are reflected as projectiles from an elastic wall, then the velocity of light should be increased by twice the component of the velocity of the mirror.¹

The following arrangement was devised for the purpose of deciding the question experimentally.

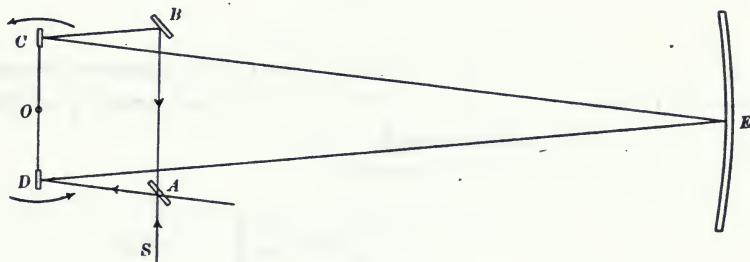


FIG. 1.—Diagram of apparatus

Light from a source at *S* falls on a lightly silvered mirror *A*. The reflected pencil goes to a revolving mirror *D*, thence to the concave mirror *E*, to the second mirror *C* revolving about the same axis *O*, whence it proceeds to the plane mirror *B* and is reflected back to *A*. The transmitted pencil pursues the same path in the

¹ An alternative hypothesis, that the velocity of light should be increased by the component of the velocity of the mirror, is suggested by R. C. Tolman but shown to be inadmissible (R. C. Tolman, "Some Emission Theories of Light," *Physical Review*, August 1912).

opposite direction, returning via DA to the starting-point, where it meets the first pencil, producing interference fringes which are observed by means of a telescope with micrometer eyepiece.

According to the undulatory theory the velocity of light is unaffected by the velocity of the mirror while the emission theory¹ requires that

$$\bar{V} = V + rv$$

where $\bar{V}$ is the velocity of light after reflection, V the velocity before reflection and v the component of the velocity of the mirror in the direction of the reflected pencil, and $r=2$ according to the elastic impact theory; while $r=1$ if the mirror surface acts as a new source.

The time occupied by the pencil DEC is

$$T_1 = \frac{2(D+d)}{V_1}$$

while that taken by the pencil CED is

$$T_2 = \frac{2(D-d)}{V_2}$$

where D is the distance OE , d = distance the revolving mirror moves while light passes over DEC , and V_1 the resultant velocity of the first pencil, V_2 that of the second.

The difference in time is therefore

$$T_1 - T_2 = 2 \left[\frac{D+d}{V+rv} - \frac{D-d}{V-rv} \right].$$

But

$$\frac{d}{2D} = \frac{v}{V}$$

whence²

$$T_1 - T_2 = 4 \frac{D}{V} (2-r) \frac{v}{V}.$$

¹ According to the theory of Ritz (*Annales de chimie et de physique*, Ser. VIII, 13, 1908) the velocity of light is not affected by reflection from a moving mirror, but is affected by the motion of the source.

² Omitting quantities of the second order; v should be replaced by $v \cos \alpha$, but since α is only 3° , the factor $\cos \alpha$ may be taken equal to unity.

The corresponding displacement of the interference fringes is

$$\Delta = \frac{V(T_1 - T_2)}{\lambda} = 4 \frac{D}{\lambda} (2 - r) \frac{v}{V}$$

$$\text{For } r = 0 \quad \Delta = 8 \frac{D}{\lambda} \frac{v}{V}$$

$$\text{" } r = 1 \quad \Delta = 4 \frac{D}{\lambda} \frac{v}{V}$$

$$\text{" } r = 2 \quad \Delta = 0$$

The experiment was tried under the following conditions.

The revolving mirrors were mounted on the shaft of an electric motor the speed of which (measured by a speed counter) could be varied from zero to 1800 revolutions per minute. The distance between centers of the mirrors was $l = 26.5$ cm;[†] the distance OE was 608 cm. The light of the carbon arc (in one experiment, sunlight) was filtered through a gelatine film transmitting light of mean wave-length $\lambda = 0.60$.

The formula for the displacement,

$$\Delta = 8\pi n \frac{l D}{\lambda V} \quad \text{if } n \text{ is turns per sec.}$$

or

$$\Delta = \frac{8}{60} \pi N \frac{l D}{\lambda V} \quad \text{if } N \text{ is turns per min.}$$

gives with these data and $r = 0$ a displacement of 3.76 fringes for 1000 revolutions per minute.

Following is a table of results of observations reduced to this speed.

It appears therefore that within the limit of error of experiment (say 2 per cent) the velocity of a moving mirror is without influence on the velocity of light reflected from its surface.

Assuming that the effect is actually nil, this interference method may be used to measure the velocity of light with an order of accuracy equal to that of the improved Foucault method or of the "combination" method proposed in an article in the *Phil. Mag.*,

[†] This agrees within less than 1 per cent with the distance calculated from the measured distance AB of the interferometer mirrors.

ON THE VELOCITY OF LIGHT

193

March 1902. Any one of these three methods is capable of furnishing results of the order of accuracy of one part in one hundred thousand; and differential measurements (e.g., with the light of the

	Δ	Weight
1.....	3.8	1
2.....	3.1	1
3.....	3.2	1
4.....	4.3	2
5.....	3.8	2
6.....	3.93	3
7.....	3.83	4
3.81 = weighted mean		
3.76 = calculated displacement		

two limbs of the sun) can be obtained with a still higher degree of precision; and thus the effect of a moving source on the velocity of light could be determined.

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COMMENTS OF STEFAN MARINOV ON THE ABOVE MICHELSON'S PAPER

The above paper of A. A. Michelson, which has fallen into oblivion and is almost unknown to the space-time specialists today, has come to my attention only recently via Beckmann's book "Einstein plus two".

Publishing it in TWT-VI, I wish to show ^{that} this Michelson experiment and my interferometric "coupled mirrors" experiment ⁽¹⁾ are technically ONE AND THE SAME EXPERIMENT. Thus if to Michelson would had come the idea to transform his experiment in my interferometric "coupled mirrors" experiment, he would be able to measure the Earth's absolute velocity in 1913 and the world would be saved from the relativistic pest.

Indeed the difference between Michelson's experiment and my interferometric "coupled mirrors" experiment is only the following:

As Michelson measures two-way light velocity, its experiment is insensitive to effects of first order in v/c , where v is the absolute velocity of the laboratory, while as in my experiment one-way light velocity is measured, it is sensitive to effects of first order in v/c .

To obtain the interferometric "coupled mirrors" experiment from the above Michelson

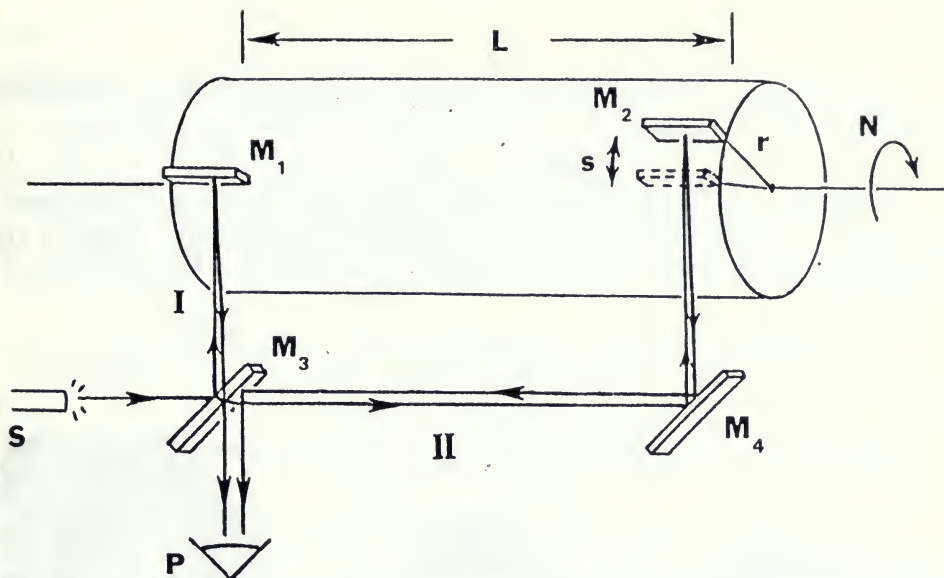


Fig. 1. The interferometric "coupled mirrors" experiment

experiment, mirrors C and D which are put at the opposite ends of a rotating rod with length $l = 2R$ must be put at the rims of two rigidly rotating disks with radius R , the distance d between which is equal to the double distance OE in Michelson's experiment.

Now I shall compare the "parameters" of both experiments and their sensitivities as estimated by me and by Michelson (see fig. 1 above and fig. 1 in Michelson's paper).

1. The effect in my interferometric "coupled mirrors" experiment is the shift Δ_1 , i.e., the difference (in units of length) between the light ray reflected by mirror M_2 and the light ray reflected by mirror M_1 because the photons in the first ray must come to the separation point at the semi-transparent mirror M_3 with a certain time delay for the cases where the axis of the apparatus is first perpendicular to the laboratory's absolute velocity and then parallel to it. This shift is (see formula (19.7) in Ref. 1, or formula (2) in Ref. 2, or formula (52.3) in Ref. 3)

$$\Delta_1 = 4\pi d_1 R_1 N_1 v / c^2, \quad (1)$$

where d_1 is the distance between the mirrors, R_1 is the radius of the rotating mirrors, N_1 is the number of revolutions per second of the shaft and v is the absolute velocity of the laboratory.

For the relation of this shift to the wavelength of the used light, i.e., for the so-called "displacement" (measured in units equal to the length of the wavelength), we obtain

$$z_1 = \Delta_1 / \lambda_1 = 4\pi d_1 R_1 N_1 v / \lambda c^2 = K(v/c). \quad (2)$$

In my experiment I had⁽¹⁻³⁾ $d_1 = 140$ cm, $R_1 = 40$ cm, $N_1 = 120$ rev/sec, $\lambda = 6.33 \times 10^{-7}$ cm. Thus

$$K = 4\pi d_1 R_1 N_1 / \lambda c = 4.45. \quad (3)$$

Consequently if my experiment should be performed for the cases when the mirrors first are at rest and then moving, the shift will be 4.45 wavelengths. Indeed, I established (see p. 190 in Ref. 3) that by changing N with 13 rev/sec the shift was half a wavelength.

I estimated my measuring error (when measuring v !) to be (see formula (19.4) in Ref. 1)

$$\delta z = (1/\pi) 8 \times 10^{-4} = 2.5 \times 10^{-4}. \quad (4)$$

Indeed, as my estimated measuring error in v was $\delta v = 17$ km/sec, we obtain

$$\delta z = K \delta v / c = 2.5 \times 10^{-4}. \quad (5)$$

2. The effect in the above Michelson's experiment is the shift Δ_2 , i.e. the difference between the paths of the light ray reflected by mirror D and the light ray reflected first by mirror C because the photons in the first ray must come to the separation point at the semitransparent mirror A with a certain time delay for the cases when the mirrors C and D are not rotating and rotating. This shift is (see the relevant formula above)

$$\Delta_2 = 4\pi(2d_2)(2R_2)N_2/c, \quad (6)$$

where $d_2 (= OE)$ is the distance between the center of the rotating rod and the mirror E, $R_2 (= 1/2)$ is the half-length of the rotating rod and N_2 is the number of revolution per second.

For the relation of this shift to the wavelength of the used light, i.e., for the so-called "displacement", we obtain, for $d_2 = 608$ cm, $R_2 = 13.25$ cm, $N_2 = 16,66$ rev/sec $\lambda = 6 \times 10^{-5}$ cm,

$$z_2 = 16\pi d_2 R_2 N_2 / \lambda c = 3.75. \quad (7)$$

Michelson estimated his error to be, "say", 2%, i.e., two per cent of the wavelength while my estimated error was eighty times lower, i.e., 0.025%. However, Michelson measured his shift with his eye, while I measured it by registering the signals coming from photoresistors to a sensitive Wheatstone bridge. On the other hand, Michelson did measurements having first the rotor at rest and then rotating, while I did measurements at a constant rate of rotation of the shaft.

Here I should like to cite the comments of my anonymous FOUNDATIONS OF PHYSICS referee sent to me by the editor, Prof. van der Merwe, on the 23 June 1983 (see Ref. 4):

I was informed by (the name deleted) of the Department of the Air Force, Air Force Office of Scientific Research, Bolling Air Force Base, that Dr. Marinov's experiments were to be repeated by the Joint Institute for Laboratory Astrophysics. On inquiry, I learnt that JILA is not carrying out the experiments, because preliminary engineering studies had indicated that it lay beyond the expertise of the laboratory to achieve the mechanical tolerance needed to ensure a valid result.

IGNORANT CRIMINALS!

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Roberto Monti,

Stefan Marinov,

Renzo Boscoli

(in Boscoli's villa in Emilia-Romagna in the hot April days
of the cold fusion euphoria 1989)

MARINOV'S INTRODUCTION OF ZAMBONI'S PAPERS

... certo non può non essere ammirabile una vita di PERENNE movimento spirata dall'Elettrico nella bruta materia: dall'Elettrico dominatore superbo nelle regioni dell'aria, e schiavo incatenato quaggiù nelle pile: novello Sansone, che, fiaccato il nerbo delle forze, altro non può che mandare in giro una ruota.

G. Zamboni

Prof. Omero Speri gave me in April 1989 a photocopy of Zamboni's booklet *ELETTRICO-MOTORE PERPETUO* and of Zamboni's 1835-paper in which he defends (against the attacks of de la Rive) his concepts that the MnO_2 dry batteries preserve their tension eternally, independently of the fact whether they deliver or not electric current.

Zorzi and Speri have constructed a similar dry battery. I saw it. The battery presents an absolutely hermetically sealed up box from which only two wires come out. The tension was 153 mV. One can close the electrodes shortly whatever time (the flowing current is of the order of tens of picoamperes) but the tension on the electrodes remains always 153 mV. For years no change was registered in the produced tension. The battery is free for sale under the following condition: The battery will be delivered free of charge and will remain at the customer shortly circuited. If after three months its tension will remain the same, the battery will be bought; if the tension will fall, the battery will be returned.

Such a battery, apparently, has constructed the reader of the P.M. MAGAZIN Karl Brauer (read the information which I publish after Zamboni's papers).

The abbé Giuseppe Zamboni, who was a professor in the royal lyceum in Verona, has constructed first "eternal" dry batteries. One of his batteries drives since 1840 a clock which is in the Clarendon Laboratory in the Oxford University and can be visited by any curious person.

I reproduce in TWT-VI only the initial and the final pages of Zamboni's booklet and paper, as there are too many details which will be boring for the reader. All figures which are enclosed to the booklet are reproduced.

I should like to turn out reader's attention to fig. 27 of Zamboni's booklet which represents a machine moving eternally, if we should assume that the battery will keep its tension eternally. The principle of action of this electrostatic machine is clear from the figure (and is similar to the principle of action of Zamboni's clock presented in fig. 28).

Paul Baumann told me that his first perpetual motion machine, which he constructed in the prison before the wheel machines shown on pp. 30 and 31 of TWT-V, had exactly the same kind of motion as the machine in fig. 27 of Zamboni's booklet. Baumann did

not tell me whether there were dry batteries in his machine (as in Zamboni's machine) or there were no batteries (as in TESTATIKA), and as I presume that the case was.

I am very curious to learn whether Baumann has heard or read about the eternal clock of Zamboni, about the influence machines, about Whimshurst's machine, about the electrostatic motors of Holtz-Poggendorf-Grüel, or he himself has REDISCOVERED all these machines and moreover has done paces which none of his predecessors was able to do, namely to generate eternal motion without the use of batteries and producing in parallel huge amounts of free energy.

There is a great dispute whether Zamboni's eternal clock is a perpetuum mobile or not. The sustainers of the opinion that it is a perpetuum mobile (as me) assert that it will "tick" eternally and that no chemical reactions take place in the batteries. The supporters of the energy conservation law sustain the opinion that some day it will stop, as irreversible chemical reactions take place in the batteries and the "lost chemical energy" transforms into kinetic energy.

But to have an experimental demonstration of the perpetuum mobile concepts, we have to await some 3-4 thousands years to see whether Zamboni's clock will stop its motion.

I should like only to note that conventional physics obviously is not very pleased with the 150-years ticking of Zamboni's clock and hides its existence. There is no textbook all over the world where the existence of this clock will be mentioned.

My cousin, Prof. Evgeni Budevski, who is director of the Laboratory for chemical sources of electrical energy in Sofia, Bulgaria, visited my lecture at the Technovafair on the 9 June 1989 in Graz. I told him about Zamboni's eternal battery. He has never heard about it. Budevski is one of the world's authorities in electro-chemistry and he has never heard about the eternal clock in Oxford. What to say about the other less informed persons. Let me add that Zichichi-i-i-i has invited Budevski at the conference in Erice, Sicily, in April 1989 for a discussion of the cold fusion "observed" by Fleischmann+Pons and Johnes. The opinion of my cousin (who has published papers together with Fleischmann) from the very beginning categorically was: there is no fusion.

SULL'
ELETTROMOTORE PERPETUO

ISTRUZIONE TEORICO-PRATICA

DELL' ADATE

GIUSEPPE ZAMBONI



Verona

TIPOGRAFIA DI G. ANTONELLI

1843.

SULL'

ELETTROMOTORE PERPETUO

ISTRUZIONE TEORICO-PRATICA

DELL' ABATE

GIUSEPPE ZAMBONI

PROFESSORE DI FISICA SPERIMENTALE E MATEMATICA APPLICATA
NELL' IMP. R. LICEO DI VERONA, MEMBRO EFFETTIVO PENSIONATO
DELL' IMP. REG. ISTITUTO VENETO, UNO DEI QUARANTA DELLA
SOCIETÀ ITALIANA DELLE SCIENZE, E SOCIO DI VARIE ACCADEMIE



VERONA

TIPOGRAFIA DI GIUSEPPE ANTONELLI

1843.

A CHI LEGGE

Un istromento elettrico di tal forza motrice, che dall' esperienza di trenta e più anni, si appalesa ormai duratura per un tempo indefinibile, ben si merita le cure del Fisico per comunicargli la maggior possibile energia, e l'industria del meccanico per cavarne alcuna utile applicazione. Tal si è la *Pila elettrica secca*; ossia *Elettromotore perpetuo*, subbietto dell'Opera che ho pubblicata nel 1820, in due volumi: il primo de' quali è un trattato elementare di elettricità, e l'altro versa unicamente sulla detta pila.

Ora poi considerando ciò che più importa in quest' Opera, e le novità sopravvenute, anzi che ristamparla con aggiunte, ho creduto meglio restringer tutto ad una Istruzione per così dir popolare. Imperciocchè o si voglia costruire, e disporre acconciamente ogni parte di questa macchina, o debbasi ripulire, o rimediare a qualche disordine occorso, è troppo necessario, che l'operatore sappia dirigere la forza elettrica, che tien vivo il moto del pendolo, ed abbia in pratica cotesta forza, come le altre dei pesi e delle molle nei comuni orologi.

Il perchè non fa qui mestieri un trattato completo di elettricità, ma soltanto una sposizion facile e piana delle dottrine elettriche più importanti allo scopo sopraccennato. Pertanto l' Istruzione sarà divisa in tre parti.

La prima darà le nozioni, e teorie fondamentali sull'elettrico.

La seconda tratterà degli Elettromotori, e costruzione delle Pile secche.

La terza degli usi ed applicazioni di queste Pile. Io spero ch' eziandio a' Fisici di professione non tornerà discaro questo mio lavoro, che nella seconda sua parte spiega diffusamente dottrine speciali sulla pila secca, e vien poi nella terza a propagare anche fuori de' Gabinetti di Fisica le maraviglie e con esse l'amor della scienza: che al certo non può non essere ammirabile una vita di perenne movimento spirata dall'Elettrico nella bruta materia: dall'Elettrico dominatore superbo nelle regioni dell'aria, e schiavo incatenato quaggiù nelle pile: novello Sansone, che, fiaccato il nerbo delle forze, altro non può che mandare in giro una ruota.



PARTE PRIMA

NOZIONI E TEORIE FONDAMENTALI SULL'ELETTRICO

§. I.

SEGNI ELETTRICI.

1. *Attrazione elettrica*. Egli è un fatto volgarmente noto, che un pezzo di vetro ben asciutto, o di cera lacca, dopo averlo stropicciato sulla lana, od anche fra le dita ben asciutte, tira a sè una pagliuzza, un fil di refe, o di carta ecc.

2. *Ripulsione elettrica*. Alcuni dei detti minuzzoli, toccato appena il vetro, o la cera lacca per attrazione, via poi se ne fuggono respinti dal corpo che aveali prima attratti.

3. *Luce elettrica*. Sperimentando nell'oscurità, si veggono lampi di luce guizzare e discorrere sulle pareti del vetro, o della cera lacca, all'atto che vengono stropicciate. Que' due movimenti di attrazione, e ripulsione, e questa luce si dicono *segni elettrici*, e chiamasi *elettrizzato* quel corpo, che li produce.

§. II.

ELETTROMETRO.

4. Fra i segni elettrici la *ripulsione* vuol essere qui specialmente considerata nell' Elettrometro; stromento che avremo sempre alla mano nella presente Istruzione.

Viene esso formato da una campana di cristallo, o bottiglia senza fondo di vetro (fig. I.) la qual tiene incollate sull' interna parete l'una rimpetto all' altra due strisce di stagnuola, alte una metà circa dell' altezza della bottiglia, quali si veggono in AB, CD, e comunicanti nella loro estremità A e C con un piano metallico, che saldato con mastice tutto all' intorno della bottiglia, serve a questa di fondo. Oltre a ciò un tubo di cristallo EG coperto dentro e fuori di cera lacca, lungo da due in tre pollici, sporge fuori della bocca della bottiglia pel tratto di circa due pollici, e porta come suo asse un filo metallico FII fisso con un turacciolo di mastice alla metà di sua lunghezza, e sporgente per mezzo pollice fuori dell' estremità del tubo stesso. Questo filo porta inferiormente nel suo termine II una lamina metallica arcuata MO, agli estremi della quale stanno pendenti due fogliette quadrilunghe d' oro battuto alla massima sottigliezza MN, OP, l' una all' altra parallele, distanti due linee circa fra loro, e sì lunghe, che venendo a divergere possano toccare colle loro estremità N,P le stagnuole AB,CD. Il tubo introdotto colle fogliette nella bottiglia vien saldato alla bocca di questa con mastice, e alla sommità F del filo s' innesta a vite una spuolo metallica RS più larga del tubo, lunga poco più di un pollice, e chiusa di sopra dal piano metallico TT' detto il *bottono* dell' Elettrometro.

Prima d' introdurre il tubo colle fogliette, l' aria interna sia ben disseccata, e chiusa la bottiglia da per tutto ermeticamente.

Lo stromento finora descritto è un sagggiatore delicato dei

corpi elettrizzati; poichè se dopo aver anche leggermente sfregata col dito asciutto una canna di cera lacca, voi l'appressate al bottone TT, tosto vedrete il segno elettrico della ripulsione delle due fogliette, che divergono rapidamente.

§. III.

ELETTRICITÀ POSITIVA E NEGATIVA.

5. I predetti fenomeni o segni elettrici si fanno dipendere da un fluido nominato *Elettrico*, fluido sottilissimo, sommamente elastico senza peso, del qual fluido è ripieno ciascun corpo della natura, in dose proporzionata alla capacità del corpo.

Questa capacità de' corpi per contenere l'elettrico si considera provenire da un' attrazione scambievole fra essi corpi, e l'elettrico. E finchè un corpo contiene in sè tanta dose di elettrico quanto esige la sua attrazione per questo fluido, il corpo non produce alcun fenomeno, o segno elettrico; e lo stato di questo corpo dicesi *stato naturale*, o stato di *equilibrio assoluto*. Ma quando nel corpo per qualche operazione (come sarebbe lo sfregamento negli sperimenti del §. I.) vi sia una dose di elettrico maggiore o minore di quella che si conviene alla capacità, od attrazione del corpo, allora questo corpo diviene *elettrizzato*, e produce i fenomeni o segni elettrici, per mezzo dei quali il fluido tende a ricuperare il perduto equilibrio, e quindi rimettere il corpo nello stato naturale di prima.

6. In due modi pertanto l'uno all'altro contrarj si può un corpo elettrizzare. 1.º per eccesso: 2.º per difetto.

Elettrizzato per eccesso, la sua elettricità dicesi *positiva*, e *negativa* quando sia per difetto; e il corpo stesso elettrizzato dicesi *positivo* nel primo caso, e *negativo* nel secondo: ma tanto in un caso come nell'altro si manifestano i tre segni elettrici (§. I.). Imperciocchè incominciando dall' *attrazione elettrica*,

Due di sifatte pile inaccessibili all'aria esistono nel Gabinetto di Fisica dell' I. R. Università di Padova, che ivi anche a temperature inferiori a zero, mantengono sempre vive, da dieci e più anni, le oscillazioni del pendolo, e contano ormai quindici anni di età.

Pongo fine al presente lavoro, ma non cesserò già da ulteriori studj per migliorare, se sia possibile, la condizion delle pile inservienti all' orologio: e l'elettrico di tanta energia nelle Voltiane, che sembra gareggiare persino colle macchine a vapore; anche debolissimo, ma incessante nelle pile secche, abbia col moto continuo ad acquistar pregio nella misura del tempo.

INDICE

A CHI LEGGE Pug. 3

PARTE PRIMA.

NOZIONI E TEORIE FONDAMENTALI SULL' ELETTRICO.

Paragr. I. <i>Segni Elettrici</i>	n 5
II. <i>Elettrometro</i>	n 6
III. <i>Elettricità positiva e negativa</i>	n 7
IV. <i>Conduttori ed Isolanti dell' Elettrico</i>	n 9
V. <i>Carica e Tensione Elettrica</i>	n 12
VI. <i>Elettricità di Pressione ed Elettricità di Carica</i>	n 14
VII. <i>Conduttori più o meno capaci di Carica Elettrica</i>	n 18
VIII. <i>Strumenti Elettrici che risultano dalle Dottrine sovraesposte</i>	
I. <i>Elettroforo</i>	n 23
II. <i>Quadro Magico e Bottiglia di Leyden</i>	n 24
III. <i>Condensatore</i>	n 26

PARTE SECONDA.

DEGLI ELETTROMOTORI, E COSTRUZIONE DELLE PILE SECCHE.

Paragr. I. <i>Facoltà Elettromotrice fra secco e secco</i>	n 28
II. <i>Facoltà Elettromotrice fra secco ed umido</i>	n 31
III. <i>Della Pila Voltiana</i>	n 33
IV. <i>Delle Pile secche</i>	n 40
V. <i>Delle Pile secche di carta d'argento e di Ossido nero di Manganese</i>	n 45
VI. <i>Della Pila Binaria contenuta nelle sole carte metalliche</i>	n 47

Paragr. VII. <i>Avvertenze nel preparare le carte d'ar-</i> <i>gento col manganese</i>	Pag. 49
VIII. <i>Divisione dei fogli in coppie e formar-</i> <i>zione della Pila</i>	" 51
IX. <i>Regole per misurare la tensione elettrica</i> <i>delle Pile secche</i>	" 55
X. <i>Delle cause influenti, nella, tensione elet-</i> <i>trica delle Pile.</i>	
I. <i>Umidità</i>	" 57
II. <i>Calorico</i>	" 61.
III. <i>Estensione delle coppie</i>	" 63
IV. <i>Compressione delle coppie</i>	" 64.

PARTE TERZA.

DEGLI USI ED APPLICAZIONI DELLE PILE ELETTRICHE SECCHE.

Paragr. I. <i>Elettroscopio con due Pile secche . . .</i>	" 68.
II. <i>Sperienze Elettrometriche</i>	" 71
III. <i>Sperienze sulla teoria della Pila Voltiana . . .</i>	" 73.
IV. <i>Fenomeni elettrodinamici della pila secca . . .</i>	" 76.
V. <i>Degli usi meccanici delle pile secche . . .</i>	" 78.
<i>Regole generali per la continuazione del</i> <i>moto fra due pile</i>	" ivi.
VI. <i>Applicazioni delle regole precedenti a va-</i> <i>rie specie di moto meccanico</i>	" 84.
VII. <i>Disposizion delle pile per il moto oscillatorio . .</i>	" 85
VIII. <i>Moto rotatorio orizzontale</i>	" 86.
<i>Moto oscillatorio verticale</i>	" ivi
<i>Altaleno</i>	" 87
<i>Dell'Orologio applicato alle pile</i>	" 88.

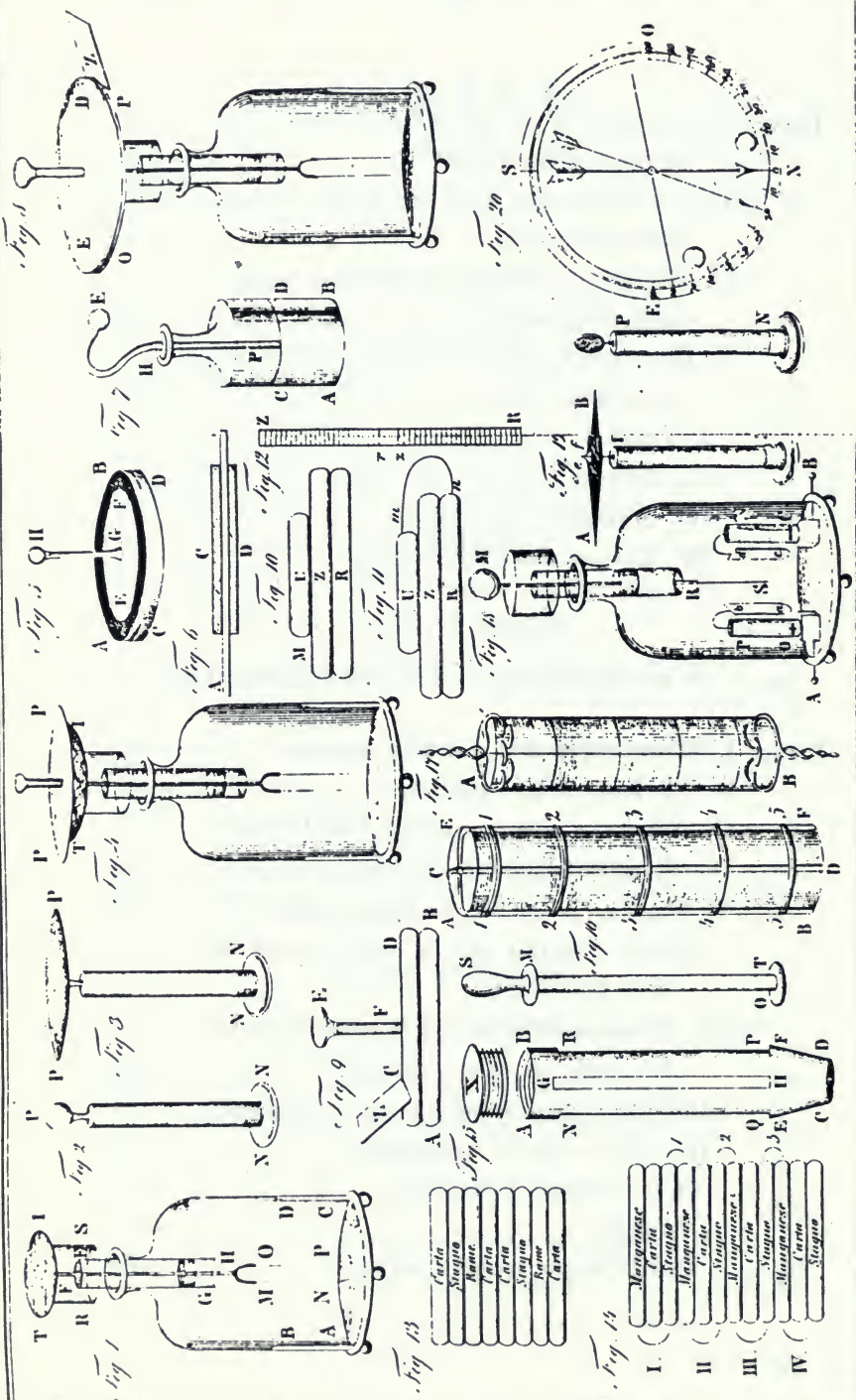


Fig. 21.

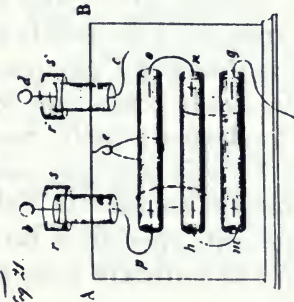


Fig. 22.

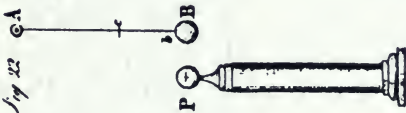


Fig. 23.



Fig. 24.

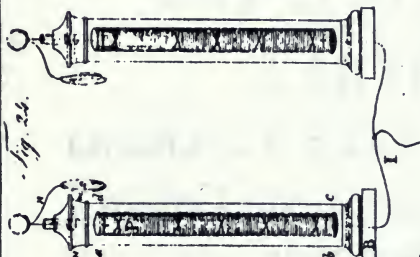


Fig. 25.

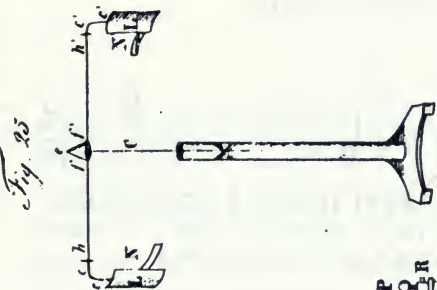


Fig. 26.

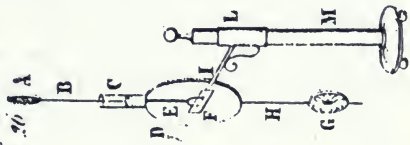


Fig. 27.

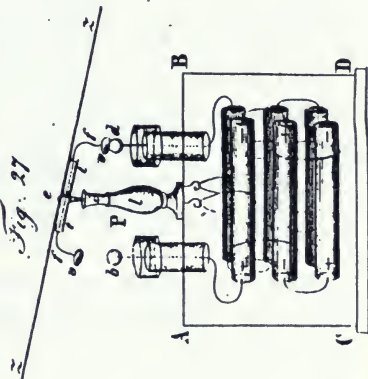


Fig. 28.

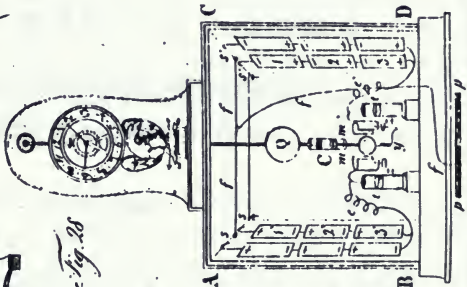


Fig. 29.

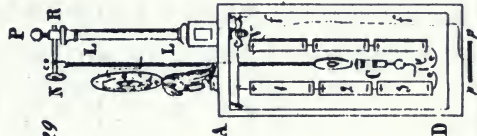
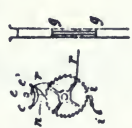


Fig. 30.



A. Stefano Marimon
Sc. Giuseppe Zamboni

B-4-89

DIFESA

DEGLI ARGOMENTI TRATTI DALLE PILE SECCHIE

PER LA TEORIA VOLTIANA

CONTRO LE OBBIEZIONI

DEL SIGNOR DE LA RIVE

MEMORIA

DELL' A. B. GIUSEPPE ZAMBONI

PROF. DI FISICA ESPERIMENTALE E MATEMATICA APPLICATA

NELL' L. R. LICEO DI VERONA

(published in the year 1835)

Già fin dal 1814 è notissima a' Fisici la pila elettrica singolare, che ho nominato *binaria*; perchè ogni suo elemento contiene un solo conduttore secco interposto fra due strati d'uno stesso umido con disuguaglianza di contatto. Io l'argomentai dalla tensione elettrica, che si manifesta in una pila composta, o di sole carte d'argento, o di sole carte d'oro. Ma perciocchè nella costruzione delle pile secche, abbandonata fin da principio la carta d'oro, vi ho sostituito l'ossido nero di manganese, così allora il mio studio rivolsi alla pila binaria contenuta nella sola carta d'argento; e di questa soltanto ho parlato diffusamente nella mia Opera sull' *Elettromotore perpetuo*. In appresso, sì per migliorare la costruzione delle pile, come ancora per esaminare i fondamenti della nuova Teoria Elettro-chimica, ho ripigliato le mie indagini sopra ciascuna delle predette due carte: e meglio conosciuta l'elettrica sua influenza, mi risultarono argomenti speciali a favore della Teoria Voltiana, che mi propongo di sostenere nella pre-

2

sente Memoria contro le obbiezioni del Sig. De la Rive, e dimostrare:

I. Che il contatto fra due conduttori eterogenei produce tensione elettrica senza intervento di azione chimica. II. Che ammessa la detta tensione anche per l'azione chimica dell'umido coi metalli, il mutuo contatto di questi è la sorgente primaria dell'eccitamento elettrico nelle pile Voltiane.

PARTE PRIMA.

I. Pel primo assunto io vengo innanzi colle pile secche di carte d'oro e d'argento, le quali dopo ventiquattro anni di età, non già come dice il Sig. De la Rive (1) *donnent encore des traces d'électricité de tension bien sensibles*, ma conservano la tensione medesima de' primi anni senza indizio alcuno di ossidamento.

Che queste pile tenute accessibili all'aria riprendano da questa l'umido che avessero perduto, non si può negarlo, ma non può dirsi lo stesso di quelle che fin dalla lor costruzione si mantennero inaccessibili all'aria, avendole contornate di un grosso strato di mastice o chiuse ermeticamente in tubi ben isolanti, e ritengono tuttavia dopo sì lungo tempo la tensione medesima. La costanza di questo effetto come mai spiegarla colla nuova teoria? L'azione chimica continua doveva al certo in tanto tempo scomporre, ed esaurire il pochissimo umido delle carte chiuse ermeticamente, e sarebbesi quindi veduta la tensione via via scemando d'anno in anno, estinguersi totalmente.

II. Voglionsi qui notare tre cause assegnate dal Sig. De la Rive per l'ossidamento continuo delle foglie metalliche e sono:

1.° L'umidità naturale della carta a parer suo più ossidante dell'acqua pura.

(1) Bibliot. Univers. Mars 1837 p. 193.

Qual cosa più parlante di sifatta esperienza per mettere sott'occhio il contatto metallico, come sorgente primaria dell'eccitamento elettrico? Quanto servizio alla dottrina del Volta dalle pile secche, che sono pur tutte cosa sua. Egli trovò dappprincipio contraddittori, che negavangli l'identità dell'elettrico della pila con quello delle macchine ordinarie; e la pila secca mostrando la tension de' suoi poli o più viva, od estinta, col ricevere elettricità simile o contraria da esse macchine, finì di convertire i più pertinaci. Insorgono adesso potenti avversari per abbattere il fondamento della sua scoperta, la teoria del contatto; e le pile secche gli preparano, io spero, una seconda vittoria.

F I N E.

RÜCKBLLENDE

P.M.-Leser baute Wunder- batterie nach

Zu dem Bericht »So funktioniert die englische Wunderbatterie« in P.M. Nr. 6/84:

Angeregt durch die Beschreibung der Batterie, die im Clarendon-Laboratorium in Oxford (England) schon seit über 140 Jahren arbeitet, hat P.M.-Leser Karl Brauer aus Hannover eine ähnliche

Batterie nachgebaut. Nach vielen Vorversuchen hat er in zweimonatiger Arbeit folgendes Prinzip angewandt:

Er hat eine neue Taschenlampenbatterie zerlegt und das Gemisch aus Mangandioxid und Kohlepulver sorgfältig herausgewaschen. Das so entstandene Pulver hat er mit destilliertem Wasser, Tapedienkleister und etwas Holzleim angerührt und auf die eine Seite von Schreibmaschinenbögen gestrichen. Nach dem Trocknen hat er die Bögen von der anderen Seite mit Zinkfarbe bestrichen.

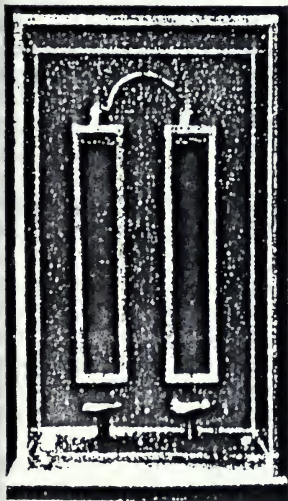
Die so behandelten Papierbögen hat er nach dem Trocknen gepreßt und in zwei mal zwei Zentimeter kleine Quadrate zerschnitten. In zwei Plexiglasgehäusen hat Herr Brauer je 620 der so entstandenen Plättchen gestapelt, und zwar links mit der Zinkseite nach oben.

Oben und unten bildet je eine Metallplatte den Ab-

schluß und stellt gleichzeitig den elektrischen Kontakt zu den Klingeln her. Zwischen den beiden Glocken hat Herr Brauer an einem Seidenfaden eine kleine Kugel aufgehängt, die nun hin- und herschwingt wie in dem P.M.-Bericht beschrieben.

Die Spannung zwischen den beiden Glockenschalen wurde von Herrn Brauer mit Hilfe eines speziellen hochempfindlichen Elektroskops gemessen. Sie beträgt etwa 1450 Volt. Die Frequenz, mit der die Kugel die Glöckchen berührt, beträgt 0,6 Hertz.

Die Aussichten, daß auch diese Batterie über viele Jahre halten wird, sind sehr gut. Herr Brauer hat es jedoch abgelehnt, uns in 140 Jahren Bescheid zu geben, ob die Anlage dann noch bimmelt. ★



Die Wunderbatterie von Karl Brauer: Niedrige Stromleistung und hohe Spannung verheißen eine lange Lebensdauer.

PRINCIPLES OF ELECTROSTATIC MOTORS WITH FREE ENERGY MERIT.

Dr Panos T. Pappas,

Professor of mathematics, Professor of Physics.

Marcopulioti 26, Athens 11744, Greece.

An electrostatic motor is based on the action of forces of electric charges. Such forces have been well investigated to depend* on a central inverse square law, i.e. the Coulomb law for electric charges. This law is the most typically known law to imply a conservative field, i.e. a field to balance energy transaction for any closed motion of the charges. Therefore, the electrostatic field is the most inappropriate force field to produce an excess energy balance in a closed path motion. Any perpetual mobile machine of finite size will depend on one or on several closed motions. Consequently, a perpetual mobile electrostatic machine should actually incorporate the action of a different principle.

For such an action related to an electrostatic field, we may think that of an arc associated with a discharge of the electrostatic field. Indeed, in reference (1) it is proved that according to the Cardinal Law of Electrodynamics of Ampere, the most fundamental and infallible law, excess energy occurs in an arc of a discharge under certain circumstances. Excess energy many times the electronivolts** available by the potential, is systematically measured in charges accelerated in arc discharges, and constantly reported in the literature, references (2), since many years. This fact is also expressed by the negative resistance, typically known in electrical engineering for certain arcs:

$$R = dU/dI < 0 \quad 1.$$

However, according to this equation and assuming the resistance of the arc is a negative constant, as long as the arc practically conducts, then the energy transaction is:

$$Q = \int IRdI = I^2 R t \quad 2.$$

The sign of Q is the sign of R. For a positive R, Q is positive and dissipative. However, for R negative, Q is also negative and Q stands for the opposite of dissipation, i.e. the energy offered to the circuit.

According to the above considerations we may suggest a model of an electrostatic motor with a free energy merit. By free energy merit we mean that the overall output energy, useful work plus dissipation, is in excess to the input energy. Whether this motor will be a perpetual mobile depends on the useful work versus the dissipation. Dissipation as a low form of energy, contrary to the useful work, can not be recycled. Therefore, though the energy output may be in excess, the recyclable energy may be below the required to keep the motor running. However, a motor with a free energy merit can always in principle be upgraded to minimize dissipation and maximize useful work so that to become an over

*depend

**electronvolts

unity machine, i.e. a machine with performance coefficient greater than unity.

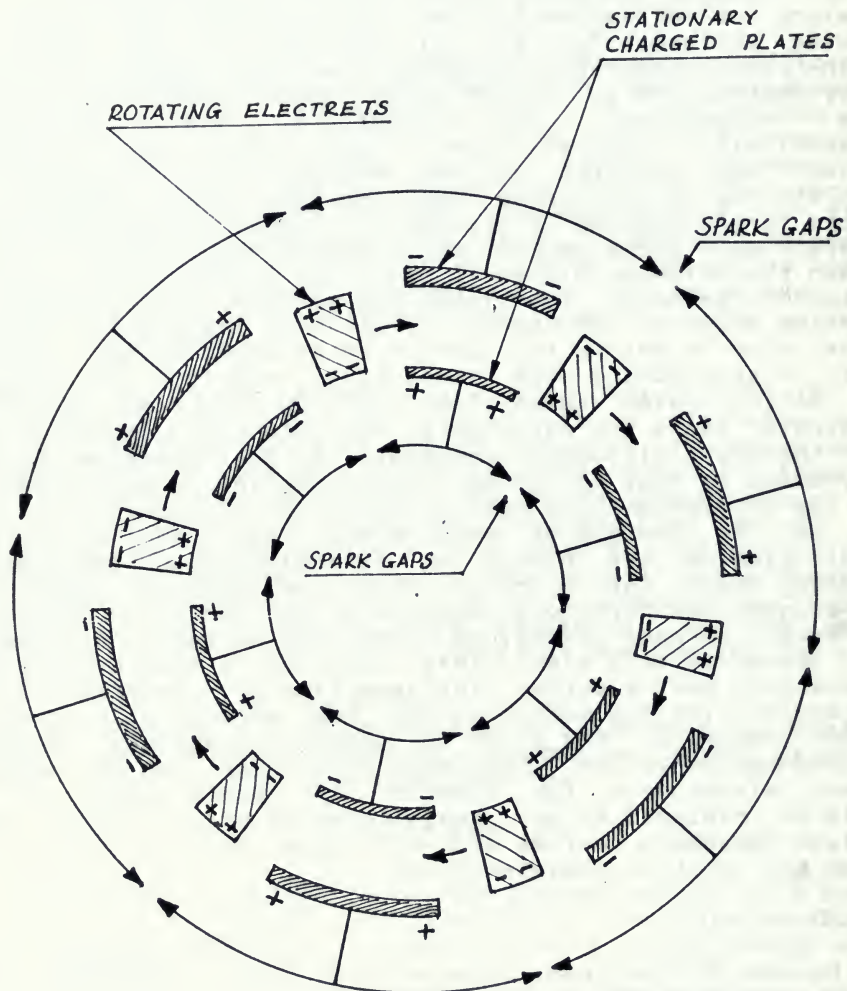
Our suggested electrostatic motor is shown in the figure. The motor is similar to a cyclotron used in high energy physics. It consists of a series of an even number of capacitors distributed uniformly*on the circumference of the stator as shown. The rotor consists of an equal number of charged electrets uniformly distributed in a such a way to pass between the plates of the capacitors. The electrets are permanently electrostatically charged cubes alternatively with opposite polarities. (An electret is the equivalent of a permanent magnet). The outer plates as well as the inner ones of the capacitors are connected to a pole of a spark gap in a such way** that a spark may occur between two neighbor outer plates as well as between the neighbor plates of two inner plates.

Function of the motor: The plates are allowed to be charged by induction as shown in the figure, by closing momentarily the arc gaps. The rotor is set to rotation by an external torque. As each electret is approaching the respective capacitor the induced charges on the plates, assist the rotation of the electrets.*** As the electrets leave the capacitors the potential rises rapidly because the high dielectric constant, in the presence of the elctret, drops to that of vacuum. This potential rise is farther boosted by the approaching next electret which carries the same charges as the charges on each plate. As a result of this potential rise on the plates, an excessive potential appears across each spark gap. A spark occurs on each gap when the voltage exceeds the threshold. Because of the negative resistance of the arcs, current overflows from the plates and reverse charges appear on each plate. This reversal is also assisted by the approaching next electret. The same time the reversal of the charges assist also the motion of the next electrets in the same direction. Therefore, the cycle is constantly assisted and the motion becomes perpetuum****. Obviously, this model can be improved by modern electronics. For example, the spark gaps can in principle be replaced by any negative solid state device, with appropriate threshold voltage and with bigger negative resistance part than the positive resistance part.

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uniformly **such a way ***the commas! ****perpetual



Schematic diagram of the principle of the Pappas' Arced Electrostatic Motor.

For reproduction in TWT VI

COLD NUCLEAR FUSION AND EXCESS ENERGY

Dr. P.T. Pappas,

Professor of Mathematics, Professor of Physics, TEI of Patras.

Cold nuclear fusion and excess energy have been reported on March 23, 1989 in a press conference by Stanley Pons of Utah University and Martin Fleischmann of Southampton University. Thereafter, hundreds of laboratories entered a cold fusion derby, shaking the world for a new era of cheap and non polluting energy. However, the results soon appeared contradictory. Either only excess heat or only excess radioactivity, but never the right proportion of heat and radioactivity according to the currently believed models of Physics, was observed in the various experiments to the extend that scientists came to seriously doubt the results of Pons and Fleischmann.

In Raum & Zeit, 36, 76, October/November, 1988, as well as in a report to the Tesla Conference in Colorado Springs 1988, attractive forces and excess energy output with respect to the input energy are predicted for certain current circuits, when the Cardinal law of Electrodynamics of Ampere, (reference (2)),

$$F_{12} = -r_{12}(I_1 I_2 / r_{12}^3) [2ds_1 \cdot ds_2 - (3/r_{12}^2) (ds_1 \cdot r_{12})(ds_2 \cdot r_{12})] \quad 1.$$

is taken into account. This law has been found infallible to this moment for all cases of electrodynamics. Superficially, it was the semi-correct assumption that this law is always equivalent to the Biot-Savart, and the peculiar argument that it is therefore a redundant law of Physics that has withdrawn it completely from the literature of physics at the beginning of 20th century. However, the real reason for the withdrawn should had been the following: The Cardinal law, although suggested by references (3) equivalent to the relativistic Biot-Savart law, the same time seemed mathematically incompatible with Lorentz invariance which was a necessary condition to incorporate with relativity theory. These apparently contradictory "assumed aspects" for the Cardinal law have received the attention of this Author, investigating a good portion of his life in analyzing both experimentally and mathematically this law.

In reference (4) the situation is resolved by the Cardinal law found not to be always equivalent to the Biot-Savart law. The cases of non equivalence concern forces between parts of a circuit with different charge mobilities, such as a circuit partly of copper or another metal and partly of an arc or electrolyte. Unnoticed today attractive fusion forces and excess energy are predicted in references (1) directly from a form:

$$F_{12} = -r_{12}(q_1 q_2 / r_{12}^2) [2v_1 \cdot v_2 / c^2 - (3/c^2 r_{12}^2) (v_1 \cdot r_{12})(v_2 \cdot r_{12}) - 1] \quad 2.$$

suggested by this author after replacing the current element $Id\mathbf{s}$ with the moving charge times its velocity $q\mathbf{v}$, and taking into

account the same time the Coulomb forces. The author's formula 2 may substitute the Lorentz law, the modern version of Biot-Savart. Formula 2, contrary to the Lorentz law, never violates action and reaction, conservation of momentum and conservation of angular momentum. The Lorentz law for isolated moving charges classically or macroscopically and without taking quantum conditions, violates in generally conservation of momentum and conservation of angular momentum as well as conservation of energy. The same time formula 2 violates only the principle of conservation of energy as it is shown in reference 1. In this respect as well as in the respect that formula 2 is infallible for all known regular circuits, it is the best known formula to describe electromagnetic forces. Clearly, excess energy and attractive fusion forces, not predicted by the Lorentz law,

$$F_{12} = 2q_1q_2v_1v_2/c^2r^2 - q_1q_2/r^2 = -(q_1q_2/r^2)(1-2v_1v_2/c^2r^2) \quad 3.$$

between similar charges are predicted by formula 2, whenever the mobility of the charges abruptly changes, and the velocity of the carriers reaches velocities higher than about 0.707 c in vacuum, because of the factor 2 in formula 3. However, if in electrolyte, the repulsive Coulomb forces are partially or totally neutralized then this velocity limit is severely lowered down to zero for a complete neutralization. Nuclear fusion may start and excess energy may released under the influence of such a current.

Nuclear fusion and excess energy reported by Pons and Fleischmann, bears a strong similarity to the predictions of formula 2. It resolves and explains the apparent paradox of the observed excess energy with or without nuclear fusion and radioactivity. Indeed, formula 2 clearly predicts an excess energy as a free energy as well as an excess energy coming out of nuclear fusion. Clearly, excess free energy may occur with or without fusion energy and the relevant radioactivity at any combination, in current interactions between similar charges travelling at different mobilities between an electrolyte and various metals. This resolves the paradox.

The similarity of the predictions of formula 2, as reported in reference (1) and the various reports concerning the phenomenon of "cold nuclear fusion" are striking, deserving further attention and investigation. The withdrawn Cardinal law of Electrodynamics and formula 2 derived from it, seem to explain what to modern physics is not understood and appears paradoxical, concerning the biggest discovery of twentieth century at its end, cold nuclear fusion and excess free energy.

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Caricature di Filippo Scozzari,
l'orgoglio del caricaturismo
italiano.

(FRIGIDAIRE, Aprile 1989)

Da wird die Welt staunen

raum & zeit Nr. 37

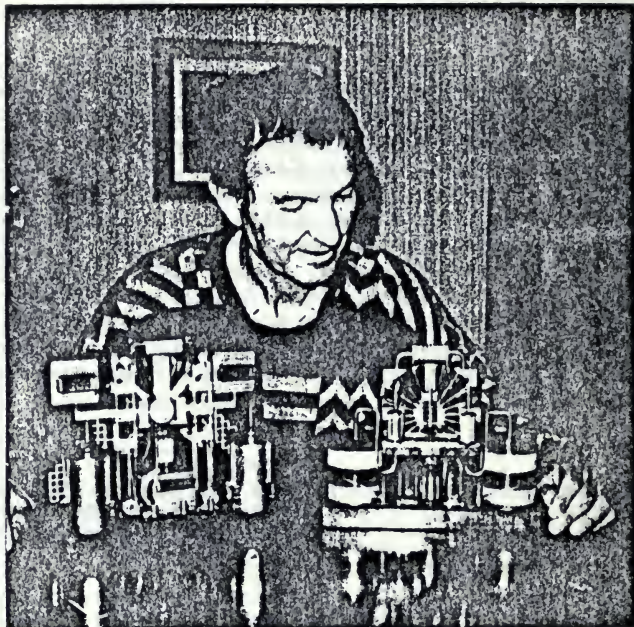
Herr Sunier hatte den guten Willen gehabt, mit seinem Dialog-Beitrag die Leser von r & z über die Gemeinde Methemitha und über die Maschine TESTATIKA zu informieren. Es gibt aber eine sehr wichtige Regel: Informiere nicht andere über etwas, bevor du dich nicht selbst darüber informiert hast. Herr Sunier möchte die "Geschichte" des Erfinders der TESTATIKA erzählen, doch notiert er in Klammern: "Seinen eigentlichen Namen kenne ich nicht."

Ohne sogar den Namen des Erfinders zu wissen, weiß aber Herr Sunier, wann, wofür und für wie lange Zeit dieser Mann verurteilt wurde.

Die wahre Geschichte, die viele r&z Leser gut kennen, ist aber die folgende: Jede konsequente religiöse Gemeinschaft, die nur der Stimme Gottes zuhört und der Stimme des Kaisers wenig Aufmerksamkeit schenkt, ist bei den Kaisern und deren Helfershelfern nicht beliebt. Ein bürokratischer Staat kann nur auf den Schultern von Untertanen errichtet werden, nicht aber über den hochgehobenen Köpfen von geistig freien Menschen.

Die Gemeinde Mathemitha war nicht nur ein winziges Dorf in einem riesigen Reich, sondern ist auch ein großer Dorn in einem kleinen Staat. Diese Gemeinde sollte zerstört werden. Der einfachste Weg war: Das Haupt zu entfernen, einen Prozeß mit einer schmutzigen Anklage auf die Bühne zu bringen und damit die Boulevardzeitungen zu entfesseln.

Da aber passierte das Wunder: Der Mann, der vier Jahre im Gefängnis verbrachte, der Mann, den Herr Sunier einen "Clütteri" (Bastler) nennt, hat mit Konservendosen (als Kondensatoren verwendet), mit einfachen Drähten, mit dem was er in dem Abfall der Gefängniswerkstatt finden konnte, DAS ERSTE PERPETUUM MOBILE AUF UNSEREM PLANETEN GEBAUT.



Marinov mit der zweiten (links) und dritten (rechts) TESTATIKA-Maschine, die Paul Baumann im Gefängnis gebaut hat.

Das geschah im Jahre 1978! In einem Kerker wurde das Weltwunder geboren. Wäre das in irgendeinem lateinamerikanischen oder osteuropäischen totalitären Staat geschehen, würde man sagen: "Na ja, da sitzen die besten Köpfe in den Gefängnissen und in den Irrenanstalten." Die TESTATIKA wurde aber in einem schweizerischen Gefängnis gebaut.

Ich habe zwei mal die Gemeinde Methemitha besucht: im Juli 1988 und im Februar/März 1989. Ich habe einige von den TESTATIKA-Maschinen sorgfältig beobachtet und geprüft und geraume Zeit mich mit Herrn Baumann unterhalten. Mit der höchsten Verantwortung eines Wissenschaftlers kann ich bestätigen: Diese Maschine ist der Traum der Menschheit in Fleisch und Blut. Für die nächste Ausgabe von r & z werde ich einen ausführlichen Bericht schreiben über die Gemeinde Methemitha, über Herrn Baumann, über die Maschine TESTATIKA und über die "Physik" der Maschine, so weit ich diese "Physik" verstanden habe.

Stefan Marinov
A - 8010 Graz

Sunier's letter follows:

Da staunten die Schweizer

(r & z Nr. 33)

Nieper erwähnt die Methemitha in Linden, Kanton Bern, Schweiz, wo ein Konverter von 2 kW Leistung in Betrieb stehe. Hinweise darauf erteilt auch die Sonntags-Zeitung vom 15. 5. 88 in ihrem Report „Sekte im Dorf: Anpassung oder Widerstand“. Darin steht, daß „Vatti“, das geistige Oberhaupt der Methemitha, elektrischen Strom aus „einer schwarzen Kiste“ erzeuge. So weit so gut. Wer oder was aber ist die Methemitha bzw. wer ist „Vatti“? Gerade einer solchen Frage kann nicht ausgewichen werden, ansonsten man im Kleinen denselben Fehler nachvollzieht wie Einstein, der mit unglaublicher Naivität das Manhattan-Projekt einläutete, um sich nachher um so unverständlicher von jeglicher Politik fernzuhalten. Ich meine damit, daß es bei solchen „News“ – wie sie Nieper ab und zu liefert, von enormer Bedeutung ist, nicht nur einen Konvertertyp zu erwähnen, sondern auch das geistige Umfeld zu beleuchten, in dem Konvertertechnologie stattfindet (in analogia dazu Prof. Marinovs kritischer

DIALOG

Beitrag zum Newman-Konverter!

1. Die Methemitha ist eine religiöse Gemeinschaft im Emmmental, bestehend aus etwa 150 Seelen, die eine eigene Schule, eine Bäckerei, eine Gärtnerei und eine Fabrik betreibt. Das in Kürze. Wer ihr beiträgt, gibt sein Vermögen an die Methemitha ab und arbeitet fortan ohne Lohn, um sich auf die Ewigkeit vorzubereiten, gemäß dem Motto: „Einer für alle – alle für einen.“ Als Grundlage dient die Bibel.

2. „Vatti“ ist der Regent dieser Gemeinschaft. Er wurde in den siebziger Jahren wegen „Unzucht mit Kindern“ zu 7 Jahren Zuchthaus verurteilt. Solches wird heutzutage von der Methemitha bzw. deren Vertretern heruntergespielt und abgeschwächt. „Vatti“ (seinen eigentlichen Namen kenne ich nicht) amtierte wieder in vollen Würden und Ehren. Er hat vermutlich aus seiner damaligen Schwäche gelernt, denn heute sorgen die Leute von Methemitha nicht mehr für Schlagzeilen, sondern bezahlen getreu ihre Steuern und grüßen freundlich (falls man ihnen begegnet; denn die Methemitha ist eine Gemeinschaft für sich – ein Dorf im Dorf).

3. Ich nehme an, daß ein Leser von r & z in der BRD obige Punkte nicht kennt. Nieper erwähnt jedenfalls kein Wort davon. Ich habe mir deswegen die Frage gestellt: Wie kommt die Methemitha bzw. „Vatti“ (der schon immer ein „Chlütter“, also ein Bastler, gewesen sei) zu einem gut funktionierenden Konverter? Eine konkrete Antwort von der Methemitha selbst zu erhalten, dürfte auch für Dr. Nieper nicht so einfach sein. Bei näherer Betrachtung des geistigen Umfeldes ergibt sich aber beinahe von selbst (als Möglichkeit) eine plausible Antwort oder wenigstens deren Erklärungsversuch.

In Linden – wo die Methemitha domiziliert ist – hat nämlich die „Start- und Landebahn für die Engel aus Ägypten“ schon mehrmals zu reden gegeben. Haben wir nicht ähnliche Worte an anderer Stelle auch schon gehört? Richtig. Antwort: bei den Mormonen, Bundesstaat Utah, Salt Lake City.

Im Jahre 1820 soll der Engel Mo-

roni einem gewissen Joseph Smith das Buch Mormon übergeben haben, geschrieben in ägyptischer Schrift auf metallenen Tafeln. Damit war das Mormonentum geboren. Und so verwundert es uns nicht, daß es außer einem Mount Moroni auch einen „Landeplatz der Engel“ (Angel's Landing) gibt. Nach dem gewaltsamen Tod von Smith durch die Lynchjustiz führte Brigham Young den Siedlertrupp weiter ins Gebiet des heutigen Staates Utah. Salt Lake City entstand.

4. Bei Salt Lake City kommt uns unweigerlich ein weiterer Name in den Sinn: Dr. T. Henry Moray. Moray wurde 1892 in Salt Lake City geboren und begann sich schon in jungen Jahren wissenschaftlich für die Elektrizität zu interessieren. Nachdem er sich anfänglich mit statischer Elektrizität befaßt hatte, erkannte er, daß es eine Energie gab, die von oszillierender Art war und nicht aus der Erde selbst, sondern aus dem Weltraum stammte. Er nannte sie „Radiant Energie“. 1911 war es ihm bereits möglich, mit einem Vorläufer des späteren Moray-Konverters eine Kohlenfadenlampe zu erleuchten. Bis 1920 erfolgten keine weiteren Fortschritte.

Wir haben Grund zur Annahme, daß diese Phase in die Zeit von Morays Studienaufenthalt in Schweden fällt. Von dort nämlich, aus einer Grube in Abisko, kommt das schwer zu beschaffende Material, das Moray für seine „Detektor-Röhre“ bzw. seine Halbleiterventile benötigte, die das Herz des Moray-Konverters bilden. Dieses Material bestand aus tribolumineszentem Zink und radioaktivem Stoff. Wir müssen annehmen, daß Moray bereits 20 Jahre vor der Entdeckung des Transistors mit steuerbaren Halbleitern experimentierte! 1931 beantragte er ein Patent für seinen Energiewandler, der etwa 50 kW Leistung (free energy) abgab. Es wurde ihm verweigert, da er nicht imstande war, die Prüfer vom Patentamt von der Existenz eines universalen Energiemeeres und den in seinem Gerät stattfindenden Umwandlungen in elektrische Nutzenergie zu überzeugen.

1939 zertrümmerte ein wütender „Interessent“ den Konverter, und es dürfte Moray in der Folge nicht mehr möglich gewesen sein, sich die notwendigen Substanzen aus Schweden zu verschaffen. 1940 wurde er in seinem Labor angeschossen, und ein Ingenieur der „Rural Electrification Agency“ (R.E.A.), der Moray bei der

Weiterentwicklung des Gerätes unterstützen sollte, entpuppte sich als kommunistischer Agent. Ebenso war es die R.E.A., die den Besuch des sowjetischen Wissenschaftlers Dr. A. Jakowlew anbahnte. Unter diesen Umständen war es Moray nicht mehr vergönnt, einen zweiten Konverter zu konstruieren. Die Söhne Richard und John versuchen seit Morays Tod im Mai 1974, das Vermächtnis ihres Vaters erneut zu belegen. Vielleicht ist diese Aufgabe dem Research Institute von Salt Lake City inzwischen gelungen!

5. Nochmals zurück nach Uppsala, Schweden. Es ist bedeutsam, daß sich Moray – der Elektroingenieur war – in Bergwerken und Gruben herumtrieb! In diesem Zusammenhang gibt es eine mögliche Verbindungsbrücke zu Emanuel Swedenborg (1688–1772), der königlicher Bergwerksassessor war, bevor er sich zum Visionär und Seher entwickelte. Auch Swedenborg hat seine Offenbarungen durch Engelshände empfangen (in analogia zu Joseph Smith, dem Begründer des Mormonentums). Und damit schließt sich auch der geistige Kreis, den ich dem geneigten Leser vor Augen zu führen versuche: Auch bei der Methemitha in Linden gibt es einen „Landeplatz der Engel“ und einen „Vatti“, der „himmlische Offenbarungen“ empfängt. Und somit habe ich das gesagt, was Nieper unterließ, nämlich nicht nur Konvertertechnologie zu betreiben, sondern auch das geistige Umfeld zu beobachten, aus dem solche Konverter kommen; sonst laufen wir bald einmal Gefahr, uns in geistigen Irrgärten zu verlieren.

Claude Sunier
CH-8600 Dübendorf

Anmerkung der Redaktion: Wir haben diesen Brief abgedruckt, weil er eine Menge interessanter Informationen enthält. Die Vorgeschichte von „Vatti“, in der Bundesrepublik als Fetti Baumann bekannt, stimmt. Was uns nicht gefällt ist, daß hier ein „geistiges Umfeld“, das als kriminell dargestellt wird, sozusagen die Wurzeln der Konverter-Technik sein soll. Vielmehr glauben wir, daß eine neue sensiblere Kreativität notwendig ist, um Freie Energie umzuwandeln. Deshalb distanziert sich die Redaktion von diesem Versuch, Konverter-Technik zu diskriminieren, mit aller Entschiedenheit.

Now follow the letters of two other readers of R&Z commenting the preceding letter of Claude Sunier. They are published in the same number 39, in which the preceding Marinov's letter "Da wird die Welt staunen" was published, namely on p. 58 and on p. 60.

Da staunten die Schweizer

raum & zeit Nr. 33

Ich möchte hiermit auf einen von Ihnen in Raum und Zeit veröffentlichten Leserbrief eingehen. Der Autor des Leserbriefes, unter dem Titel "Da staunten die Schweizer" in Raum und Zeit Nr. 37 veröffentlicht, ist Claude Sunier aus CH - 8600 Dübendorf.

Bravo zu Ihrer redaktionellen Anmerkung, mit der Sie sich klar von dem Leserbrief distanzieren. Ich möchte an diesem Punkte auch noch vorausschicken, daß ich weder die Methemitha noch Herrn Fetti Baumann kenne.

Herrn Sunier ist wohl nicht aufgefallen, daß er mit seinem Beitrag gerade den Interessen in die Hände spielt, denen eine neue Konverter-Technik sehr unbequem wäre. Oder ist vielleicht sein Brief eine ganz gezielte Aktion in diesem Sinne?

Zum ersten, ein "geistiges Umfeld" ist für den Wert oder Unwert des Konverters das denkbar irrelevanteste Kriterium. Vergessen wir nicht, daß nur Menschen, die außerhalb der erstarrten und verkalkten Ideen und Meinungen unserer Welt stehen, eine wirklich neue Technik zu entwickeln in der Lage sein werden. Und dazu gehört nun einmal ein "geistiges Umfeld", das der etablierten Wissenschaft und medienbestimmten allgemeinen Meinung ungewöhnlich erscheinen muß.

Zum zweiten sollte wohl einmal ganz klar herausgestellt werden, daß es die einfachste Sache ist, und zudem modern zu sein scheint, einer religiösen Gemeinschaft alle möglichen Dinge anzuhängen, vor allen Dingen, wenn es sich nicht um eine der sogenannten "etablierten" Kirchengemeinschaften handelt. Da wird sowohl mit gerichtlichen Anschuldigungen als auch mit wahren Schlammschlächten der Zeitungen und anderer Massenmedien gearbeitet, und das Urteil wird letztendlich leider nicht im Gericht, sondern schon in den Zeitungsartikeln gefällt, von der Wahrheit weitestgehend unabhängig.

Dies alles hat aber wohl in einem Artikel über einen Konverter nichts zu suchen, und ob Dr. Henry Moray ein Mormone war, hat sicherlich der Funktion seines Konverters keinen Abbruch getan.

Was nun Emanuel Swedenborg, der wie Henry Moray, laut Sunier "sich in Bergwerken und Gruben herumtrieb" mit der Sache zu tun hat, wird wohl für immer ein Rätsel bleiben. Es schließt sich hier kein geistiger Kreis, sondern es eröffnen sich einige Fragen über den Hintergrund des zitierten Leserbriefes. Etwas Toleranz, Herr Sunier, und eine etwas kritischere Einstellung gegenüber den Veröffentlichungen der Tagespresse wären hier doch wohl angebracht, denn die geistigen Irrgärten liegen gerade in dieser Richtung, nicht bei den etwaigen religiösen oder philosophischen Überzeugungen derjenigen, die sich mit einer neuen Technik und Physik befassen.

Josef Hasslberger
I-00186 Rom

Zutiefst getroffen

Seit Jahren bin ich begeisterter RAUM u. ZEIT-Leser. Ich schätze Ihre Zeitung sehr, da sie doch recht viel objektive Aufklärung in unsere massenmanipulierte Gesellschaft bringt. Es ist eine der ganz wenigen Zeitschriften, welche ich nach immer gezielterem Sondieren überhaupt noch lese.

Gerade deswegen hat es mich zutiefst getroffen, als ich in Ihrer letzten Ausgabe Dez./Jan. den Artikel "Da staunten die Schweizer" aus dem DIALOG gelesen habe.

Hier wird eine Gemeinschaft, welche jahrzehntelang in wunderbarer Harmonie zusammenlebt, auf höchst fragwürdige Weise völlig falsch dargestellt. Es sind einfach ganz brutale Unwahrheiten aufgeführt, welche, und darum bitte ich Sie ganz dringend, von Ihnen deutlich aufzuklären sind. Das sind Sie ganz sicher Ihren Lesern schuldig.

Ich selbst bin durch mein Interesse an dieser Konvertertechnologie vor zwei Jahren auf diese Gemeinschaft gestoßen und seit dieser Zeit sehr eng mit ihnen verbunden.

Ludwig M. Krause
7822 Ibach/St. Blasien

raum&zeit

Interview mit dem Schamanen Sunbear:

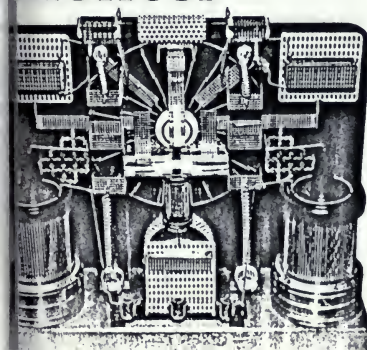
"Mutter Erde beginnt, sich zu reinigen"

MEDIZIN

Cortisol und chronische Krankheiten

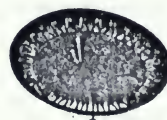
"AIDS": Plädoyer für eine Wende

Holistischer Bluttest



PHYSIK

Testatika, das "Wunder" von Linden



Was ist
dran
am
Searl-
Effekt?



METHERNITHA UND TESTAKTIKA

von Prof. Stefan Marinov, Graz

Nachdem eine Dialog-Zuschrift in raum&zeit mit dem Titel "Da staunten die Schweizer" eine - wie wir meinen - positive, weil sehr lebendige Diskussion über die Gemeinde Methernitha und die Wundermaschine Testatika in Linden in der Schweiz ausgelöst hat, besuchte Stefan Marinov das sagenhafte Linden. Sein Bericht ist - wie stets bei ihm - sehr engagiert und sehr enthusiastisch. Wir veröffentlichen ihn trotzdem unverändert, weil das ein Prinzip von raum&zeit ist. Damit die LeserInnen nicht ganz auf technische Informationen zur Testatika verzichten müssen, die bei Marinovs Bericht ein wenig zu kurz kommen, veröffentlichen wir anschließend zwei Berichte des amerikanischen Physikers Don Kelly über die Testatika.



Das Wunder ist da, in Linden. Es sprach sich seit Jahren herum - einer glaubte mehr, einer weniger, die meisten glaubten nicht. Und die allermeisten? - Die allermeisten, wie immer, haben überhaupt nichts gehört.

Vor etwa drei Jahren vernahm ich die ersten Gerüchte über Linden, über die Gemeinde Methernitha und über Paul Baumann. Der erste Mann, der mir gestanden hat, die Maschine TESTATIKA gesehen und geprüft zu haben, war Dr. Hans Nieper (an seiner Konferenz in Hannover). Helmut Mack gab mir die erste Fotografie. Diese Fotografie ist aber rasch aus meinem Archiv verschwunden (zu mir kommen viele Leute, denen ich mein Archiv in die Hand gebe: manches wird geschwindet, aber beträchtlich ist die Information, die von diesen Leuten zu mir strömt). Dann gab mir Herr Mack eine andere Fotografie (an Dr. Amors Konferenz in Berlin). Und endlich im Juli 1988 organisierte mein Freund

Thyl Steinemann einen ersten Besuch in Methernitha.

Mit Thyl war ich zwei Tage dort. Wir haben ausführliche und interessante Gespräche mit Herrn Bosshard und anderen Mitgliedern geführt: Was ist Methernitha, wie lebt man dort, welches sind die Ziele der Gemeinde, welches sind die Erfahrungen? Gespräche, die tief in mein Herz gedrungen sind. Damals habe ich die Maschine nicht gesehen. Es war noch zu früh. Um zu so einem Wunder zu kommen, braucht man Zeit. Man muß dafür reif sein.

Verletzung des Energieerhaltungsgesetzes

Ein Wunder, ja, ein Wunder! Und das sage ich, auch wenn ich schon mehrmals Verletzungen des Energieerhaltungsgesetzes beobachtet habe (bei meinen Maschinen ADAM (1), MAMIN COLIU (1), bei dem Kugellagermotor (2)), auch wenn ich **klare und unbestreitbare** Verletzungen des Drehimpulssatzes beobachtet habe (bei meiner BUL CUB MASCHINE OHNE

STATOR (3) und bei meiner ROTIERENDEN AMPEREBRÜCKE MIT VERSCHIEBUNGSTROM (4)).

Eine selbstlaufende Maschine aber, den ewigen Traum der Menschheit, der auch mein Traum geworden war, verwirklicht zu sehen - das war auch für mich etwas Großartiges, etwas fast Fantastisches. Eine Sache ist die Überzeugung, daß das Wunder möglich ist, eine andere dagegen, wenn man das Wunder selbst sieht und es mit seinen eigenen Händen betasten kann. Das geschah bei meinem zweiten Besuch der Gemeinde Methernitha im Februar/März 1989. Bevor ich aber näher auf die Maschine eingehe, möchte ich den Lesern eine allgemeine Information über die Gemeinde geben.

Genossenschaft

Der Wunsch, mit Gleichgesinnten ein Gemeinschaftsleben nach christlichen Grundsätzen zu verwirklichen, vereinigte in den frühen 50er-Jahren eine Gruppe von Idealisten in Linden, einem Dorf im Voralpengebiet in der Nähe der Bundeshauptstadt Bern. Um die materielle Grundlage ihrer Wohn- und Arbeitsgemeinschaft sicherzustellen, gründeten sie 1960 eine Genossenschaft unter dem Namen METHERNITHA. Mehrere Betriebe bilden die wirtschaftliche Grundlage der Genossenschaft:

In einer mechanischen Werkstätte wird eine reichhaltige Palette hochqualifizierter Produkte der Metallbranche hergestellt. Eine rationell eingerichtete Schreinerei ergänzt das Angebot mit ihren Produkten. Eine Elektronikabteilung konstruiert vielseitige Schaltanlagen und komplette Studioeinrichtungen. Ein eigener Landwirtschaftsbetrieb versorgt die Gemeinschaft mit Produkten des Ackerbaus und der Milchwirtschaft.

Alle Mitglieder arbeiten als mitverantwortliche Mitbesitzer in gleichen Rechten und Pflichten nach ihren Fähigkeiten und Möglichkeiten mit nach dem Grundsatz: "Einer für alle und alle für einen".

Die Mitglieder der Methernitha bilden eine Großfamilie. Die interne Organisation beruht auf der demokratischen Grundlage der Gleichberechtigung und des Mitbestimmungsrechtes aller Mitglieder. Die Vollversammlung wählt jährlich einen Vorstand aus ihren Reihen für die administrativen Belange. Zur Realisierung besonderer Projekte werden von Fall zu Fall Son-

TES- TATIKA

Um das zu kaufen, was sie selbst nicht produzieren können, verkaufen sie die Produkte ihrer Betriebe. Jeder arbeitet, wenn er nicht krank ist, ohne Druck, mit Fleiß und Hingabe. Es gibt keine Hierarchie und alle fühlen sich als Brüder.

Erforschung sanfter Energien

Entwicklungsarbeit und Forschung auf verschiedenen Gebieten sind integrierte Bestandteile der ideellen Zielsetzung der Methernitha. Eine Abteilung für Alternativenergie erforscht altbekannte und noch unbekannte Energiequellen, die frei von Umweltbelastungen sind. Solarenergie, Windräder und Wasserräder gehören mit zum faszinierenden Arbeitsprogramm dieser Forschungsgruppe.

In der Forschungsgruppe für Naturheilkunde werden alte und neue Erkenntnisse verbunden zu ganzheitlichen Behandlungsmethoden, welche den ganzen Menschen mit seinen Lebensgewohnheiten und seiner Umwelt berücksichtigen.

Eine Mineralien- und Edelsteinsammlung bildet die Grundlage zur Erforschung dieser Fachgebiete bis weit an die Grenzbereiche der Wissenschaft.

Die **Krönung der Forschung** in der Gemeinde ist die Maschine TESTATIKA, die schon in der ganzen Welt unter dem Namen "The King of Converters" bekannt ist. Und ich füge hinzu: Nach meinen Kenntnissen (und ich bin sehr gut informiert auf diesem Gebiet) ist TESTATIKA die **einzige** Maschine in der Welt, die freie Energie produziert. Denn der Schritt von einer experimentellen Maschine, die den Energieerhaltungssatz verletzt, bis zu einer Produktions-Maschine, die selbst läuft (Perpetuum mobile), kann ziemlich lang sein. TESTATIKA ist nicht nur eine selbstlaufende Maschine, sie erzeugt dabei auch freie Energie.

Zuerst einige Worte zur Frage, von wo die Energie in ein Perpetuum mobile (wir meinen die TESTATIKA) kommt. Zu sagen "Ätherenergie", "Tachyo-

nenenergie", "Hyperenergie", "Vacuumenergie" bedeutet, **nichts** zu sagen. Und ich zitiere Goethe: "Wo der Begriff fehlt, da stellt zur rechten Zeit ein Wort sich ein". So lange wir keine beobachtbare Quelle dieser Energie gefunden haben, ist es **sehr** **schädlich**, nichtssagende Worte zu benutzen.

Nach meinen Experimenten, die den Erhaltungsgesetzen widersprochen haben, behaupte ich mit voller wissenschaftlicher Überzeugung: Die Energie, die hier wirksam wird, und zwar aufgrund jahrzehntelanger interner Forschungsbemühungen, ist der Wissenschaft noch unbekannt und somit für sie nicht existent. Wir können also sagen, sie wird erzeugt aus dem "NICHTS".

Nehmen wir meine Bul-Cub Maschine ohne Stator (3). Vor dem Einschalten des Stromes war der Drehimpuls des gesamten geschlossenen Systems gleich Null, nach dem Einschalten ist er nicht mehr Null. Von wo ist dieser Drehimpuls entstanden? Ebenso aus "NICHTS"! Der physikalische Grund für diese Verletzung des Erhaltungsgesetzes des Drehimpulses ist die Nichtigkeit des dritten Newton'schen Satzes im Elektromagnetismus. Diese Nichtigkeit wurde schon 1845 von Grassmann festgestellt, aber meine Bul-Cub Maschine war die erste, bei der man diese Verletzung beobachten konnte. Hier wurde zum ersten Mal ponderomotorische Zusammenwirkung zwischen **ungeschlossenen** Stromkreisen verwirklicht. Also es bestehen **keine Schwierigkeiten**, um die Erzeugung des Drehimpulses aus "NICHTS" zu erklären. Aber Drehimpuls, Impuls und Energie, die Komponenten eines gemeinsamen Vierertensors, sind bestimmte Funktionen, die wir beschreiben, um die Welt zu verstehen.

Herr Baumann hat solche Funktionen nie beschrieben, weshalb es ihm auch leichter war, das Wunder TESTATIKA zu konstruieren. Verstehen Sie mich bitte gut: Drehimpuls, Impuls und Energie - das sind Buchstaben auf dem Papier. Bis zum Ende des 19. Jahrhunderts haben die Menschen nie Verletzungen der Erhaltungsgesetze in meßbaren Größen beobachtet. Aber in diesen letzten Jahren des zweiten Jahrtausends sind schon einige Experimente durchgeführt worden, bei denen solche Verletzungen ans Licht kommen. Die Schulphysiker wollen diese Experimente nicht beachten und analysieren, entsprechend den Worten Wilhelm Busch's: "Also schloß er

messerscharf, daß nicht kann sein, was nicht sein darf!" Lassen wir aber die Schulphysiker über ihren Schulbüchern schlafen. Wir haben jetzt Wichtigeres zu tun.

Einfache Maschine

Also, nach meiner Meinung verletzt TESTATIKA einfach den heute anerkannten Rahmen des Energiehaltungssatzes. Viele, die von der Maschine nur etwas gehört haben, oder sie nur im Bild gesehen haben, glauben, daß dort komplizierte technologische Prozesse vorgehen, daß dort besondere unbekannte Bauelemente eingebaut sind und geheimnisvolle, unerklärbare Kräfte mitwirken.

Das alles stimmt nicht. Die Maschine ist kindlich einfach, weil alles Große, das Gott auf dieser Welt geschaffen hat, einfach ist. Und wenn die Menschen die Einfachheit, die Schönheit und die Heiligkeit der göttlichen Schöpfung einfach nicht sehen, ist das nur ein Fehler der Menschen. Gott baut sein Haus mit durchsichtigen Steine, welche leicht sind wie Luft, sonst wäre er kein Gott.

Technisch betrachtet ist die Maschine ein elektrostatischer Motor, gekoppelt mit einem elektrostatischen Generator. Solche Maschinen haben die Menschen schon gebaut, bevor sie von Elektromagnetismus überhaupt etwas wußten. Die elektrostatischen "Generatoren" wurden bereits von den alten Griechen entdeckt, die Bernstein ("Elektron") mit Fell reiben. Der erste elektrostatische Motor wurde von Franklin im Jahre 1748 gebaut, und mit ihm soll er sogar ein Brathühnchen gedreht haben. Diese ersten elektrostatischen Generatoren und Motoren arbeiten mit "Reibungselektrizität".

In der zweiten Hälfte des 19. Jahrhunderts wurden Generatoren und Motoren gebaut, die mit "Influenzelektrizität" arbeiteten. Reibungselektrizität entsteht, wenn zwei Körper sich streifen. Influenzelektrizität entsteht, wenn ein nicht geladener Körper sich einem geladenen Körper nähert, weil die ungleichnamigen Ladungen angezogen und die gleichnamigen abgestoßen werden. TESTATIKA ist eine Influenzmaschine. Die ersten Influenzgeneratoren wurden 1865 von Töpler in Riga, und unabhängig von ihm von Holtz in Berlin gebaut. Im Jahre 1867 beobachtete dann Holtz, daß einer von seinen Generatoren auch als Elektromotor arbeitet.

derkommissionen mit entsprechenden Fachleuten zusammengestellt.

Die Grundlagen der ideellen Zielsetzung der Methernitha sind in der Heiligen Schrift verankert. Methernitha will die Menschen zurückführen zu den wahren Lebenszielen, indem sie das richtige Verständnis der uralten Gebote Gottes lehrt und so deren echte Anwendung wieder ermöglicht. Methernitha ist offen für jeden, der wieder eine echtes Kind Gottes werden möchte.

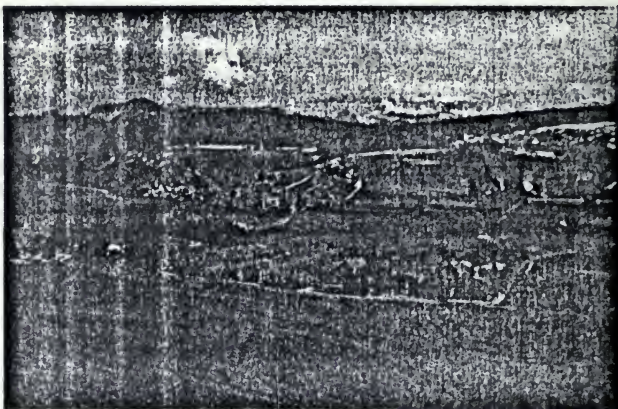
Ich verbrachte mehrere Tage in Linden, mich wie Thomas More auf der Insel Utopia fühlend. Ich sah dort eine echte christliche Gemeinschaft, wie sie Jesus und seine Schüler gepredigt haben und wie auch Bogomilen, Katharen und andere sie verwirklicht haben. Die Gemeinschaft wurde von Leuten gegründet, die mit vielen Aspekten des heutigen Lebens in der Schweiz und in der Welt nicht einverstanden sind.

Bargeldlose Gemeinde

In der Gemeinde zirkuliert kein Geld. Es gibt keine Gehälter. Das Essen wird in einer gemeinsamen Küche vorbereitet und in zwei Speisesälen dargeboten (Selbstbedienung). Die Kost ist einfach, aber gesund und mit Liebe zubereitet. Nehmen kann man soviel man will. Was man zum Leben braucht, kann man in einem internen "Laden" gratis holen. Was dort fehlt, kann man selber einkaufen gehen. Bezahlt wird aus der Gemeinschaftskasse. Die Leute in der Methernitha benötigen aber nur Artikel von erster Notwendigkeit. Sie sagen, daß die zweite, dritte und alle folgenden Notwendigkeiten keine Notwendigkeiten mehr sind; die sind nicht nur überflüssig, sondern auch schädlich.

In der Gemeinde wird nicht geraucht, es wird keinerlei Alkohol getrunken, von Drogen ist überhaupt keine Rede. Linden ist wirklich ein "Utopia" in der heutigen Welt des allgemeinen moralischen und geistigen Zerfalls. Das schweizerische Fernsehen oder andere Programme werden nicht geschaut. Hingegen gibt es in der Gemeinde ein eigenes Fernsehstudio für eigene Programme.

Die Leute der Methernitha machen, alles selbst: Sie bauen ihre Häuser, sie haben ihr eigenes Film- und Tonstudio, sie haben ein eigenes internes Telefonnetz mit über 300 Anschlüssen, sie backen eigenes Brot usw..



Östliche Peripherie des Dorfes Linden, Blickrichtung so; Methernitha, das Dorf im Dorf. Vorne rechts das "Moosbühl" mit den drei Windrädern. In der linken Bildhälfte der naturnahe Freizeitpark und darüber das "Hübeli" mit der Fabrik.



Den Influenzmotoren wurde in der Literatur sehr wenig Aufmerksamkeit geschenkt, weil sie sehr schwach sind, und die Menschen im 20. Jahrhundert ausschließlich **elektromagnetische** Motoren gebaut haben. Nirgendwo wurden je elektrostatische Motoren für praktische Zwecke genutzt. Pogendorff bemerkt (5), nicht einmal Franklin habe mit seinem in der Geschichte als "Bratenwender" bekannten Motor Hühnchen gebraten, er habe nur erwähnt, daß es möglich sei, mit diesem Motor ein Hühnchen am Spieß zu drehen. Influenzgeneratoren jedoch wurden relativ häufig gebaut und finden bis heute sehr breite praktische Verwendung (z.B. die van-de-Graaff-Generatoren, die elektrische Spannungen von Millionen Volt erzeugen.)



Das Fabrikgebäude im "Hübeli", Blickrichtung NW.

Miserable Theorien

Jetzt kommen wir zu der wichtigsten Frage: Wie kann man einerseits die elektrische Energie berechnen (und dann messen), die ein Influenz**motor** verbraucht für seine mechanische Drehung, und andererseits die mechanische Energie, die ein Influenz**generator** für seine elektrische Aufladung verbraucht. Für die erste "Energieumwandlung" gibt es **keine** Formel und **kaum** Messungen, für die zweite "Energieumwandlung" hat man nach einer Formel gesucht und mehrere Messungen durchgeführt. Bei genauerer Durchsicht der wissenschaftlichen Mitteilungen bemerkte ich jedoch, daß die Theorien **miserabel** sind, und die Messungen nicht weniger.

Bei den elektromagnetischen Maschinen ist alles klar (s. Lit. 6): Die im Motor induzierte Gegenspannung, multipliziert mit dem fließenden Strom, ist gleich der erzeugten mechanischen Leistung und die Gleichheit zwischen der einerseits von der Batterie entzogenen oder "verlorenen" elektrischen Energie und andererseits von der "gewonnenen" mechanischen Energie des Rotors ist **hundertprozentig**.

Und umgekehrt: Das Produkt von der in dem Generator induzierten Spannung und dem fließenden Strom ist gleich der aufgewendeten mechanischen Leistung, und wieder ist die Gleichheit zwischen der "verlorenen" mechanischen Energie und der "gewonnenen" elektrischen Energie **hundertprozentig**. Bei den N-Maschinen aber ergibt sich ein allerdings nur **sehr kleiner** Überschuß der elektrischen über der mechanischen Energie (1). In der Maschine MAMIN COLIU



Bild 3 Ein Teil der Werkstatt in der Fabrik für Lager- und Betriebseinrichtungen.



Bild 4 Die LKW's werden geladen für den nächsten Tag.

TES- TATIKA

wird die gesamte elektrische Energie aus "NICHTS" generiert (1).

Ja aber bei den Influenzmaschinen gibt es keine induzierte Spannung. Es ist nicht einmal ganz klar, was für ein Strom in einer Influenzmaschine fließt. Ich werde hier Poggendorff (5) zitieren, der die Influenzmotoren am sorgfältigsten beobachtet hat:

Poggendorff - Zitate

"... Wenn auch das Rotationsphänomen lediglich durch die elektrischen Attraktionen und Repulsionen hervorgerufen wird, so weicht es doch durch die Art und Weise, wie bei ihm diese Anziehungen und Abstoßungen zur Wirksamkeit gelangen, wesentlich von allen bisher dargestellten elektrischen Rotationen ab, und dabei sind die Vorgänge nicht nur ungemein mannigfaltig, sondern auch zum Teil so verwickelt und rätselhaft, daß ich offen bekennen muß, selbst nach einer zweijährigen Beschäftigung mit denselben nicht imstande zu sein, über jeden einzelnen Punkt genügende Rechenschaft zu geben. ...

Es ist nämlich die Art, sich ausgesprochen worden, das in Rede stehende Rotationsphänomen verwirkliche die Umwandlung der Elektrizität in mechanische Kraft. Ich will die Möglichkeit einer solchen Umwandlung nicht bestreiten, muß aber doch bemerken, daß dieses Phänomen komplizierter ist, als es auf den ersten Blick zu sein scheint. Denn die von der Maschine ausströmende Elektrizität leistet nicht bloß mechanische Arbeit, sondern erzeugt wiederum neue Elektrizität."

Nach einigen Seiten wiederholt Poggendorff nochmals:

"Es gibt noch mehr Fälle, welche augenscheinlich dartun, daß die Elektrizität bei diesem Rotationsphänomen nicht bloß mechanische Arbeit verrichtet, sondern zugleich neue Elektrizität erzeugt ..."

Die Sprache Poggendorffs ist nicht exakt genug. Elektrizität kann sich nicht in mechanische Kraft umwan-

deln. Nur elektrische Energie kann sich in mechanische Energie umwandeln. Nachdem ich aber Verletzungen der Erhaltungssätze in meinen Experimenten (1-3) beobachtet hatte, und nachdem ich die TESTATIKA gesehen habe, empfinde ich den Begriff "Umwandlung von elektrischer in mechanische Energie" (und umgekehrt) als falsch.

In allen Motoren und Generatoren, welche die Menschheit bis heute gebaut und auch gut vermessen hat, gibt es eine **numerische Gleichheit** zwischen der von der elektrischen Energie-Quelle "verlorenen" und der von dem Motor "gewonnenen" mechanischen Energie (umgekehrt für die Generatoren). Diese Gleichheit ist bei manchen Maschinen **nicht vorhanden**. Hier wird entweder Energie aus "NICHTS" erzeugt, oder Energie in "NICHTS" umgewandelt. Das letztere wird den Leser schockieren, aber wenn wir aus "NICHTS" etwas machen können, dann werden wir auch imstande sein, aus etwas Bestehendem "NICHTS" zu machen.

Nehmen wir an, mein Bul-Cub Motor ohne Stator dreht sich mit einer bestimmten Winkelgeschwindigkeit. Er wird also einen gewissen Drehimpuls haben. Ich schalte nun den Strom so ein, daß das wirkende Drehmoment der Rotation entgegengerichtet ist. Nach einer gewissen Zeit kommt die Maschine zum Stillstand. Was habe ich denn getan? Ich habe den Drehimpuls in "NICHTS" umgewandelt. Dasselbe würde man auch mit der Energie zu tun imstande sein.

Was geht also in den Influenzmaschinen vor? Nach einem etwas schnellen Studium der Literatur kam ich zu folgendem Schluß: Die energetischen Bilanzen in den Influenzmotoren, aber auch in den Influenzmaschinen sind sowohl vom theoretischen, als auch vom experimentellen Gesichtspunkt aus **sehr schlecht** durchgeführt. Es genügt, nur einen Blick auf das Kapitel III "Über die Leistungsfähigkeit der Elektrisiermaschinen" in dem Buch Graetz (7) zu werfen. Die Influenzmaschinen und, ich wiederhole, vor allem die Influenzmotoren sind energetisch ein fast unerforschtes Gebiet geblieben. Influenzmotoren sind nur hier und da von einzelnen Personen gebaut worden, und wenn man 100 Physiker und Elektroingenieure fragen würde, ob ein Influenzmotor sich drehen kann, wäre die Antwort von 99 ein festes "NEIN". Dieselbe "NEIN"-Antwort würde diese 99 Personen auch zu folgenden Fragen geben:

- 1) Wird der Kugellagermotor (2) sich drehen?
- 2) Wird die zementierte Faraday-Scheibe (1) (N-Maschine) sich drehen?
- 3) Wird der Bul-Cub Motor ohne Stator (3) sich drehen?
- 4) Wird die Rotierende Ampère-Brücke (4) mit Schleifkontakten sich drehen?
- 5) Wird die Rotierende Ampère-Brücke mit Verschiebungsstrom (4) sich drehen?
- 6) Wird TESTATIKA sich drehen? usw. usw.

Also, die Influenzmotoren sind eine goldene Ader, die noch fast unberührt und unerforscht in der Erde liegt. Ich habe mich lange mit Herrn Paul Baumann über TESTATIKA unterhalten. Herr Baumann nähert sich den physikalischen Phänomenen nicht auf dem gleichen Wege, auf dem wir, die Schulpophysiker, dies tun. Letzen Endes bin ich auch nichts anderes als ein blinder Schulpophysiker. Nur, im Unterschied zu meinen Kollegen, decke ich meine blinden Augen nicht noch zusätzlich mit beiden Händen zu, wenn ich auf widersprüchliche Effekte stoße.

Unterschiedliche "Sprache"

Herr Baumann sieht die göttliche Natur und ihre Geheimnisse von einem ganz anderen Gesichtspunkt aus. Er hat den guten Willen gehabt, mir das Funktionieren der Maschine zu erklären. Für mich aber war es, als ob er mir die Maschine in einer unbekannten Sprache erklärte. Also es bleibt noch ein Stück Weg zu gehen, bis ich die Maschine verstehe. Eines jedoch wurde mir klar: Alle diese Leute, die Influenzmotoren gebaut haben, haben nicht das gesehen, was Herr Baumann gesehen hat, nämlich, daß die Influenzmaschinen den Energieerhaltungssatz verletzen. Darum konnte bis heute niemand ein solches Perpetuum mobile bauen wie die TESTATIKA.

Ich habe jetzt den fünften Band meiner Dokumentationsreihe "The Thorny Way of Truth" verfaßt. Dieser Teil ist ausschließlich der TESTATIKA und den Influenzmaschinen gewidmet. Ich habe die wichtigsten Originalartikel über die Influenzmaschinen abgclippert und meine Erfahrungen und Beobachtungen mit TESTATIKA und anderen Influenzmaschinen dazu gegeben. In diesem Buch findet man keine technische Zeichnung, mit deren Hilfe

man die Maschine nachbauen könnte. Man findet aber vieles, um vorbereitet zu sein, sie zu verstehen.

Herr Baumann und andere Leute von der Gemeinde Methernitha glauben, daß ein Perpetuum mobile bei dem jetzigen moralischen Zustand der Menschheit mehr Negatives als Positives bringen würde. Dieselbe Meinung habe ich auch von anderen Leuten gehört, wie z.B. von Dr. Lippitsch vom Physikalischen Institut der Universität in Graz. Aus diesem Grunde ist Methernitha äußerst zurückhaltend mit Informationen oder gar mit Vorführungen ihrer Technik.

Andere Leute aber glauben, es sei nicht gut, die Entdeckung eines Perpetuum mobile zu verschweigen. Nach der Meinung dieser Leute sollte man nicht warten, bis die Menschheit ihre Moral ändert, um ihr erst dann die Entdeckung preiszugeben. Sie sagen, es wäre genau die Maschine, welche die Moral auf unserem Planeten verändern könnte. Ich werde die Worte meines amerikanischen Freundes Gordon Lum zitieren (aus einem Brief vom 1. März 1989): "I believe that all machines are politically powerful and have a character of their own. The free energy machine ist good in character and will change the lives and behaviour of people. It will change society in ways we do not even yet know. The political power to change people is innate in the machine itself."

Es würde mich sehr freuen, wenn möglichst viele raum&zeit LeserInnen ihre Meinung zu dieser wichtigen Frage, die jeden einzelnen Menschen auf unserer Erde betrifft, zum Ausdruck bringen würden.

Zum Schluß möchte ich die folgende Geschichte erzählen. Ein Mitglied der Methernitha zeigte mir einen Brief von einer Firma in Lichtenstein. Da stand: "Schicken Sie uns, bitte, ein Exemplar der Maschine TESTATIKA. Nach Erhalt der Sendung werden wir auf Ihr Konto 300 000,— Fr. überweisen." Mein Gesprächspartner lächelte: "Diese Leute wollen für 300 000,— Fr. ein Wunder kaufen. Kann man überhaupt ein Wunder, das ein Geschenk Gottes ist, kaufen?"

Literatur:

- (1) S. Marinov, The Thorny Way of Truth, Part II (East-West, Graz, 1984, third ed. 1986).
- (2) S. Marinov, raum&zeit, 32, 81 (1988).
- (3) S. Marinov, The Thorny Way of Truth, Part III (East West, Graz, 1988).
- (4) S. Marinov, The Thorny Way of Truth, Part IV (East West, Graz, 1989).

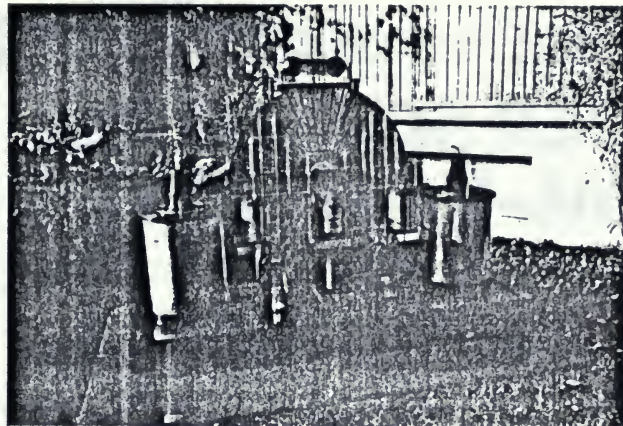
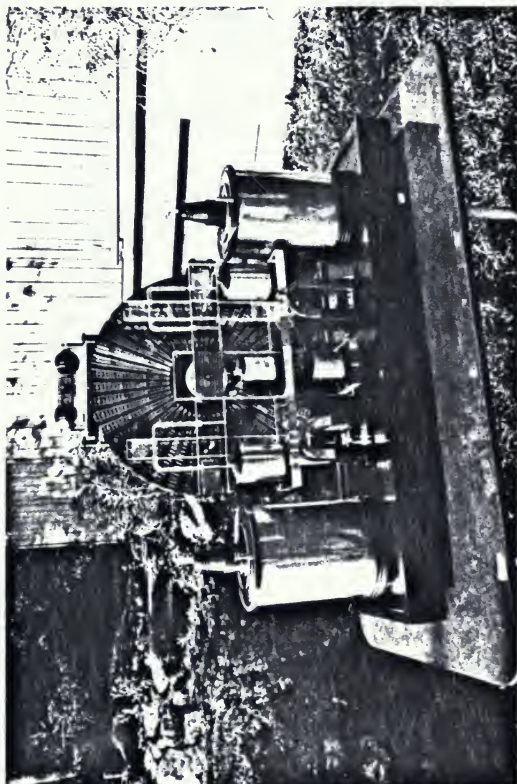


Bild 5 Dieses Modell der TESTATIKA liefert 3-4 kW Leistung.

- (5) J.C. Poggendorf, Annalen der Physik und Chemie, **139**, 513 (1870).
- (6) S. Marinov, raum&zeit, **31**, 87 (1987).

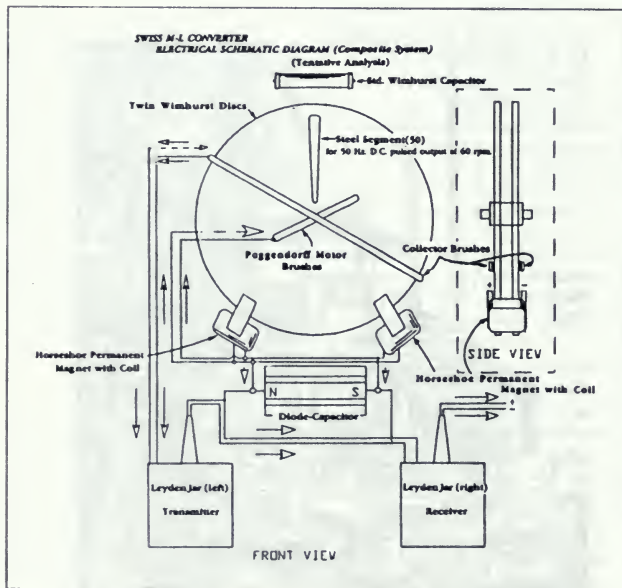
- (7) L. Graetz, Handbuch der Elektrizität und des Magnetismus, Band I (Verlag Barth, Leipzig, 1912).



DER SCHWEIZER ML-KONVERTER

von Don Kelly, Clearwater, Florida, USA

Zwar auch begeistert, aber insgesamt etwas nüchterner sieht der amerikanische Physiker Don Kelly die Testatika. In der Fachzeitschrift "Magnets" hat er im August 1987 die Testatika beschrieben und ein elektro-schematisches Diagramm angefertigt, das wir im Original wiedergeben.



Der Schweizer ML Konverter ist ein vollkommen symmetrischer Energiekonverter, der auf dem elektrostatischen Wimhurst Generator mit gegeneinander rotierenden Disks basiert. Es ist offensichtlich, daß der ML-Konverter gegenüber den alten Wimhurst Generatoren ganz erheblich verbessert wurde. Allerdings besitzt er

noch immer die charakteristischen metallenen Foliensektoren, die schwache elektrische Ladungen erzeugen und leiten, die dann in passenden Kondensatoren gelagert werden. Jeder Sektor sammelt die Ladungen an, die vom Einfluß mit den anderen Sektoren herleiten.

Bei den Wimhurst Einheiten verteilen diagonale neutralisierende Bürsten auf jeder gegenüberliegenden Scheibe die richtigen Ladungen zu den Sektoren.

ren, während sie sich drehen, aber in diesem neuen ML-Konverter wird diese Funktion von einer kristallinen Diodenröhre ausgeführt mit höheren Wirkungsgraden als das ältere Design hat. Zwei Sammelbürsten sammeln die gehäuften Ladungen und leiten sie weiter zum Kondensator, der oben am neuen Design angebracht ist. Anders als die alten Wimhurst-Designs benutzt dieser neue Konverter mehrere neue und verbesserte Bestandteile, wie z.B. zwei Hufeisen-Magneten mit passenden Spulen, und einen hohlen zylinderartigen Magneten als teil einer Diodenfunktion, und zwei Leyden-Gläser oder Flaschen, die offensichtlich als letzte Kondensatoren für den Konverter dienen.

Es wird offensichtlich, daß dieser neue Konverter den Elektrizitätsfluß erhöht mit der Zulage der Spule und Magnetenkombination, wie bei den soliden Coler-Geräten. Der Gebrauch von erstklassigen Komponenten, wie z.B. goldplattierte Kontakte, Kontrollelektroden und Dual-Kondensator-Phasen sichern viel höhere Konversion-Effizienten als es mit den alten Wimhurst-Maschinen möglich war.

Die allgemeine Spezifikation für den Bedienungsprototypen sind:

- 1) Effizienz: $1:10^6$ aufgrund von selbst-erhaltender Bedienung. Die Einheit wird durch Handdrehung gestartet, wobei keine andere Eingabekraftquelle benötigt wird.
- 2) Konstante Kraftausgabe: 300 V zu 10 Ampären = 3 Kw
- 3) Dimensionen: 43.31 Inches breit, 17.72 Inches tief und 23.62 Inches hoch.
- 4) Gewicht: 44 Pfund, die mit 60 RPM arbeiten.

Es ist deutlich, daß diese wunderbare o/u/o Konverter-Einheit auf den Wimhurst E/S Generatoren basiert, die verschiedene Stahlabschnitte benutzten. Diese Wimhurst E/S Generatoren sind entweder aus Stahl oder Aluminium-Teilen gebaut, wobei die Aluminiumabschnitte echte elektrostatische Teilchen sind.

Wenn Stahlsegmente an den zwei Scheiben dieser Einheit verwendet werden, wird der Searl Effekt sichtbar, mit E/M Konversion an der Rand-Peripherie der Scheiben durch passive Elektromagneten. Diese einmalige o/u/o Einheit wird zum idealen Konverter.

to, da zugleich hohe Wechselstrom-Volt und verminderte Wechselstrom-Ampere erzeugt werden können durch zwei verschiedene Stromkreise der Scheiben. Die konventionellen leitfähigen Bürsten der Doppeldisks nehmen die hohen Volt A.C. auf, während die Spulen der Randlektromagneten eine brauchbare elektromagnetische Kraft erzeugen. Wenn permanente Hufeisenmagnete mit Spulen verwendet werden, wie z.Z. in dem Schweizer Konverter, dann wird die elektromagnetische Kraft-Abgabe um vieles verbessert, wie es bei den Angaben für diesen M-L Konverter deutlich wird.

Der Selbstantrieb, nach dem Hand-Start, wird durch die Anpassung des Poggendorff-Prinzips (ein deutscher Wissenschaftler um 1870), bei welchem schrägliegende, leitfähige Bürsten Selbstdrehung in elektrostatischen Motoren (nicht Generatoren) erzeugen.

In Bezug auf den speziellen Kristalldiodenbaustein liefert diese Komponente wahrscheinlich die Doppelfunktionen der Frequenzregelung und Kapazitätsverstärkung zu den beiden Leyden-Gläsern. Diese spezielle Dioden-Kapazität erzeugt Frequenz-Ausgaberegulation und Kapazitätsverstärkung als Teil des elektrischen Resonanz-Stromkreises, da es mit den Hufeisen-Magnetspulen verbunden ist.

Dieser Konverter ist eigentlich aus drei verschiedenen Stromkreisen zusammengesetzt, die folgende sind:

- 1) Die hohe Wechselstrom-Volt-Ausgabe von den Doppelscheiben als konventioneller Wilmhurst elektrostatischer Generator.
- 2) Ein mäßiger Wechselstrom-Ampère-Stromkreis, erzeugt von den Doppel-Hufeisen-Magnetspulen (Searl Effect), so wie die Plus und Minus Scheiben an ihnen vorbeigehen (Impuls Gleichstrom-Ausgabe bei 50 Hz).
- 3) Ein Resonanzstromkreis, in dem die Hufeisenmagnetspulen mit dem Dioden-Kondensator verbunden sind, so daß die Frequenzregelung gesichert wird. Der Diodenkondensator wird dann mit der Leyden-Glas-Sender-Einheit verbunden.

Die physikalischen Hauptprinzipien, die mit dieser hervorragenden Vernetzung verbunden sind, sind folgende:

- 1) Elektrostatische Konversion, die Doppelscheibe verwendet für positive Ausgaben von einem und negative Ausgaben von anderem

2) Der Beweis des Searl Effects durch den Gebrauch von mehreren, identischen Stahlsegmenten, die elektromagnetische Kraft in den Scheiben-Peripherie induzieren.

3) Das Ecklin Prinzip wird auch bewiesen, da die Stahlsegmente an permanenten Hufeisenmagneten vorbeigehen, wie in Ecklin's S.A.G. Einheiten.

4) Die Poggendorff selbstdrehenden elektrostatischen Motorprinzipien, wie oben beschrieben.

5) Die Kristall-Kondensator-Funktion des Kristalldiodenbausteins. Die volle Bedienung dieser einmaligen Komponente mit seinen hohlen zylindrischen permanenten Magneten ist ein Verbundkomponent mit Doppelfunktionen, wie oben beschrieben.

Don Kellys Kommentar

In einem persönlichen Schreiben an den Herausgeber von raum&zeit hat Don Kelly im Mai dieses Jahres neuere Erkenntnisse über die Testatika mitgeteilt. Erkenntnisse, die zur Zeit der Veröffentlichung in "Magnets" noch nicht offensichtlich waren:

1) Die einzige Person, die genau weiß, wie der ML-Konverter funktioniert, ist der Erfinder, Paul Baumann, und möglicherweise ein paar enge Freunde/Teilhaber. Weder ich, noch Albert Hauser, noch Stefan Marinov oder irgendein anderer Forscher kennt meines Erachtens das vollständige Funktionieren dieses vorzüglichen Freien-Energie-Systems.

2) Der ML-Konverter oder Testatika ist definitiv ein Gleichstrom-Ausgabe-System, was bewiesen wird durch mehrere passende Ladungen, z.B. Widerstandserhitzer und elektrische Glühbirnen!

3) Es ist möglich, daß es einen mittleren Wechselstromkreis innerhalb des ML-Systems gibt, da die elektrostatischen Disks in einem 50% 'Out-of-Phase' Verhältnis arrangiert sind, um eine Wechselstrom - 'sinusoidal' - Wellenform zu liefern. Der Einschluß der Kristall-Diode-Module würde anzeigen, daß halbe oder volle Wellenberichtigung im Endstadium des Konverters vorkommen kann.

4) Eine Art, eine Erklärung zu versuchen, um das Funktionieren des ML-Konverters zu verstehen ist, aufzuzählen, was wir darüber wissen, um dann zu sehen, welche Puzzle-Stücke zum Gesamtpuzzle passen. Wir wissen, daß

verschiedene elektrostatische Generatoren, wie z.B. die Wilmhurst Holtzmaschinen bis zu ungefähr 75 KV produzieren können, zu ungefähr 2 ma, für eine Wattausgabe von ungefähr 150 Watt. Die angegebene Ausgabe des ML-Systems beträgt 220-300 Volt Gleichstrom bei 10 Ampère, oder zwischen 2200 und 3000 Watt, bei wahrscheinlich Null Belastung. Aus diesen ungefähren Angaben können wir ersehen, daß ein Wattverstärkungsfaktor von ungefähr 20:1 berechnet werden muß innerhalb dieses exzellenten Freien Energiesystems!

5) Was sind dann die möglichen physischen Effekte, die diesen Wattverstärkungsfaktoren von ungefähr 20:1 begegnen können? Wir müssen mit der Tatsache beginnen, daß Sir Oliver Lodge (U.K.) uns gelehrt hat, daß Blitze/Funkenentladungen aus mehr Schwingungsströmen als einfachen direkten Strömen in einer Richtung bestehen. Dies kann, muß aber nicht, die Funktion des ML-Konverters beeinflussen, und dieser Faktor muß berücksichtigt werden, zusammen mit einigen anderen Effekten. Augustus A. Rowland, amerikanischer Physiker (1848-1901), der unter Helmholtz in Berlin studiert hat, lehrt uns, daß: eine gewählt-rostatische Ladung, die bei hoher Geschwindigkeit getragen wird, dieselbe magnetische Handlung wie elektrischer Strom hat.

Jetzt haben wir den Zusammenhang zwischen elektrostatischen und elektrischen Strömen dadurch, daß wir eine magnetische Handlung haben, und deshalb können wir jetzt die Arbeit von Hans Coler (Deutschland, 1945) in Betracht ziehen, der uns gelehrt hat, daß elektrische Spulen um permanente Magneten gewickelt solch einen elektrischen Verstärkungsfaktor produzieren können, aber die Größe dieses Effekts ist bis jetzt nicht sicher.

Wir sehen klare Beweise von der Existenz von "Spulen über Magneten" in diesem ML-Konverter an mindestens vier Stellen, z.B.: innerhalb der beiden großen Seitenkapazitäten, und über beiden "Hufeisenmagneten" im Vordergrund des Systems!

Es bleibt weiterhin unwahrscheinlich, daß der Coler Effekt allein für den extrem großen Verstärkungsfaktor verantwortlich sein kann, aber wenn gekoppelt, wird die Wahrscheinlichkeit größer, daß das gesamte ML-System bei seiner natürlichen Resonanzgeschwindigkeit funktioniert. Wir haben eine mögliche Erklärung dafür,

ML-KON- VERTER

wie dieses System funktionieren kann. Der große Nikola Tesla hat uns gelehrt, daß elektrische Spulen, die auf ihre Resonanzgeschwindigkeit hin funktionieren, phänomenale Ausgaben produzieren können mit denselben Spulen verglichen, die außerhalb ihrer diskreten Resonanzgeschwindigkeit funktionieren.

Während diese Erklärung von einer möglichen Lösung für das Funktionieren des ML-Konverters nicht ganz richtig sein kann oder einige andere Faktoren auslassen kann, kann sie "Denkanstöße" für andere Forscher liefern, die vielleicht versuchen, das Puzzle der Testatika zu lösen. Hören wir nicht das Lachen, das von Gott sein kann, der sich wundern muß, warum die Menschen nicht lernen zusammenzuarbeiten, um unsere dringenden weltweiten Umweltprobleme zu lösen, damit wir die wahre Natur seines physikalischen Universums bewahren?

Der Schweizer ML-Konverter, oder Testatika, ist ein klares Beispiel für die kombinierte Weisheit von all den westlichen Nationen, der Schweiz, Deutschland, England, USA und einigen anderen. Er sollte so als eine Richtlinie dienen für alle weitere internationale Zusammenarbeit mit dem Ziel, die verschiedensten Umweltprobleme zu lösen!

Follows the letter of
Claude Sunier with which
he comments the letters
of Marinov, Hasselberger
and Krause published in
R&Z, Nr. 39.

Da staunten die Schweizer

Stellungnahme

Nachdem mein Dialog-Beitrag "Da staunten die Schweizer" (r&z Nr. 37) derartig stürmische Reaktionen hervorgerufen hat, sehe ich mich veranlaßt, zu antworten:

1. Es war nie meine Absicht, die Konvertertechnik zu diskriminieren! Ich befasse mich selbst mit der genannten Materie und habe also überhaupt kein Interesse daran, diesen Forschungszweig als solchen zu verunglimpfen. Ich habe auch nie an der Existenz und Funktionsfähigkeit der sog. TESTATIKA - von Prof. Marinov - vorellig als Perpetuum Mobile bezeichnet - gezweifelt! Mein Beitrag richtete sich gegen den Urheber und Erbauer dieser Maschine, aber nicht gegen die Maschine selbst. Das ist ein großer Unterschied.

An Hrn. Josef Hasslberger (r&z Nr. 39): Ich spreche jeweils in eigener Sache. Hinter mir steht keine Interessensgruppe oder sonstige Vereinigung, die die Konvertertechnik abblocken will! Daß es solche Anstrengungen gibt, ist mir sehr gut bekannt und kann von verschiedenen Leuten in der Schweiz bestätigt werden. Ich weiß z.B. von Hrn. Dr. D. Bührle persönlich, daß sich die MIL-Abteilung (Forschung Bereich Wehrtechnik) der Oerlikon-Bührle Holding AG mit dem Aspekt "TESLA-Waffen" befaßt hat, inwieweit ist mir unbekannt. Daß von solcher Seite naturgemäß keine Unterstützung zu erwarten ist, weil z.Z. noch Millionenbeträge auf dem Spiel stehen (ADATS-Projekt etc.) versteht sich von selbst! Auch von der Universität und der ETH Zürich werden wir gegenwärtig noch als Phantasten be-

lächelt. Man darf daraus aber nicht den falschen Schluß ziehen, daß diese Institutionen bewußte Gegner der Konvertertechnik sind. Wir haben Grund zur Annahme, daß von diesen Ausbildungsstätten auch Physiker und Elektroingenieure kommen, die der Aetherphysik belebende Impulse erteilen werden.

2. Hr. Hasslberger vollzieht den unnachahmlichen Salto Mortale, zum einen das von mir beantragte "geistige Umfeld" als nicht relevant für die Konverterforschung zu bezeichnen, um zwei Sätze später zu betonen, daß ein geistiges Umfeld sehr wohl nötig sei für die Konvertertechnik, ein Umfeld, "das der etablierten Wissenschaft und medienbestimmten allgemeinen Meinung ungewöhnlich erscheinen muß".

Ob er sich dabei nicht selbst in einem kretischen Labyrinth befindet und den Ariadnefaden verloren hat?

Ich meinerseits möchte die These aufstellen, daß es ohne geistiges Umfeld nicht möglich ist, in der Konvertertechnik und Aetherphysik greifbare Ergebnisse zu ernten, weil diese Gebiete untrennbar mit Ethik und Verantwortungsbewußtsein verknüpft sind! Wer gibt uns denn die Gewähr, daß aus den Reihen der alternativen Energieforscher nicht einmal einer kommt, der seine Erkenntnisse und Produkte rein destruktiv einsetzt.

Als abschreckendes Beispiel kosmopolitischer Physik steht mir immer wieder E. Teller vor Augen, im Westen allgemein als Vater der H-Bombe bekannt. Die gegenwärtigen Anstrengungen laufen bekanntlich darauf hinaus, im Erdborbit "grauenhaftere" Waffensysteme zu installieren, die bei Insidern auch unter dem Begriff "Tesla-Skalarwellen-Interferometer" bekannt sind und aus gigantischen Röntgenlasern gepulst werden. Und dahinter, als den amerikanischen Präsidenten beschwörende und schwarzmagische Person, ist wieder Teller!

Sollte etwa hier ein geistiges Umfeld, das in diesem Beispiel die Verbindungsbrücke zwischen physikalischer Forschung und politischer Entwicklung darstellt, von irrelevanter Bedeutung sein?

3. Was nun die potentielle Verbindung zwischen Swedenborg, Moray und der Methemitha anbelangt, ist zu sagen, daß eine solche nicht nachweisbar ist. Ich war lediglich bestrebt, darauf hinzuweisen, daß solche Möglichkeiten bestehen, ohne daß daran Beteiligte jemals in irgendeiner be-

wußten Form miteinander zu tun hatten. Es wurde durch die Arbeiten von Pribram und Bohm dokumentiert, daß solche Verbindungsbrücken über Jahrhunderte hinweg über holographisch organisierte Hypertransfer-Channels existieren können, die von jenseits der uns angeborenen Raum-Zeit-Mechanismen stammen! Und zwischen Swedenborg, Moray und Hrn. Baumann gibt es m.E. zuviele Gemeinsamkeiten, als daß ich diese Möglichkeit von vornherein ausschließen dürfte.

Ich möchte nochmals daran erinnern, daß Swedenborg Visionen hatte, die er von Engeln erhalten haben soll (nachzulesen in "Swedenborgs und anderer irdische und himmlische Philosophie" von Friedrich Christoph Oetinger, neu herausgegeben von Erich Beyreuther, Steinkopf Verlag Stuttgart, 1977). Und Hr. Baumann, als "Vatti" bekannt, hat auch Eingebungen höherer Ordnung gehabt. Ferner findet sich in Dr. Morays "radiant energy"-Konverter eine rätselhafte Halbleiterdiode. Auch die TESTATIKA benötigt eine Diode, die schon manchen ein Rätsel aufgab. Das sind durchaus nicht einfach zueinander zu findende Gemeinsamkeiten, die zur Frage berechtigen, ob dabei nicht "geistige Verbindungsbrücken" zwischen dem 18. und 20. Jh. bestehen!

Ich habe mir nämlich forschungsmäßig die Frage gestellt, wie die Methernitha zu einem gut funktionierenden Konverter komme, ominös TESTATIKA genannt, zumal Hr. Baumann früher als etwas zwielichtig in Erscheinung trat. Diesen abträglichen Ruf hat die Methernitha aber durch ihre mystische Geheimniskrämerei mitbegründet. Und es war der Sinn und Zweck meines damaligen Artikels, die Methernitha durch meine zugegebener Weise teils provokativen Äußerungen zu einer Stellungnahme in der Öffentlichkeit zu veranlassen. Obwohl ich mir dadurch verschiedene Gegner verschafft habe, die jetzt stur auf meinen Worten herumreiten, kann ich mit einer gewissen Genugtuung festhalten, daß mir das auch gelungen ist.

Endlich werden Konverterforscher und Erfinder mehr, ja geradezu wissenschaftlich untermauertes, über die geheimnisvolle TESTATIKA aus Prof. Marinovs Munde erfahren. Marinov, Graz, schreibt (r&z Nr. 39): "... Diese Maschine ist der Traum der Menschheit in Fleisch und Blut. Für die nächste Ausgabe von r&z werde ich einen ausführlichen Bericht schreiben über



DIALOG

die Gemeinde Methernitha, über Herrn Baumann, über die Maschine TESTATIKA und über die 'Physik' der Maschine, so weit ich diese 'Physik' verstanden habe."

Ferner wurde anlässlich einer Tagung von SAFE (Schweizerische Arbeitsgemeinschaft für Freie Energie, Kollektivmitglied beim DVS) im Technorama Winterthur, Schweiz, am 22.4.1989 ein Film über die Methernitha und die TESTATIKA vorgeführt. Hr. Baumann und weitere Mitarbeiter seines Teams waren anwesend und beantworteten diverse Fragen aus dem Publikum. Eine solche Öffnung nach Außen ist begrüßenswert.

4. Weniger begrüßenswert ist, daß Prof. Marinov - der sich allmählich zu einem besessenen Perpetuum Mobile - Anhänger entwickelt - bedenkenlos euphorisch alles übernimmt, was man ihm in Linden erzählt. Ob das Naivität oder Absprache ist?

Schließlich versteigt er sich zur schlichtweg unhaltbaren Aussage, "der Mann, den Herr Sunier einen 'Clütteri' (Bastler) nennt, hat ... DAS ERSTE PERPETUUM MOBILE AUF UNSEREM PLANETEN GEBAUT ..." Das ist doch ein wenig der Lorbeeren zuviel, ohne damit das Verdienst von Hrn. Baumann und Mitarbeitern schmälern zu wollen, aber es sei erinnert an:

A. Das Bessler Rad (1712-1717) von Karl Elias Bessler. Der Physiker Gravesande berichtet, daß diese Konstruktion, die sich mit 50 u.p.m. drehte, auch nach zwei Monaten mit "unverminderter Geschwindigkeit" in Bewegung war.

B. Der Gravitationsrotor-Generator (Anmeldung beim Deutschen Patentamt 1975) von Richard Bürkle. Dieser Energiewandler der - wenn wir so sagen wollen - Perpetuum Mobile - Charakter besitzt, wurde einige Zeit vor der TESTATIKA gebaut! (siehe zu A. und B. "Energie im Überfluß" von Gottfried Hilscher, Sponholtz Verlag, 1981).

C. Der Coler Magnetstromapparat und Stromerzeuger (1926-1946). Dieser Konverter des deutschen Kapitäns Coler erregte 1937 das Interesse

von Hermann Göring, so daß zwischen Coler und den Werken Rheinmetall Borsig eine Kooperation entstand, aus welcher ein Generator von 6 kW Leistung hervorging (nähere Einzelheiten sind nachzulesen in "Tachyonenenergie, Hyperenergie, Antigravitation" von Sven Mielordt, r&z Verlag, jetzt NOVAMED Verlag, Hannover, 4. Auflage 1984).

Das sind nur drei Beispiele, die belegen, daß Marinovs Aussage ins Irrationale abgeleitet. Aus den U.S.A. könnten Bearden und Schaffranke noch ganz andere Belege bringen!

Falls Marinov allen ernsthaften Konverterforschern nicht eine stichhaltige Begründung für seine kühne Behauptung geben kann, muß ich annehmen, daß er vor lauter Perpetua Mobiles unheilbar fanatisch geworden ist. Wir lassen uns aber gerne belehren.

**Claude Sunier, CH-8630
Rüti/ZH**

On the following pages there are Marinov's comments on the preceding letter of Claude Sunier which are submitted to RAUM UND ZEIT, Nr. 41.

WER WOROBER STAUNT

raum & zeit Nr. 40

Herr Sunier schreibt in seiner letzten "Stellungnahme":

Es war der Sinn und Zweck meines damaligen Artikels, die Methernitha durch meine zugegebener Weise teils provokativen Äußerungen zu einer Stellungnahme in der Öffentlichkeit zu veranlassen. Obwohl ich mir dadurch verschiedene Gegner verschafft habe, die jetzt stur auf meinen Worten herumreiten, kann ich mit einer gewissen Genugtuung festhalten, daß mir das auch gelungen ist.

Herr Sunier hat Recht. Sein Dialog-Beitrag "Da staunten die Schweizer" (r & z 37) hat vieles in Bewegung gebracht und wir müssen ihm dafür dankbar sein. Ich bitte ihn aber mich nicht als einen Gegner, sondern nur als einen Disputanten zu betrachten, für den wichtig ist die Wahrheit, nur die Wahrheit und nichts anderes als die Wahrheit. Ich will auch der Leserschaft von r & z klarmachen, daß, obwohl mit Methernitha sehr eng verbunden, spreche ich nur in meinem eigenen Namen und in der Sache von TESTATIKA (von "testen statische Elektrizität", was absolut nichts "ominöses" enthält) verteidige ich meine eigenen physikalischen Ansichten, die ich jetzt ausführlicher in dem fünften Band der Reihe THE THORNY WAY OF TRUTH (TWT) vorgestellt hatte.

Herr Sunier schreibt, daß obwohl er an der Existenz und Funktionsfähigkeit der TESTATIKA nie gezweifelt hat (zweifeln ist kein Laster, doute en tout war die Devise von Descartes, Lob dem Zweifel ist das beste Gedicht Brechts), aber meine Bezeichnung als Perpetuum mobile scheint ihm voreilig zu sein.

Ich möchte mit einigen Worten Ordnung in unsere Terminologie bringen:

1. Wir nennen Perpetuum mobile eine solche Maschine, die man als isoliert betrachten kann, und die ohne die Anwesenheit von energetischen Quellen in ständiger mechanischer oder elektrischer Bewegung sich befindet.

2. Wir nennen over unity Konverter eine solche Maschine, die keine energetische Quelle besitzt, und die von anderen Systemen weniger Energie bekommt als die Energie, die sie an andere Systeme abgibt.

Diese Definitionen zeigen klar, daß auch Kinder feststellen können, ob eine Maschine ein Perpetuum mobile ist, aber die Vergewisserung, daß ein Konverter ein over unity Konverter ist, kann so lange dauern wie die Beichte eines Weinkellerwirts.

Ich hab TESTATIKA gesehen. Ich hab festgestellt, daß, einmal mit dem Finger in Bewegung gebracht, dreht sie sich ewig und daß sie keine energetischen Quellen besitzt. Dann die obige Definition 1 sagt klar und eindeutig: das ist ein Perpetuum mobile.

Wenn Herr Sunier mir eine versteckte oder eine außenstehende energetische Quelle zeigen würde, die die Maschine treibt, werde ich sofort meine Meinung ändern. Herr Sunier aber redet, überhaupt ohne die Maschine gesehen zu haben. Das nennt man in Österreich ein Geschwätz.

Obwohl Herr Sunier der Meinung ist, daß TESTATIKA "funktionsfähig" ist (auch ein Stein, der auf der Straße liegt, ist funktionsfähig, denn seine Funktion ist auf der Straße zu liegen), meint er, sie sei kein Perpetuum mobile, auch wenn die "Funktion" von TESTATIKA

ist, ein Perpetuum mobile zu sein. Und wenn sie kein Perpetuum mobile ist, dann ist sie nicht "funktionsfähig".

Von der anderen Seite glaubt Herr Sunier, daß auch wenn TESTATIKA ein Perpetuum mobile würde, ist sie aber nicht das erste, und er erwähnt drei anderen schon "existierenden" Perpetua mobilia:

1. Das Bessler Rad (1712-1717) - interessant was diese fünf Jahre bedeuten! - von dem ein gewisser Physiker Gravesande berichtet hat. Was wer gesagt, bestätigt und berichtet hat, spielt in der Perpetuum-mobile-Geschichte keine Rolle. Von Bedeutung ist nur der Fakt, ob das Rad existiert und ob man es besichtigen kann. Wenn Herr Sunier mir die Weltkoordinaten eines solchen Rades geben könnte, werde ich sofort dorthin fahren und den Lesern von r&z berichten, damit sie auch das Wunder sehen können. Ein solches Rad, das sich nur auf dem Papier dreht, kann Herr Sunier auf Seiten 52 und 53 von TWT-V sehen.

2. Der Gravitationsrotor-Generator von Bürkle, der als Patent in 1975 angemeldet wurde. Wer was als Patent gemeldet hat, spielt auch keine Rolle in der P.m. Geschichte. Was eine Rolle spielt, s. unter Punkt 1.

3. Der Coler Stromerzeuger, von welchem Hermann Göring ein Interesse gezeigt hat. Göring ist als Jäger, Kunstschatzeräuber und Judenvernichter bekannt. Als eine physikalische Kapazität ist Hermann Göring in den deutschsprachigen Ländern, die in dem dritten Reich eingegliedert waren, nicht bekannt. Von dem Coler Apparat und von dem Coler Prinzip wurde sehr viel geredet. Ich kenne aber keine experimentelle Coler Anlage, die ein over unity Konverter ist, überhaupt nicht zu sprechen von einer Anlage, die ein Perpetuum mobile ist. Wenn Herr Sunier mir die Weltkoordinaten...(s. Punkt 1).

Es ist zu bedauern, daß die Physik der Verletzung der Erhaltungsgesetze quasi als ein Gebiet der Paraphysik sich entwickelt hat. Sie ist aber keine Paraphysik. Physik sind alle Erscheinungen der Natur, die bei denselben Bedingungen denselben Gang haben. In der Paraphysik einmal geht es so und einmal so, nicht aber in der Physik.

Seit Jahren bestrebe ich mich die Verletzung der Erhaltungsgesetze in die Physik einzugliedern. Meine Reihe TWT und meine Artikel in r&z und in anderen alternativen Zeitschriften (wie SEAGREEN und FRIGIDAIRE in Italien) geben ein Beweis für meine Bemühungen. Ich habe auch riesige Summen von Geld ausgegeben, um in den etablierten Zeitschriften (wie NATURE und NEW SCIENTIST) in Anzeigen von meinen Experimenten zu berichten. Fecit quod potuit...

Ich trete aber entscheidend dagegen, wenn ich auf Mythen stoße, und wenn ich experimentell feststelle, daß gewisse Leute, die bestanden haben, over unity Konverter gebaut zu haben, entweder sich in ihren Rechnungen geirrt haben (dafür kann man sie nicht verurteilen) oder einfach lügen (dafür muß man sie verurteilen). Mein Artikel in r&z Nr. 31 über die Joseph Newman Maschine ist ein echter Beweis dafür.

Hier möchte ich meine Meinung über zwei Maschinen sagen, die in der letzten Zeit in r&z viel diskutiert wurden und über welche viele Leute sich gewundert haben.

1. Die Maschine von Zielinski. Herr Zielinski ist ein sehr leiber und netter Mensch und ich hab mich mit ihm an der Macos Konferenz in München in 1988 gut befreundet. Ich bin, wie Herr Ehlers erwähnt, immer sehr engagiert und sehr enthusiastisch, und Zielinskis Erzählung, daß seine Maschine sich ewig dreht, hat mich fasziniert. Ich habe darum die Maschine gleich nachgebaut. Sie ist KEIN Perpetuum mobile.

2. Die fliegende Scheibe von Searl. Noch vor 20 Jahren, als ich in Bulgarien lebte, habe ich eine englische Zeitung gelesen, wo Herr Searl bestätigt hat, daß die Aufnahmen mit seinem fliegenden Teller Fotomontagen seien. Und es ist mir wirklich peinlich, wenn ich nach 20 Jahren diese Fotomontagen wieder sehe und sogar die Karte auf S. 82 von r & z Nr. 39, auf welcher die Scheibe 600 km geflogen habe. Ich bin für alter-native Physik, aber wenn manche Leute alter-naïve Physik treiben, ist mir wirklich peinlich.

Ich weiß, daß manchmal schwer ist, wenn man kein Experiment vor den Augen hat, festzustellen, ob die Beschreibung einer Maschine alternative oder alternaive Physik sei. Darum teile ich vollkommen die Meinung von Herrn Ehlers, daß besser sei, zehn alternaive Artikel zu drucken, wenn zwischen ihnen ein alternativer Artikel sein könnte, als alle abzulehnen.

Also ich gehe zu den "Wundermaschinen" als Physiker und entscheidend für mich ist das Experiment auf dem Kreuz. Ich versuche die "Wundermaschinen" zu erklären, mathematisch zu beschreiben und wenn möglich sie nachzubauen. In diesem Heft publiziere ich meine Beschreibung und Erklärung der "Antigravitation" Maschine von meinen Freunden Zorzi und Speri (the Zorzi-Speri drive). Ich glaube die Maschine vollkommen erklärt zu haben. Hier ist Fotografie, klare und einfache Zeichnung, mathematische Berechnung der vorkommenen Effekte. Das ist eine abgeschlossene Arbeit. Meine Meinung ist, daß die Maschine von Zorzi und Speri eine sehr interessante Lösung gibt, aber sie verletzt den dritten Newtonschen Satz nur in der Zeit von einer Periode (wie das auch der Bühler Antrieb tut), nicht aber für die Zeit von mehreren Perioden (wie das der Cook Antrieb tut), auch wenn der Zorzi-Speri Antrieb "Gewichtsverluste" gezeigt hat. Der Bühler Antrieb sind zwei synchron rotierenden Massen, die mit ihren Fliehkraften den Massenpunkt eines isolierten Systems in Oszillation bringen. Cook hat diesen Antrieb weiter entwickelt

Die Frage mit der TESTATIKA ist nicht so einfach, wie mit dem Zorzi-Speri drive, weil ihr Prinzip mir nicht ganz klar ist. Darum mein Freund Don Kelly hat vollkommen Recht, wenn er schreibt:

Weder ich, noch Albert Hauser, noch Stefan Marinov oder irgendein anderer Forscher kennt meines Erachtens das vollständige Funktionieren dieses vorzüglichen Freien-Energie-Systems.

Wenn aber ich etwas nicht kenne, sage ich nicht Sachen, die auf ihren Füßen nicht stehen, und die Leser nur desinformieren können.

Ich möchte nicht die ganze "Erklärung" von Don Kelly (r & z Nr. 40) Wort nach dem Wort analysieren, weil das zu viel Platz nehmen wird, aber der bloße Fakt, daß er

in TESTATIKA einmal das Coler-Prinzip, einmal den Searl-Effekt sieht, reicht um zu sagen: versuche nicht etwas zu erklären mit etwas, was noch nicht klar und bestätigt oder sogar bloße Lüge ist. Keiner wird davon profitieren.

Ich frohe mich aber, daß Kellys Artikel gedruckt ist. Ich schreibe dem Kelly 1-2 Briefe jeden Monat und betrachte ihn als einen der wichtigsten Forschern in der alternativen Physik. Ich habe aber eine andere Einstellung zu dieser Physik: Ich öffne leicht meinen Mund, aber ich überlege lange, sehr lange, bevor ich meine Meinung auf dem Papier schreibe.

Auf Seiten 28 und 29 von TWT-V habe ich zwei schematischen Zeichnungen von TESTAIKA veröffentlicht und beide dem Herrn Hauser zugeschrieben. Herr Hauser hat mir in einem Brief berichtet, daß nur die eine von ihm stammt. Die andere stammt von Don Kelly, wo einige Sachen mit etwas Fantasie zugefügt seien, und Hauser distanziert sich von dieser Zeichnung.

Stefan Marinov
A-8010 Graz

C O R R E S P O N D E N C E



STEFAN MARINOV ospite a Matematica

Nell'ambito delle attività del Gruppo di ricerca "Geometria e Fisica", sarà professore visitatore presso il Dipartimento di Matematica durante il prossimo mese di aprile il prof. Stefan Marinov, già Assistant Professor presso la Facoltà di Fisica dell'Università di Sofia, e Ricercatore dell'Accademia Bulgara delle Scienze. L'invito al prof. Marinov, che è stato reso possibile da un finanziamento del Gruppo Nazionale di Fisica Matematica del Consiglio Nazionale delle Ricerche, si inquadra nell'attività seminariale e di ricerca preparatoria del Convegno sul tema "I fondamenti della matematica e della fisica nel XX secolo: il declino dell'intuizione", che si svolgerà presso il Dipartimento nel prossimo mese di settembre. Il proposito generale è quello di indagare se è proprio impossibile, come oggi comunemente si ritiene, costruire, all'interno di uno schema "razionale" solidamente basato sulle ordinarie categorie di spazio e tempo, una visione del mondo che sia compatibile con le acquisizioni della fisica moderna. Temi particolari di studio saranno allora le relazioni tra elettricità e magnetismo, e l'equivalenza tra massa ed energia, in vista di loro possibili "spiegazioni" in un contesto non-relativistico. Nello stesso periodo sarà ospite a Perugia per alcuni giorni anche il prof. P.T. Pappas, dell'Università di Atene, altro noto Ricercatore su questi stessi temi.

Il prof. Stefan Marinov.



Umberto Bartocci

l'università

PERIODICO D'INFORMAZIONE DELL'ATENEO DI PERUGIA ANNO VI - N. 2 - FEBBRAIO 1989

SE RACCOGLI LE GOCCE, AVRAI IL FIUME.

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Monti
IL "NUOVO" ATOMO

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Sri Lanka
NON SOLO GUERRA

Liberatore
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Monti/A.G.P.
**IL PENDOLO STA
DI CASA AU BON**

PHYSICS LETTERS A

PROFESSOR V.M. AGRANOVICH

*Institute of Spectroscopy
USSR Academy of Sciences
Troitsk
Moscow 142092
USSR*

Проф. С. Маринову

Морелленфельдгассе 16
А-8010 Грац, АВСТРИЯ

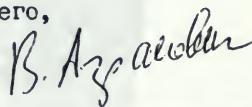
29 марта 1989 г.

Уважаемый профессор Маринов!

В связи с Вашей просьбой ответить Вам срочно, отсылаю Вам это письмо вместе со всем тем материалом, который Вы мне прислали. К сожалению, я не смог добиться от своих рецензентов такого отзыва, который я смог бы Вам отослать и который, в то же время, был бы Вам полезен в работе. Поэтому у меня нет оснований отослать Ваши статьи в издательство для опубликования в ФИЗИКС ЛЕТТЕРЗ А. В то же время Вы, разумеется, можете обратиться с ними к любому другому редактору этого или иного журнала. Особенно Вам рекомендую проф. Вижье.

Судя по тому, что Вы, по-видимому (см. Ваше письмо от 8.X. 1988) рассматриваете свои результаты как весьма важные, очень надеюсь, что такой финал наших контактов Вас не очень огорчит.

Желаю всего самого лучшего,



С уважением,

Editor's note. With the above letter Prof. Agranovich rejects Marinov's papers "On the absolute aspects of the electromagnetic interactions" (TWT-II, p. 329) and "The electromagnetic effects are determined by the potentials and not by the intensities" (TWT-I, p. 310). Prof. Agranovich does not send the referees' opinions as this is the common practice. He recommends that Marinov submits these rejected papers to Prof. Vigier, another co-editor of PHYSICS LETTERS A (see to this topic the letter of Prof. Vigier of the 1 June 1989).

The answer of Marinov to the above letter is given in his letter of the 25 June 1989

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Dr. Stefan Marinov
Morellenfeldgasse 16 A
8010 Graz - AUSTRIA

Roma 26 Aprile 1989

Egr. Marinov

In riferimento al nostro colloquio del 12/4/89 a Perugia, ti informo che i soci ASPS, riascoltando i nastri del nostro colloquio, sono rimasti favorevolmente interessati da tutte le tematiche in essi contenute.

Desideriamo avere se possibile, fotocopie delle copertine e/o i titoli di tutti i tuoi testi sulle violazioni dei principi della fisica classica per farne pubblicità su NOVA ASTRONAUTICA insieme a un eventuale tuo articolo o commento, che ne offra una generale sintesi.

Come ti ho già detto desidereremmo che tu accettassi di divenire socio onorario ASPS.

Nell'attesa della tua risposta ti invio a nome di tutti i soci i più cordiali saluti.

dr. Emidio Laureti
Presidente

The American Physical Society

DAVID LAZARUS
Editor-in-Chief

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(217) 333-0492
BITNET dave@APSEDOFF

April 27, 1989

Dr. Stefan Marinov
Morellenfeldgasse 16
A-8010 Graz, Austria

Dear Dr. Marinov:

I have now had a chance to consider your volumes on THE THORNY WAY OF TRUTH, as well as the other matters which you mentioned in your letter of 23 January 1989.

I am sorry that you find fault with our editorial procedures. These have been established for nearly a century and, apparently, have served us well, since we are journals-of-choice for much of the world's basic physics. Your papers have been treated in precisely the same way as those submitted by anyone else, objectively and without prejudice. I have no reason to question any of the procedures which were used in reviewing your papers in the past, nor would I consider reopening any of the evaluation procedures by which the editors decided that they were unacceptable.

No papers are ever accepted for any of our journals without a positive recommendation from one or more impartial referees; there are never any exceptions made to this fundamental rule. It is the editor of each journal who must consider the referees' reports and decide whether or not they are sufficiently positive to permit the papers to be accepted. In the case of your submissions, none have been recommended for publication by any of our referees and, accordingly, none have been accepted. I am sorry, but your papers cannot be reconsidered.

We cannot consider the purchase of the four volumes of THE THORNY WAY OF TRUTH. Accordingly, they will be returned to you.

Sincerely yours,

David Lazarus
David Lazarus
Editor-in-Chief

xc: G. Basbas
D. Nordstrom

Editorial note. See the letters of Marinov to Basbas of the 19 May 1989 and to Lazarus of the 25 June 1989.

STEFAN MARINOV
Morellenfeldgasse 16
A-8010 GRAZ - AUSTRIA

Prof. Bengt Nagel
Nobel Committee for Physics
Sturegatan 14
S-114 36 Stockholm

3 May 1989

Dear Prof. Nagel,

At the end of January I sent you the first edition of my book THE THORNY WAY OF TRUTH, Part IV, begging you to confirm the reception but no letter came from you.

For the case that the book has been lost in the post, I send you now the second edition of TWT-IV, where there are some changes in the article on p.136 (with respect to the same article in the first edition).

I send you also the first edition of TWT-V. I beg you to read ATTENTIVELY the articles on pp. 5, 8, 36 and 315.

Thus you can see that there is a functioning PERPETUUM MOBILE in the village of Linden in Switzerland and the world DOES NOT KNOW THIS.

I try to bring Dr. Maddox, the editor of NATURE, to Linden, but as said on the cover of the book, Dr. Maddox behaves himself as an ass on a bridge, i.e., he continues to persuade myself that he wishes to see the machine but he always finds some pretext not to come.

I am addressing the Nobel committee with the proposal to organize a visit of some representative of the committee in Linden. If you will consent that this is necessary to be done, then write a letter addressed to me that this person (persons) would like to inspect the machine. I shall present this letter to the ruling board of the community and if they will also consent, we shall arrange the date by phone conversations (thus, please, send me the phone number where I can reach you, or your secretary).

After landing in Zürich, the representatives of the Nobel committee will be guests of the community.

I send you this letter by express mail and I beg you to answer it also BY EXPRESS MAIL, as in about ten days I go to Linden and I should like to have your answer (a telegraphic reply (with a positive or negative answer) will be HIGHLY APPRECIATED) before starting for Linden.

Please, confirm the reception of TWT-IV, sec. edition, of TWT-V, first edition and also of TWT-IV, first edition sent to you in January.

Since ten years a perpetuum mobile works in Linden, Switzerland, and the world does not know this. Our irresponsibility before mankind is UNPARDONABLE.

Sincerely yours,



Stefan Marinov

Editorial note. The answer of the Nobel Committee for Physics to Marinov's proposal for organizing a visit of the members of the Committee in Linden is given in the letter of the Nobel Committee of 18 May 1989.

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P. O. Box 11422
Clearwater, FL
34616
(813): 442-3923

Stefan Marinov
Morellenfeldgasse 16
A-8010 GRAZ, AUSTRIA

May 12, 1989

Dear Stefan:

Thank you for the receipt of T.W.T., 5th Edition, and you have done an excellent job of the electrostatic disc portion of the M-L Converter, in my view.

I have some differences of opinion with you on other portions of this excellent F/E system, but this will be the way that we will eventually get this system resolved, at least the theoretical principles of operation for it.

I'm enclosing a recent response to an advisory from Mr. Ehlers of "raum & zeit" /GR, for your review and consideration at this time.*

While I've not intended to get involved, again, with the M-I Converter, Mr. Ehlers' letter to me has "stirred the pot", and I had to dig into my file of it. Was also obliged to look further into the physics of it, to see if something had been missed, and I believe that this has been the case on this project work.

Please note the content of Item No. 5, in the r & z letter/-copy, which I believe sheds some more light on the background for the system, as noted.

Even if this theory may be close to complete, I don't believe that it helps much in understanding the actual hardware components, which remain a puzzle in my view, as it is, apparently with you!

Hopefully, we may be able to eventually fully resolve the construction of the components and their various details.

I've also written to Mr. Francis Bosshard of Methernitha, saying that I believe that Paul Baumann should now be considered for a Nobel Prize nomination in applied physics, but I'm not sure how this can be done.

Since most of us are "outsiders" in this F/E field, I don't know how we can gain the "ear" of the establishment in this regard.

If you will be at Methernitha/Linden I believe that you will see Rolf S. there by that time, although I was not sure of his departure schedule from the U.S. I believe that he has been very busy in the preparation for this trip, and was therefore unable to contact everyone about his trip schedule.

In regard to the work of Schumacher and Searl, I have little knowledge of Schumacher's work other than the brief descriptions and sketches provided, so hesitate to present an authoritative writeup on it.

About John Searl's work, I do have the full description and construction details of his S.E.G. system, I only have a sketchy understanding of how it works, and to my knowledge, no one, except Searl, fully understands how it works, so he is much like Baumann in this regard.

I will order your T.W.T. VI sometime in June.

Sincerely,

* This response was published in RAUM UND ZEIT, Nr. 40, p. 83 and is reproduced in this volume.

Don Kelly



europhysics letters

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Reviews Manager

Mr. G. Thomas

Mr. Stefan Marinov
Morellenfeldgasse 16

A - 8010 Graz

Geneva, 16 May 1989

Dear Mr. Marinov,

Thank you for your letter dated 7 May 1989, addressed to Mrs. Ch. Boulidin who is on leave for a few months. I have looked into your file and I should like to remind you on the letter by Mrs. Ch. Boulidin, dated 26 February 1988, in which it is clearly stated that we are not willing to receive any further manuscripts for Europhysics Letters from you.

Let me also add a personal remark. I admire the Co-editors who have spent so much time to deal with your papers containing remarks being far from the usual vocabulary common in the civilized countries. Therefore, any papers received from you at our address will be handed over to me and go then directly into the paper waste box.

Yours sincerely,

G. Thomas

cc: N. Kurti,
W. Buckel, Editor-in-Chief

GT/et



A-8010 GRAZ — AUSTRIA

18 мая 1989 г.

Академику А. Д. Сахарову
ул. Чкалова 48
Москва - Центр

Глубокоуважаемый Андрей Дмитриевич!

Обращаюсь к Вам с вопросом ПУБЛИЧНОГО значения и прошу Вас уделить ему соответствующее внимание.

Как я сообщал в моих книгах THE THORNY WAY OF TRUTH (TWT), части III и IV, в религиозной коммуне Метернига, в деревне Линден близ Берна, построен вечный двигатель, производящий "свободную" электрическую энергию, т.е. сотворяющий энергию из ничего. Моя книга TWT-V, которая приложена к настоящему письму, почти полностью посвящена этой машине, чье название ТЕСТАТИКА.

В коммуне /где есть первоклассная кино-студия, оснащенная новейшей техникой/ изготовлен фильм, посвященный этой машине, коммуне Метернига и вопросам общечеловеческой морали. Я являюсь членом коммуны Метернига и мое предложение показать этот фильм публично впервые по московскому телевидению было воспринято советом коммуны. Меня уполномочили связаться со соответствующими инстанциями в Советском Союзе, чтобы осуществить этот показ.

Предложение, с которым коммуна Метернига обращается к советской стороне следующее:

Мы предоставим 40-минутный цветной фильм, чтобы излучить его по первому каналу московского телевидения сразу после первого вечернего тележурнала. Вступительное /пяти-минутное/ слово должно быть сказано Вами, или Президентом АН СССР, или /на что мы будем конечно рады/ вами обоими. При произношении слова должны присутствовать двое представителей коммуны. Мы приглашаем Вас, Президента АН СССР, или уполномоченных вами лиц посетить коммуну, посмотреть фильм и удостовериться, что машина ТЕСТАТИКА является вечным двигателем (perpetuum mobile) и что она производит "свободную энергию" в изобилии. После приземления на швейцарском аэродроме все лица из Советского Союза будут нашими гостями и могут провести в коммуне столько дней, сколько сочтут необходимым. Принцип действия машины не будет разъяснен в деталях и машину нельзя будет демонтировать, но будет дана полнейшая возможность убедиться, что нет трюка и скрытых источников энергии. Перелетав TWT-V можно составить себе мнение, что эта машина собой представляет.

Так как я проживаю в Граце, Австрия, лучше в начале канализировать вопрос при помощи советского посольства в Вене и в случае необходимости при помощи советского посольства в Берне, находящегося в 30-ти километрах от деревни Линден.

Прилагаю мои письма Президенту АН СССР, советскому послу в Вене и д-ру С. Г. Панкратову, редактору отдела физики и математики в журнале НАУКА И ЖИЗНЬ. Считаю неуместным, чтобы я обращался непосредственно к Председателю Гостелерадио и в случае что Академия Наук сочтет показ нашего фильма надлежащим, такие контакты будут установлены при посредничестве АН СССР.

Я выбрал д-ра Панкратова в качестве "связного лица" в Москве, так как он в прошлом году посетил анти-релятивистскую конференцию в Мюнхене /в чьей организации я принимал активное участие/ и знаком со многими аспектами нарушений законов сохранения, но я не знаю, если д-р Панкратов мое предложение примет. Как Вы себе наверное припомните, 29-го октября 1987 г. я посетил Вас и предложил Вам участвовать в конференции в Мюнхене, но Вы это предложение отклонили. При моем посещении я проинформировал Вас об экспериментах, нарушающие принципы относительности, эквивалентности и законов сохранения, но Вы приняли мою информацию с законным скепсисом, о чем 7-го ноября 1987 г. газета НЮ ЙОРК ТАЙМЗ сообщила на первой странице. Ваши слова тогда были: "Меня, конечно, можно переубедить, но 'тру-у-дню." Я уверен, что Ваше посещение /или посещение уполномоченного Вами лица, которому Вы полностью доверяете/ деревни Линден сможет переубедить Вас слишком быстро, ибо физика является наукой экспериментальной а не верским догматом.

Прошу Вас сообщить мне как можно скорее /по возможности экспрессным письмом или телеграммой/, если Вы пожелали бы сказать вступительное слово к фильму и в случае положительного ответа, если Вы лично захотели бы посетить коммуну или послать уполномоченного Вами лица. С сердечным приветом Вам и Елене Георгиевне, Вам:

STEFAN MARINOV
Hofgasse 16
A-8010 GRAZ — AUSTRIA

Академику Гурию Марчуку
Президенту АН СССР
Ленинский Проспект 14
Москва В-71

18 мая 1989 г.

Глубокоуважаемый Господин Президент!

Чтобы не повторяться, прилагаю копию письма, которое я отправляю сегодня академику Сахарову.

Я прошу Вас сообщить мне как можно скорее /по возможности экспрессным письмом или телеграммой/, если Вы пожелали бы сказать вступительное слово к фильму и в случае положительного ответа, если Вы лично захотели бы посетить коммуны или послать уполномоченного Вами лица.

Мы хотели бы возможно скорее узнать ответ советской стороны на предложение коммуны Метернита, ибо в случае неприятия этого предложения мы выберем другой путь, чтобы оповестить мир о существовании вечного двигателя, машины ТЕСТАПИКА.

В ожидании ответа,

Искренне Ваш:

Стефан Маринов

ПРИЛОЖЕНИЯ:

1. Книга THE THORNY WAY OF TRUTH, Part V.
2. Мое письмо академику Сахарову.
3. Мое письмо советскому послу в Вене.
4. Мое письмо д-ру С. Г. Панкратову.

STEFAN MARINOV
Hofgasse 16
A-8010 GRAZ — AUSTRIA

18 мая 1989 г.

Д-ру С. Г. Панкратову
Редактору отдела физики и математики
Журнал НАУКА И ЖИЗНЬ
ул. Кирова 24
Москва - Центр

Дорогой Сергей,

Посылаю тебе мою книгу THE THORNY WAY OF TRUTH, Part V, и копии писем, которые я отправляю сегодня экспрессной почтой:

1. Академику Сахарову.
2. Президенту АН СССР.
3. Советскому послу в Австрии.

Если ты не против помочь мне в качестве "связного лица" в Москве в связи с предложением коммуны Метернита Академии Наук СССР, то оповести меня экспрессным письмом. Я могу звонить тебе дома поздно вечером, когда линии свободны и это для меня очень удобно.

С дружеским приветом тебе и Татьяне Юрьевне,

Искренне твой:

AUSTRIA

Господину Генадью Шикину
Советскому послу в Австрии
Рейснерштрассе 45-47
1030 Вена

18 мая 1989 г.

Глубокоуважаемый Господин Посол!

Прилагаю мою книгу THE THORNY WAY OF TRUTH, Part V, и копии писем, которые я отправляю сегодня экспрессной почтой:

1. Академику Сахарову.
2. Президенту АН СССР.
3. Д-ру С. Г. Папкратову.

В этих письмах содержится предложение, с которым интернациональная религиозная коммуна Метеринта обращается в Академию Наук СССР. Думаю, что посредничество советского посольства в Вене будет необходимо для установления более эффективных связей между мною, как представителем коммуны, и Академией Наук СССР.

В связи с моими научными контактами с академиком Сахаровым и с Президентом АН СССР и в связи с моим посещением Сахарова и Отдела связей с заграницей АН СССР в октябре-ноябре 1987 г. я регулярно информировал Вас, посылая копии соответствующих писем.

В декабре прошлого года я посетил посольство в Вене и представился Вашим сотрудникам по науке, господам В. Азаренков и А. Халдеев, чтобы они составили себе личное мнение обо мне, сказан им, что в скором будущем я обращусь в АН СССР и в Посольство с важным вопросом касающимся нарушения законов сохранения.

В случае что необходимо мое личное посещение Посольства в связи с предложением нашей коммуны, я готов прибыть в Вену в любое время.

Если будет необходимо, я готов также вылететь в Москву.

В ожидании Вашего мнения,

Искренне Ваш:



Стефан Маринов



NOBEL COMMITTEES FOR PHYSICS AND CHEMISTRY
THE ROYAL SWEDISH ACADEMY OF SCIENCES
Box 50005, S-114 05 Stockholm, Sweden

1989-05-18

Herr Stefan Marinov
Graz

Dear Sir,

This is to acknowledge receipt of your books "The Thorny Way of Truth",
parts IV (first edition), IV (second edition) and V (first edition)

Yours sincerely,

Anders Bárány
Ass. secretary to the Physics Committee

Editorial note. This is the answer of the Nobel committee to Marinov's letter of the 3 May 1989.

PHYSICAL REVIEW
LETTERS
AUSTRIA

19 May 1989

Dr. George Basbas
Physical Review Letters
1 Research Road
Box 1000
Rydge
NY 11961

Dear Dr. Basbas,

I received the letter of Dr. David Lazarus of the 27 April 1989, a copy of which Dr. Lazarus has sent also to you. My request for re-examination of all papers rejected in the last years by PHYSICAL REVIEW LETTERS was rejected. Thus I do not see other ways to show to the world that relativity is dead and that the present concepts of electromagnetism are to be fundamentally revised than to continue to submit papers to the leading physical journals which still have not broken the contacts with me and continue to examine my papers. Such a journal which maintains gentleman contacts with me and examines my papers (although some time pretty long) is PHYSICAL REVIEW LETTERS. Now I submit in two copies my paper

THE ELECTROMAGNETIC EFFECTS ARE DETERMINED BY THE
POTENTIALS AND NOT BY THE INTENSITIES.

The PACS numbers are 03.50.De, 41.10.Fs.

All charges will be paid by myself.

Herewith I transfer the copyright for this paper to your journal.

THE PHYSICAL REVIEW refused to buy the first four volumes of my sequence THE THORNY WAY OF TRUTH and the books were sent back to me. The postage (air mail) paid by you was 40 \$, meanwhile the price of all books is 100 \$. I have the feeling that THE PHYSICAL REVIEW is AFRAID to have these books in its library, as they can "influence" some of its collaborators. You could send the books via sea mail and not pay such a terribly high sum.

I enclose the cover of TWT-V which I published recently where I give the description of the first electromagnetic perpetuum mobile on the planet Earth, the machine TESTATIKA. This machine will be presented by a 40 minutes film on the first program of the Moscow TV with an introductory speech of Acad. A. D. Sakharov. Now I am organizing this transmission.

If THE PHYSICAL REVIEW wishes to have TWT-V, send me \$ 25 (+ \$ 5 for air mail). If you will not send me these money I can only repeat the words of the great thinker Karl Marx: "L'ignorance n'a jamais rendu service a qui que ce soit." - You do not read French? Then find somebody who will translate for you those words.

Hoping to receive your acknowledgement for reception and then in due time your final decision,

Sincerely yours,

Stefan Marinov

Editorial note. Dr. Basbas has given an answer to this letter with his letter of the 13 June 1989.

STEFAN MARINOV

Morellenfeldgasse 16
A-8010 GRAZ — AUSTRIA

Prof. P. T. Pappas
Markopulioti 26
GR-11744 Athens

19 May 1989

Dear P.,

Thank you very much for your letter of the 13th May and for the enclosed materials.

You write: "I send a version for reproduction in TWT-VI". Which paper did you send? This one which you submitted also to RAUM UND ZEIT? If it is THIS paper, then I have to reject it.

Here are the reasons: I am not specialist in nuclear physics and cannot judge your paper and give my comments on it. I publish in TWT only such papers which I can examine and for which I can have an opinion. My opinion can DIFFER from the opinion of the author, but I must have MY opinion on the paper. For the case of the cold fusion I cannot have an opinion. Of course, if you would be right, this will be an extraordinary discovery. I can, of course, publish a paper, noting that I have NO opinion on it, but this must be decided at the last stage of the preparation of the book. The publication of TWT-VI is not imminent (maybe the end of June).

I shall beg you to send me a revised copy of your previous paper (on the electrostatic machine) correcting ALL typing and linguistic errors. If you would like, I shall note you these errors, but you will certainly find them by yourself.

I returned two days ago from Linden where I was a week. Now we undertake a very interesting action with Paul Baumann about which you soon will see on your TV. I do not make secrets and I can tell you about the action but you SOMETIMES act as a child and I must be cautious.

You write that I hide from you TWT-IV, second edition. This is not true. I offered you the book in Perugia and you did not wish to buy it. Also Tula* said that there are too many of these books in your house. If you wish to have it, send, instead of 60 \$, 85 \$ and you immediately will receive it.

Have you received TWT-V? Seeing the date of your postage, I have to presume that you have received it. On p. 304 I write that if you wish to have my Rotating Ampere bridge with sliding contacts (machine RAF), you can acquire it by sending to me \$ 2000. Then you can make all necessary measurements and check whether the results reported by me correspond to reality.

Yours,



* Tula is Pappas' wife.

Editorial note. Marinov mentions in the above letter two papers of Pappas. These papers are:

1. Cold nuclear fusion and excess energy.
2. Principles of electrostatic motors with free energy merit.

Both papers are published in this volume.

Prof. of Mathematics, Doctor of Physics

Marcopolioti 26, Athens 117 44, Greece Tel. (0301) 86 23 278

Stefan Marinov.
Morrellenfeldgasse 16.
A-8010 GRAZ, AUSTRIA.

May 28, 1989.

Dear Stefane,

Thank you for your letter 19 May 1989.

I suggest you publish the above letter of yours in TWT for your readers. I can not believe your explanation in this letter not to publish my paper. I understand you are going to publish the Thorny Way of Truth regularly as a scientific journal. May I ask you what are the criteria for a paper to be published in TWT? Is it whether or not Marinov understands it. I suggest you think twice what you write on a piece of paper. I did not expect to hear this excuse from the worst editor of the conspired journals.

You refer to me about typing mistakes for a second time without pointing any to me. I hope this is not an excuse as the excuses used by the conspired editors for my early papers. As an editor you should point to me my typing mistakes. My manuscripts are electronically checked and there should be no typing errors, certainly much less than yours.

I am not a child but I can not accept someone who ever he is, mispresenting facts and scientific truth. Therefore, you should not be cautious of me. As a friend you should present your scientific activities with Paul Baumann.

Every publisher who corrects his book either offers the new book at a low prize to those who bought already the first edition of the book or sends the corrections free of charge. I can not afford buying a new book every time you make an error. Please, send me the corrections free of charge.

I am not taking your suggestion to pay 2000 \$ dollars, a la Schumacher. I can not pay 2000 \$ dollars for a machine that I know does not produce anything surprising and definitely does not rotate as you claim. You claim a so important result that it is your duty to prove it. Unlike Maddox, I can take the risk, pay air tickets and come to witness your machine, if you ask me to come.

Sincerely Yours,

Dr. P.T. Pappas,
Professor of mathematics,
Professor of Physics, TEL Patras.

FRIGIDAIRE

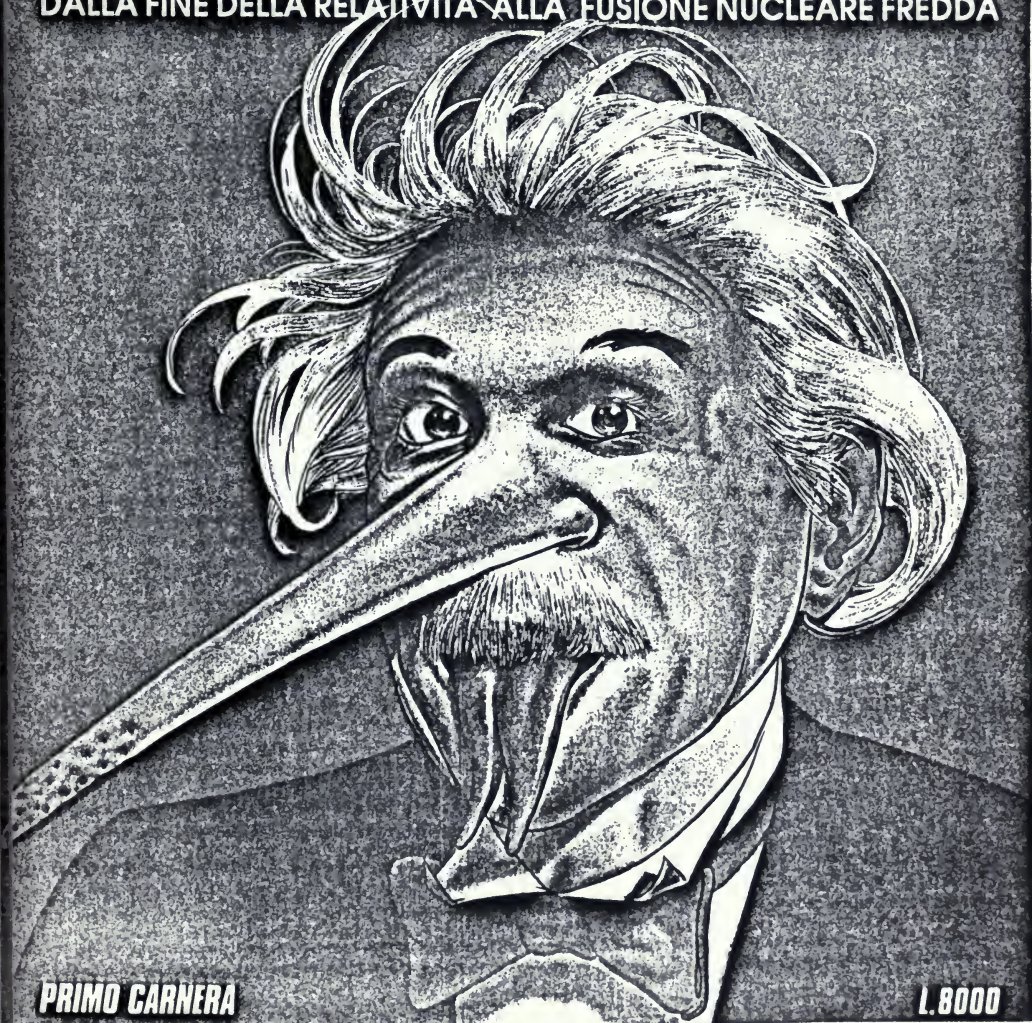
ALBI DELLE NUOVE SCIENZE

GALILEO BACK IN ITALY

Renzo Boscoli-Roberto Monti

"EPPUR SI FONDE"

DALLA FINE DELLA RELATIVITA' ALLA FUSIONE NUCLEARE FREDDA



PRIMO CARNERA

L. 8000

STEFAN MARINOV

16

A-8010 GRAZ — AUSTRIA

31 Mai 1989

Г-ну Владимиру Азаренкову
Советское посольство
Рейснерштрассе 45 - 47
1030 Вена

Глубокоуважаемый господин Азаренков!

29-го мая Вас посетил мой уполномоченный, г-н Кристиан Вербик, в связи с моим предложением показать фильм о вечном двигателе ТЕСТАТИКА по московскому телевидению.

Со слов г-на Вербика я заключаю, что мои усилия ускорить выработку ответа со стороны АН СССР не находят благоприятной почвы. Вы сказали господину Вербику, что Вы все мои письма перешлете в Академию. Незачем их посылать - я уже послал их. Я думаю, что сегодня в эпоху нового не только "мышления", но и "действия" посольство должно быть не только "пересылочным пунктом", но местом ПРИНЯТИЯ РЕШЕНИЙ И ДЕЙСТВИЙ.

Вполне закономерно, что Вы /и советская сторона вообще/ считаете, что машина ТЕСТАТИКА чужд и ерунда. Но перед тем как убедиться, что эта презумпция соответствует действительности, нужно считаться и с другой возможностью, а именно, что машина является реализованным чудом. При этом нужно принимать ввиду мое АВТОРИТЕТНОЕ мнение.

Г-н Вербик говорил Вам о двух моих предложениях:

1. Посещение служителя Бернского посольства в деревню Линден, находящуюся в 30-ти километрах от посольства.

2. Мое посещение в Москву, чтобы я мог "вести" представителей АН СССР в сущность вопроса и чтобы легче договориться об осуществлении посещения соответствующих лиц Сахарова и Марчука в Линден. В Москве я продолжу мои разговоры со Сахаровым о теоретической подоплеке нарушений законов сохранения, ибо при моем предыдущем посещении я не смог его убедить. Но, конечно, убедиться, что законы сохранения нарушимы, возможно только после осмотра машины.

На оба эти предложения Вы дали уклончивые ответы, ибо это легче всего сделать. Я опять повторяю эти два предложения. Представителя посольства из Берна мы привезем на нашей машине, если так сочтут в Бернском посольстве более целесообразным, и мою путевку в Москву я оплатю сам.

Посылаю Вам приглашение о пресс-конференции, которую я организую 7-го июня в Граце в ЛАНДХАУЗКЕШЕР на Шмидгассе, которая находится в самом центре города. Я приглашаю представителя советского посольства в Вене посетить эту конференцию. После конференции мы можем пообедать вместе и поговорить более спокойно и содержательно о нашем предложении. Я боюсь, что мои письма будут перебрасываться из одного ящика в другой и никто из людей, перебрасывающих эти письма не примет решения "да" или "нет", ибо так легче всего делать, но горький опыт застойных лет научил нас, что таким путем НАРОДУ мы не служим.

В ожидании Вашего ответа,

Искренне Ваш:

Стефан Маринов

III. Я заметил, что все женщины в коммуне МЕТЕРИТА заносили фартуками. На мой вопрос почему все носят фартук, я получил ответ: "Мы являемся СЛУЖАНКАМИ". Если Горбачев заносит фартук всем служителям в советском государстве, выйдет прок.



Посольство
Союза Советских
Социалистических Республик

1 June 1989
(date put by Marinov)

Уважаемый господин С.Маринов!

Крайне благодарны Вам за книгу "THE THORNY WAY OF TRUTH, Part V". Посольство, к сожалению, не располагает специалистами в области энергетического машиностроения.

Учитывая Ваше обращение к Президенту АН СССР и академику Сахарову А.Д., полагаем целесообразным подождать ответа по данной проблеме из Москвы. До получения такого ответа Ваш визит в Посольство СССР в Австрии для дальнейшего обсуждения каких-либо вопросов по тематике Вашего интереса вряд ли целесообразен.

При получении ответа от АН СССР мы известим Вас немедленно.

С уважением

АТТАШЕ ПО НАУКЕ И ТЕХНИКЕ
ПОСОЛЬСТВА СССР В АВСТРИИ

Editorial note.

ОТ РОССИИ ТОЛКУ НЕ БЫЛЮ,
И НЕ БУДЕТ.

Чаадаев

В. АЗАРЕНКОВ

Marinov's note. На бланке посольства ни адреса, ни даты нет. Шеварнадзе, дорогой, дипломатов ваших в дилшолах грамоте разве не обучают? Или они только чай в дилшкпе попивать умеют? --- Месяц после отправки моих заказных экспрессных писем Марчуку и Сахарову не только что ответы не пришли, но даже и обратные расписки о получении, мною оплаченные, не вернулись. Это верно что Андрей Дмитрич говорил мне в октябре 1987-го года, что его письма приходят к нему с трехмесячным опозданием, но ведь теперь 89-ый год на дворе и цензоры Сахаровскую корреспонденцию больше не перлюстрируют, don't they. А как с корреспонденцией Марчука? - Ах там бюрократия тянет! Хорошо, но обратные расписки - это почтамы. - Ах, почтамы плохо работает! Июнь-я-ятно.

Видя, что "хозяйка мирно почивает, иль притворяется, что спит", я взял номер телекса из письма АН СССР мне от 19.11.1988 /там, к моему большому удивлению я нашел не только адрес, но и телефон и телекс - см. TWI-III, p. 269/. Отправился посылать телекс. Конечно, оказалось, что такого номера вообще нет. Постарался созвониться с Академией: кроме странных гудков и ругань /см. TWI-III, p. 194/, результат, конечно, был дыра. Позвонил г-ну Азаренкову и спросил какой номер телефакса академии. Он сказал, что у Академии телефакса нет. Междувипрочем, кто-то позавчера сказал мне, что посылал телефакс какому-то невзрачному учреждению в Парижине. Умом Россию не понимая, но упорно продолжая в нее верить, я спросил, знает ли он случайно номер телекса Академии, по которому телексы посылать можно. Оказалось, знает! Послал челобитную. Попросил, чтобы соблагонзволмили сообщить на мой телекс в течении недели, хотят ли советские академики посмотреть, как крутится вечный двигатель, или академия, к сожалению, не располагает специалистами в области энергетического машиностроения. Ждем. Анось медведь проснется!

PHYSICS LETTERS A

PROFESSOR J. P. VIGIER

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1/6/89

Dear Dr Marinov,

I enclose reports on your papers
V791a and V792a. I regret that I cannot
accept them for publication. I am awaiting
the responses of the referees to your other
papers, V726a and V727a.

Yours kindly N.C.

PS Papers rejected by one editor of PLA
cannot be handled by another editor.

referee report on
"The Absolute and Relative Newton-Lorentz Equations"
by S. Marinov

This manuscript introduces a situation in which vector potential depends on time via the changing positions of the sources producing the vector potential. The author claims that conventional physics does not recognize the formula describing this situation directly, and must instead resort to a relativity argument starting in a different coordinate frame. I don't agree that this is so. Conventional physics accepts time variation of the vector potential as a cause for an electric field, regardless of what it is that in turn causes the time variation. If there exists some commonly used text that seems to say otherwise, Marinov should point it out.

Editorial note. See Marinov's answer in his letter of 8 June.

STEFAN MARINOV

Morellenfeldgasse 16
A-8010 GRAZ — AUSTRIA

Prof. P. T. Pappas
Markopulioti 26
GR-11744 Athens

5 June 1989

Dear Panaiotis,

Thank you very much for your letter of the 28 May.

I think that it will be good to publish our last correspondence in TWT-VI, as such a publication will throw additional light to the Grassmann-Ampere controversy and to your and my experiments which try to solve this controversy experimentally.

I shall be happy also to publish your correspondence with PHYS. REV. LETT. on your paper "Forces on a Stigma Antenna" which was published on p. 158 of TWT-IV under a slightly different title. Thus I beg you to send me a GOOD copy (on one side of the sheet) of the letter of PHYS. REV. LETT. and of your answer.

Now to your paper "Cold Nuclear Fusion and Energy Excess" which I rejected with my letter of the 19 May.

TWT is NOT a scientific journal. This is a series of papers, letters and documents which concern predominantly my theoretical and experimental research. I include papers of other persons only when I see that such papers will throw additional light to the problems which I am investigating and which are listed on p. 291 of TWT-IV. I am the only judge who decides whether a paper should be published or rejected. Of course, I can take into account the opinions and the suggestions of other people, but the final decision depends only on my own will. In the case of rejection I present motivations and in the case of acceptance, as a rule, I publish my opinion on the paper. The motivation that I do not understand a certain paper is sufficient for its rejection. I receive too many papers and I cannot physically publish all of them. I make TWT a collection of a VERY HIGH QUALITY and I think I am successful, as in the last time people order not single copies of TWT but tens of copies and resell them then at higher prices.

You submitted to TWT certain EXCELLENT papers (as the paper published on p. 169 of TWT-IV, although its somewhat awkward presentation does not allow to the common reader to appreciate its beauty) and papers written in a hurry (as the paper published on p. 289 of TWT-V) which "glitter with idiotisms" as you are unable to tame your emotions when discussing experiments giving evidence contrary to your predictions.

As you see, I published a great part of the papers which you submitted to TWT, as I hope that all of them (not only the good but also the bad) will throw some light on our thorny way towards the scientific truth.

I rejected your paper "Cold Nuclear Fusion..." with the motivation: "I am not a specialist in nuclear physics and cannot judge your paper." I chose this motivation:

- a) as I wished to spare my time to criticize it, and
- b) as I preferred to evade the necessity to tell you my opinion which, surely, would be offending your ambitions.

Neither I nor you are specialists in nuclear physics and your paper is not a "nuclear physics paper". Simply you heard in the night people shouting "There is a bear in the basket", you jumped from your bed, charged your beloved "Ampere-formula-gun" and you shot in the direction to the basket. Maybe the bullet will hit the bear! You repeated exactly the same move as in the case with the Joseph Newman machine some years ago. You read in TWT-II that J. Newman claims of having produced free energy, over a night you invented the theory that this machine is transforming heat into mechanical energy, cooling thus the environment in contradiction to the second law of thermodynamics, and in a hurry patented this "discovery", taking the experimental evidence from Dragone's replica of Newman's machine even without having seen and tested Dragone's machine.

I reproduce here the summary of the patent of Dragone and yours, for the case that you have forgotten what have you both asserted in this patent:

*Patents**
87,0462/87.5/123
20-3-1987.

Translation

Electro-Entropic Engine of High Efficiency
Inventors:

L.R. Dragone, P.T. Pappas

Summary

The device described herein is an extremely efficient DC motor which has the added feature of converting heat which it draws from the surroundings directly into mechanical energy. In the prototype described herein, the mechanical output was in excess of 20 watts, while the electric power input was 0.9 watts, the reminder of the output power 19.1 watts being derived from direct conversion of heat energy from the surroundings. In particular, the interior of the main coil of the device pumps heat from the surrounding when the motor is in operation. This heat energy is converted directly into large current pulses in the coil and ultimately ends up in producing greater mechanical output of the rotating shaft.

*For Stefan
Maninow.*

In the summer of 1987 you and Dragone came to me in Graz and I showed you my superb replica of Newman's machine (see p. 134 of TWT-III, sec. ed.) which gave no free energy. I offered you the hospitality to make attentive and exact measurements and to persuade yourself that the motor is conventional and that there is no even the slightest trace of violation of the energy conservation law (i.e., the output energy was always LOWER than the input energy). However, you, although having seen for a first time Newman-type machine, did not wish to make such accurate measurements and started bustly into a certain direction to the West to meet persons, to whom I have introduced you, and to sell them the skin of a bear which not only that still was in the wood but which neither did exist.

Now I see that you insist too much to see your paper on the cold fusion published in TWT-VI. Well, I shall publish it.

I was in Italy during the "cold fusion euphory" which in Italy was the most euphorical. To propose theoretical explanations for the effects in some electrolytic experiments, about which the reports are so contradicting, confusing and inaccurate, is not only bad physics; this is not physics at all. First one must know WHAT has one to explain theoretically. One must have clear effects, measured with a better or worse accuracy, but EFFECTS. In Newman's machine there were NO "free energy effects" but you rushed to explain and even to patent these non existing effects. For me (I repeat I am not a specialist in nuclear physics) the reports of Fleischmann and Pons and of Steven Jones are of such a quality that it is premature to "propose theories" for their explanation. I should like also to add that you even do not refer in your paper to the papers of the above authors which I procured for you in Perugia, so that you propose your "theory" even without analysing the "effects" observed by Fleischmann + Pons and Jones. Thus this will be your last paper of such a kind which I shall publish in TWT. If you will produce other such papers of "shooting into the basket", you have to search for other scientific vehicles. But I shall gladly publish your comments to my above opinion, if you should have such an opinion.

I note all your typing errors in the paper "Principles of Electrostatic Machines..." and in your paper published on p. 289 of TWT-V. I shall be extremely thankful to you if you will indicate to me any typing, linguistic, mathematical or other error which you will find in TWT. I owe always my highest gratitude to these people who correct my errors. I have not corrected yours by myself, as I thought that it will be not difficult for you to identify them.

You wish to know which are my scientific activities with Paul Bauman of the Mether-nitha community. I repeat once more, your attitude in the past years has shown that I must be cautious with you, moreover when this concerns third persons. You will learn about the action which Paul Baumann and I now undertake from your TV screen. Excuse me.

By editing TWT-IV, second edition, I do not correct the first edition as an editor, as the publication of the first edition from an editorial point of view is O.K. In TWT-IV, first edition, the author Stefan Marinov has published a report on his RAF-machine, from which it follows that there is no back tension induced in the Rotating Ampere Bridge which is the motor part of this machine. In TWT-IV the author Stefan Marinov presents a revised version of this paper from which it follows that, according to his preliminary theoretical expectations, there is a back tension indeed. The overseeing of this back tension at his first measurements was due only to the bad experimental conditions in which the author Stefan Marinov, a poor groom, as you know very well, does work, investing the scarce money which he receives from these people who PAY for the books which they have ordered. Thus if you wish to have the second edition of TWT-IV, you must PREPAY it. In TWT-IV I published three of your papers free of charge, making so many time consuming and money consuming efforts, so that your papers appear in a good form and commenting any of your papers but you still, a half a year after receiving the ordered copy of the first edition, do not pay it. Thus, I shall beg you, if you do not intend to send to me the remaining 60 dollars for the books which you have already received, to send back to me TWT-III and TWT-IV, so that I can sell them to other people and in this way to accumulate money for the edition of your papers in TWT-VI.

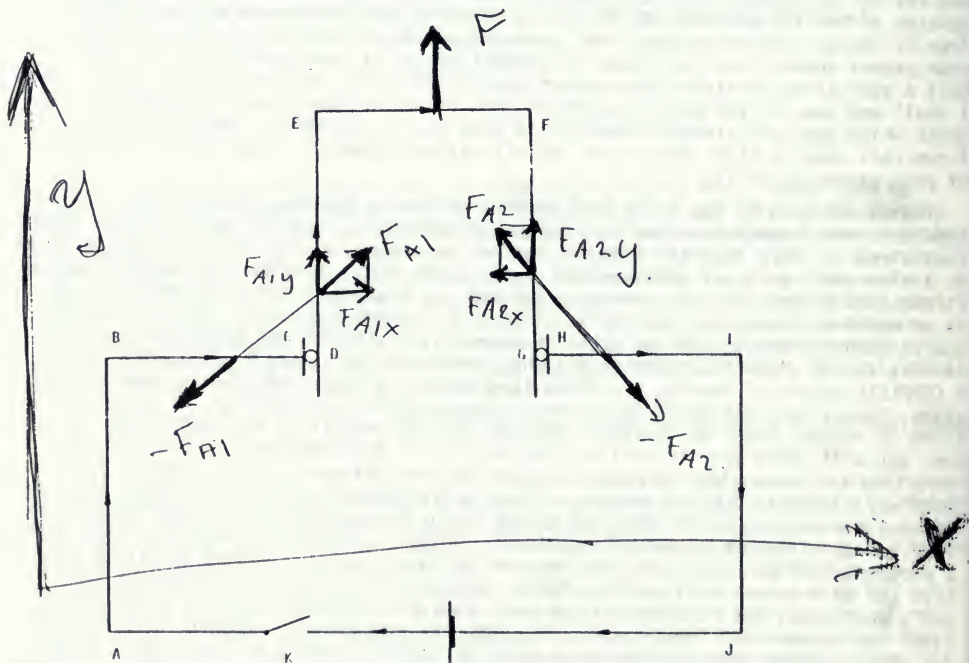
You do not wish to buy for \$ 2000 my RAF-machine, a machine, as you write "that I know does not produce anything surprising and definitely does not rotate as you claim". That's your affair. You raised doubts whether my machine really exists (although there is a clear photograph of this machine), you raised doubts whether this machine demonstrates the effects which I have reported and you trumpet in the whole world: There is no machine, there are no effects, there is a "Hollywood physics". Well: I offered you to send the machine to you (against payment), I offered you hospitality to come to Graz and to check its rotation and the appearing effects and I published in TWT-IV a COMPLETE technical drawing according to which any mechanic can reproduce the machine. Choose this way which is the most convenient for you. You can, of course, continue to trumpet about my "Hollywood physics" but the result, I am afraid, will be only one: you will blame your scientific credibility. For your information I repeat once more that Dr. Maddox also raised doubts whether the RAF-machine will rotate. As he told me, a highly qualified scientist to whom Dr. Maddox has full confidence has replicated the machine and IT DOES NOT ROTATE. With this motivation he rejected the publication of my report on the RAF-machine in NATURE. I begged Dr. Maddox to send to me a photograph of the replicated machine and the report of this highly qualified scientist and to disclose his name. Dr. Maddox said that he will not disclose the name but a photograph and a report will be sent with the official letter of rejection. Since half a year this report and photograph do not arrive, although in our everyday phone conversations Dr. Maddox assures me that the report will be sent. In the 5 conversation which I made from Italy Dr. Maddox assured me that the letter is already sent. When I did not find it after my return from Italy and phoned him again, he three times insisted that the letter has been sent and the fourth time consented that in all 8 phone conversations he has lied. In the succeeding phone conversations he continued his lies: "The letter will be sent to-morrow, today before five O.O., today before noon with a telefax etc." Thus I have THE WHOLE RIGHT to blame Dr. Maddox that he is doing HOLLYWOOD PHYSICS, as I can present PROOFS. Show your proofs, Panaitis: The pages of TWT-VI are at your disposal.

Concerning your present assertions that a Rotating Ampere Bridge with Sliding Contacts (RABSC) cannot rotate when sending current through it, I should like to remember you some events from the not far past.

When I PROPOSED the machine presented on p. 101 of TWT-III, sec. ed., I wrote you that as you are the man who did the first QUANTITATIVE measurements of the forces acting on the Propulsive Ampere Bridge with Sliding Contacts (PABSC), I would like to call the invented BY ME machine from p. 101 of TWT-III, IN YOUR HONOUR, the MARPAP (MARinov - PAPPas) machine. I asked you:

- a) whether the machine will rotate when sending current through it,
- b) if you would give a positive answer to the first question, to show to me on a piece of paper the acting (according to you) forces,
- c) if you will fulfill also my requirement b), whether you would agree with the baptism of the machine.

You wrote me (first you said me this orally in Munich in April 1988) that the machine will rotate and you agreed with the baptism and that later you will draw the acting forces. During many months you did not send me a sketch with the acting forces, although I asked you again and again about this sketch in ANY of my letters of that time. Finally you sent the sketch which I reproduce here:



The reason for this "painful birth" was the following: According to your (and Ampere's) concepts, the driving forces in the historical Ampere's floating bridge (and in yours repetitions) are the repulsive forces between COLINEAR currents at the sliding contacts. In my repetition of the Propulsive Ampere Bridge (see the figure above) the currents at the sliding contacts are PERPENDICULAR. Hence your beloved colinear repulsive forces cannot appear. Thus, after many months of rumination, you came to

the conclusion that the forces are as shown by you in the above sketch. Consequently, ^{according to you,} MY Ampere bridge is not self-propulsing (as it follows from the Grassmann formula) but it is a machine with a "rotor" and a "stator" and Ampere's formula clearly shows the acting forces (I agree that according to Ampere's formula the acting forces must be as shown in your above sketch).

When, however, you received the photograph and the technical drawing of my RAF-machine where the MARPAP motor was presented in a slightly different variation, called now by me a Rotating Ampere Bridge with Sliding Contacts, you asserted that this motor will NOT rotate.

But between the MARPAP machine and the RABSC there is NO difference IN PRINCIPLE. Those are ONE AND THE SAME machine. Thus where we are?! I call a machine with your name, you agree with its baptism and you consent that this machine will rotate and when I construct a SLIGHTLY DIFFERENT variation of this machine you begin to trumpet in the whole world that such a machine CANNOT rotate and that I am doing a "Holywood physics". Have I to call further the MARPAP machine a MARPAP machine or you will withdraw your name from this machine? Or according to you the MARPAP machine (which is still not constructed) will rotate but the RABSC (which is already constructed and ROTATES) will NOT rotate?

Don't you think that you begin to abuse with the attention and the money of my readers? People pay \$ 25 for my books to read something new, something important, something what they cannot find elsewhere in the world but not to follow a boring quarrel between you and me.

With the aim to put an end to this altercation, I shall apply to you the same ju-jitsu which I always use when I wish to hold the tongues of my referees from the established journals. I ask them to reply a questionnaire.

Almost all my referees deny to answer the questionnaire. Neither the big sums which I not only OFFER to them, but which I SEND to them, could help to open their mouths, as only by putting their "yes", "no", "I don't know" the referees would show the whole untenability of their objections against my theory and experiments. But as you are my contributor, I can apply to you a more effective ju-jitsu: If you will not answer my questionnaire, I shall not publish your two papers in TWT-VI (I repeat, also the answer "I do not know" is acceptable, but answers must be given to EVERY question). Please, give NEAT answers with a typewriter!

Before beginning with the questionnaire, I should like to make the following general comments on the Grassmann-Ampere controversy:

Since a couple of years you, Graneau, Wesley etc. continue to shout from sunrise to sunfall: "Long live Ampere, God damn Grassmann, long live Ampere, God damn Grassmann." And all of you look only at two interacting closed current loops and all of you do not take into account the whole body of electromagnetism. How you all cannot realize that if one will deny the validity of Grassmann's formula, i.e., the validity of Lorentz' equation, one will be unable to calculate the most simple magnetic effects which appear between the electric circuits. I shall consider only some basic aspects:

1. Proceeding from the Ampere formula (see formula (1) on p. 22 of TWT-III, sec. ed.), you will be unable to introduce the notion magnetic potential of a current element $I'dr$ at a distance r far from it

$$A = Idr/cr. \quad (1)$$

This expression for the magnetic potential is obtained from the relation with which the quantities magnetic potential and magnetic intensity, B , are related

$$B = \text{rot}A \quad (2)$$

and from the Grassmann formula for the force with which the current element $I'dr$ acts on another current element $I'dr'$ (see formula (2) on p. 22 of TWT-III)

$$dF' = \frac{I'dr'}{c} \times \frac{Idr \times r}{cr^3} = \frac{I'dr'}{c} \times B, \quad (3)$$

where the quantity

$$B = (I dr \times r) / cr^3 \quad (4)$$

is called magnetic intensity produced by the current element $I dr$ at a point distant r from it.

From (4) and (2) we obtain

$$A = I dr / cr + A_0, \quad (5)$$

where $\text{rot} A_0 = 0$ and (as I show in CLASSICAL PHYSICS) we have to take also $A_0 = 0$.

Thus you (Graneau, Wesley, etc.) have to build electromagnetism, without being able to write analytically the magnetic potential and the magnetic intensity produced by a current element and even without being able to introduce those quantities. If you are able to introduce these quantities for a current element proceeding from the Ampere formula, please, be so kind to do it. Sorry, Pappas, you CAN'T!

2. As you will be unable to write formulas (1) and (4), then HOW can you calculate the magnetic potential and the magnetic intensity produced by a circular wire? I give such calculations on p. 110 of TWT-II, first ed. and on p. 121 of TWT-II, sec. ed. In TWT-II, third ed., these calculations are omitted, as I had to insert more important and unknown material in my paper COUP DE GRACE TO RELATIVITY AND TO SOMETHING ELSE, meanwhile the mentioned calculations can be found in any standard book on electromagnetism. Please, if you can calculate the field of the magnetic potential of a circular current wire (in the plane of the wire), proceeding from the Ampere formula, do it. Sorry, Pappas, you CAN'T! The field can be experimentally verified by iron cuttings.

3. Your only move to save the situation is the following: You have to take the theorem of Lyness (Contemporary Physics, 3, 453 (1961)) that the force with which a closed loop acts on a current element according to Grassmann and according to Ampere is the SAME. Then you will make the ASSUMPTION that in electromagnetism one can realize only CLOSED loops. And then you will make ALL YOUR CALCULATIONS with the help of Grassmann formula, as only the Grassmann formula allows the introduction of the magnetic potential and intensity according to the above SIMPLE formulas. If you will take your OWN papers, you will see that NEVER have you done engineering calculations for the forces which you have MEASURED, proceeding from the Ampere formula. In your calculations you used ALWAYS the Grassmann formula. Neither your electronic calculators supplied with the most special programs will allow you to make engineering calculations with the Ampere formula. Sorry, Pappas, neither the calculator can help you, as the calculators give you in flour this what you give them in grain.

4. But what to do when the current loop is NOT closed? In this case the forces with which such an INTERRUPTED (by a condensor) loop acts on a current element are different according to Ampere and Grassmann? And in such a case Grassmann's formula violates Newton's third law, while Ampere's formula preserves it. Here the experiment decided which is the right one. Those are my experiments: my Bul-Cub machine without stator and my Rotating Ampere Bridge with Displacement Current (RABDC). These two machines definitely reject Ampere's formula (see the schemes and the photographs of these machines on pp. 79-83 of TWT-III, sec. ed.).

Now, if you will ATTENTIVELY (I repeat, ATTENTIVELY, not in a hurry!!!) answer the following questionnaire, you will understand a good deal of electromagnetism.

The answers must be only

a) yes,

b) no,

c) I do not know.

If requested, a formula is to be given as an answer or some figures. I repeat, every one of the questions is to be answered.

I beg also the reader to answer the questionnaire. This "exercise" is very effective.

QUESTIONNAIRE TO P.T. PAPPAS, Professor in physics and mathematics

1. If a wire moves with a velocity $\mathbf{v}$ is ABSOLUTE space, crossing a point where the magnetic potential generated by a magnet at rest is $\mathbf{A}$, then the electric intensity induced in the wire will be $\mathbf{E} = \mathbf{v} \times \text{rot} \mathbf{A}$. Does Pappas agree? - Yes.

2. If the magnet is moving with a velocity $\mathbf{v}$ and the wire is at rest, conventional physics writes for the electric intensity induced in the wire the formula $\mathbf{E} = - \mathbf{v} \times \text{rot} \mathbf{A}$. For this case Marinov writes the formula $\mathbf{E} = (\mathbf{v} \cdot \text{grad}) \mathbf{A}$. Pappas writes the formula: $\mathbf{E} = - \mathbf{v} \times \text{rot} \mathbf{A}$.

3. If the magnet and the wire move TOGETHER with a velocity $\mathbf{v}$ in absolute space, conventional physics writes for the induced electric intensity $\mathbf{E} = 0$. Marinov writes $\mathbf{E} = \mathbf{v} \times \text{rot} \mathbf{A} + (\mathbf{v} \cdot \text{grad}) \mathbf{A}$. Pappas writes: - $\mathbf{E} = 0$.

4. On p. 42 of TWT-III, sec. ed. are shown a closed current loop and a piece of straight wire (the same figure is reproduced in Marinov's announcement in NEW SCIENTIST, 112, 48 (1986)). For the different cases of relative motion the following answers are given whether a tension will be induced along the wire:

For Fig. 1 on p. 42

	Einstein	Marinov	Pappas
a) Loop at rest, wire rotating	yes	yes	yes
b) Wire at rest, loop rotating	yes	no	no
c) Wire and loop rotating together	no	yes	yes

For Fig. 2 on p. 42
(the loop is VERY long, say, 1 km)

	Einstein	Marinov	Pappas
a) Loop at rest, wire moving	yes	yes	yes
b) Wire at rest, loop moving	yes	no	no
c) Wire and loop moving together	no	yes	yes

5. For the experiment described on p. 317 of TWT-I, i.e., for the experiment showing that displacement current does NOT generate magnetic field, the following results are predicted (see table 1 on p. 321 of TWT-I, third ed.)

d (cm)	Maxwell Theory	Marinov theory	Pappas theory	
			For vacuum between the condenser's plates	For BaTiO ₃ between condenser's plates
1	1.00	0.95	0.95	1.00
2	1.00	0.90	0.90	1.00
3	1.00	0.85	0.85	1.00

(10 cm)

The numbers show the relation between the magnetic intensity far enough from the current wire for the case when the current wire is interrupted by a condenser with the indicated length and for the case the current wire is not interrupted, if the flowing current in both cases is the same. For Maxwell and Marinov there is no difference

whether the space between the condenser's plates is vacuum or a dielectric with a high dielectric constant (as BaTiO_3). However Pappas asserted in conversations with Marinov that the displacement current through vacuum does not generate magnetic field but the displacement current in dielectrics does, as according to Pappas the polarization of the molecules is analogical to the transport of charges - the positive in the one direction and the negative in the opposite.

6. For the Bul-Cub machine without stator, i.e., for the machine shown on p. 57 of TWT-III, sec. ed., the following effect is predicted: If applying alternating tension between the electrodes M and L (the sliding contacts are taken away), then according to Marinov and according to conventional physics, as presented in the opinions of the referees of the leading physical journals (see TWT-III and TWT-IV), the rotor will begin to rotate. Does Pappas agree? - *Yes*.

7. The rotation of the Bul-Cub machine without stator is considered by Marinov as a patent violation of the angular momentum conservation law. Conventional physics (see again the numerous opinions on this experiment of the referees of the leading physical journals in TWT-III and TWT-IV) asserts that the "opposite angular momentum" is "stocked" in the electromagnetic field. If the answer of Pappas to the previous question is positive, is this experiment violating the angular momentum conservation law? - *No*.

8. For the Feynman paradox, i.e., for the experiment shown in Fig. 2 on p. 78 of TWT-III, sec. ed., when the current in the coil is switched off, then according to Marinov and according to Feynman, the rotor will begin to rotate. The opinion of Pappas is: - *No. The charged spheres will rotate only if the coil is not solid to them.*

9. Marinov again considers the positive effect in the previous experiment (which to the best of Marinov's knowledge is until now not executed) as patent ^{assume} violation of the angular momentum conservation law. Feynman and conventional physics that the appearing mechanical angular momentum has been "stocked" previously in the electromagnetic field. If the answer of Pappas to the previous question is positive, is this experiment violating the angular momentum conservation law? - *No*.

10. If in the scheme in Fig. 9 on p. 82 of TWT-III, sec. ed. (the same scheme is shown also on p. 148 of TWT-IV) there are sliding contacts at the points C and F, then according to Marinov and according to Grassmann the Π -form frame CDEF will begin to move in the horizontal direction, if it will be free to move in the horizontal plane, for the cases of direct and alternating currents. Will be there a horizontal push according to Pappas: - *Yes*.

11. If the currents BC and FG will be replaced by displacement currents (i.e., if the points B, C, F and G will be condenser's plates and the volume between them will be vacuum or dielectric), then, according to Marinov and to conventional physics,

the horizontal push will remain exactly the same if the current will be the same. Does Pappas agree with this assertion? - *For dielectrics the same push, for vacuum no push.*

12. If Pappas answer to the previous question will be positive, then will be there a difference for the cases where the displacement currents BC and FG go through vacuum and through dielectrics? - *Yes.*

Note: If Pappas will accept that there is a push on the Π -form frame CDEF, then according to him (i.e., according to Ampere) this push can come only from the currents BC and FG. Consequently the answers to question 5 will determine the answers to question 12. According to Grassmann the push which comes from the currents BC and FG is not in the horizontal plane, thus the bridge is selfpropulsive.

13. According to Marinov and according to conventional physics (the opinion of conventional physics must be considered as expressed in the opinions of the referees of the leading physical journals) the Rotating Ampere Bridge with Displacement Current (RABDC), i.e., the machine shown on p. 135 of TWT-IV will rotate when alternating tension is conducted along the axis of rotation. Will be there a rotation according to Pappas? - *No.*

14. Again Marinov asserts that the RABDC violates the angular momentum conservation law while conventional physics asserts that the opposite angular momentum is stocked in the electromagnetic field. If the answer of Pappas to the previous question will be positive, will the RABDC violate the angular momentum conservation law? -----

15. According to Marinov in the machine MAMIN COLIU, i.e., in the machine shown on p. 86 of TWT-III, sec. ed., tension will be induced in the coil when the rotor rotates (the permeability of the magnetis is to be taken exactly equal to 1). The opinion of Pappas is: - *Yes.*

16. According to Marinov there is no electromagnetic braking in the MAMIN COLIU machine. Is there electromagnetic braking according to Pappas? - *Yes.*

17. According to Marinov the so-called MARPAP machine, i.e., the machine shown on p. 150 of TWT-IV, will rotate when electric tension will be applied to it. The opinion of Pappas is: - *Yes.*

18. According to Marinov the Rotating Ampere Bridge with Sliding Contacts (RABSC), i.e., the motor part of the machine RAF which is shown on p. 149 of TWT-IV will rotate when electric tension will be applied to the two screws (disregard the Faraday disk). The opinion of Pappas is: - *No.*

19. If Pappas has answered positively question 17 and negatively question 18, is there according to Pappas a contradiction between these two answers? - *No.*

20. If Pappas has answered negatively question 17, have I to withdraw his name from the name of the machine? - *Question 17 is answered positively. Retain the name MARPAP.*

21. According to Marinov back tension will be induced in the MARPAP machine and in the RABSC. The opinions of Pappas are: For the MARPAP machine: - *Answer not given.*
For the RABSC: - *The RABSC cannot rotate as an electromotor.*

22. According to Marinov for an Ampere bridge propulsing with a velocity V and having legs with length L the electric induced at a distance x from the edge of the bridge is (see formula (9) on p. 99 of TWT-III, sec. ed.), if the shoulder is along the x -axis,

$$E = - \frac{\mu_0}{4\pi} \frac{V I L \hat{x}}{x(x^2 + L^2)^{1/2}}. \quad (A)$$

As the propulsive Ampere bridge is an "electromotor", there must be a back induced tension (otherwise one will be able to construct with its help a perpetuum mobile). As Pappas asserts that the propulsive Ampere bridge moves (he has done half a million measurements of the forces acting on this bridge), is there a back tension induced in the propulsive Ampere bridge? - *Maybe and if tension will be induced maybe not as requested by the energy conservation law.*

23. If answer 22 is answered positively, then which is the analytical expression of the induced intensity at the different points of the bridge (on the shoulder or on the legs - according to Marinov along the legs there is no induced back electric intensity): - *An analytical expression cannot be written.*

24. Proceeding from formula (A) Marinov has calculated the following back induced tension in the RABSC (see formula (13) on p. 143 of TWT-IV, sec. ed.)

$$U_A = (\mu_0/2\pi) R_A \Omega I \ln(a/a_0), \quad (B)$$

where R_A is the radius of the RABSC, Ω is the angular velocity of its rotation, I is the flowing current, a is the length of the shoulder and a_0 is a very short length which depends on the form of the bridge (thickness of the wire and curvature at the edge). If Pappas answers positively question 21, then which analytical expression will he write for the induced back tension? - *Even if there will be an induced back tension, an analytical formula cannot be written.*

25. Marinov has tested the machine TESTATIKA in the village Linden in Switzerland. According to his measurements and observation this is a SUPERB perpetual motion machine which, moreover, produces a huge amount of free energy. Does Pappas believe to this statement of Marinov? - *No, but TESTATIKA may be a perpetuum mobile.*

26. Is Pappas interested to see the machine TESTATIKA? - *Yes.*

If Pappas will answer positively the previous question, he has to write a letter on the name of Stefan Marinov for his interest to visit TESTATIKA. This letter will be submitted to the Presidency of the community Methernitha and soon he will receive the answer of the Presidency.

ELECTRODYNAMIC QUESTIONNAIRE TO P. T. PAPPAS, by STEFANO MARINOV

ANSWERS BY Panos T. Pappas,
Professor of Mathematics, Gr.Sc.El., Haidari, Athens
Professor of Physics, TEI, Patras,
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The answers are not given as yes or no, or as the least possible ones as Marinov requires. Some extend is given. However, this extend is not meant to cover every detail a non specialist reader will require.

1. The magnetic field of a magnet is the magnetic field of a closed circuit. Provided the involved velocities refer to the inertial frame the interacting system belongs, the formulas of classical electrodynamics hold good, when the source of the magnetic field is a magnet or a closed circuit. In particular, formula $E = V \times \text{rot} A$ is correct for a magnet, when V refers with respect to the inertial frame the interacting system belongs. It is also correct when A is the resultant (integral around the closed path of the circuit) vector potential of any other closed circuit and V is the velocity with respect to the inertial frame the system belongs. For any closed or non closed circuit, one can write only in terms of the cardinal law (Pappas' answer):

$$E = F_{12}/q_1 = -r_{12}(q_2/r_{12}^3) [2v_1 \cdot v_2/c^2 - (3/c^2 r_{12}^2) (v_1 \cdot r_{12})(v_2 \cdot r_{12})]$$

where the velocities should refer strictly to the inertial frame the interacting system belongs. As inertial frame here is not meant a Newton's or Galileo's inertial frame, but a privileged frame (a sort of "system dragging frame"); which is defined as the system of the least coupled system energy.

2. The correct answer is the same as above. However, I would like to draw some remarks for the formula $E = -V \times \text{rot} A$, where V is referred with respect to the absolute space (???) by Marinov. I assume Marinov implies the standard definition $A = idl/r$, where dl is the current element length and r the distance of dl from the point of consideration and not $A = idr/r$ as it is written by Marinov I presume by mistake. The Marinov formula $E = (V \cdot \text{grad}) A$ is not the same as the first formula. For example, for a current element dl , A forms parallel lines to the element dl . Let us say the y axis is chosen parallel to dl . Let us say a charge element is near it. Let us assume the current carrying element approaches the latter with a velocity (V_x, V_y, V_z) , then the Marinov formula for the induced E on the latter charge element reduces to:
 $E = (V \cdot \text{grad}) A = (V_x \partial A / \partial x, V_y \partial A / \partial y, V_z \partial A / \partial z) =$ *

$$(0, V_x (\partial A_y / \partial x) + V_y (\partial A_y / \partial y), 0),$$

because $A_x = A_z = 0$ and $\partial A_y / \partial z = 0$, as it is easily verified by its definition. This result is not the same result one gets from the first formula:

$$* E = (V \cdot \text{grad}) A = V_x \partial A / \partial x + V_y \partial A / \partial y + V_z \partial A / \partial z = \{0, V_x (\partial A_y / \partial x) + V_y (\partial A_y / \partial y), 0\}$$

$$V_{\text{rot}A} = -(V_y(\partial A_y/\partial x), V_x(\partial A_y/\partial x), 0)^*$$

for the particular oriented axis. Marinov's result implies always a force parallel to the current element dl . In general, this is contrary to the above result and to the cardinal law which imply also a force perpendicular to dl . Does Marinov know an experiment to prove his formula, i.e. to imply E parallel to dl ? (Do not suggest Kenard's, of course)

3. If the wire and the magnet moving together in isolated space,** then the wire and the magnet will form their own inertial frame with respect to which they will be at rest. The correct answer is given by my formula in (1) and it is $E = 0$.

4. In most practical cases that "rest" is meant with respect to the laboratory. In such a case the apparatus is enclosed in the inertial frame of the laboratory. Therefore, the correct answers are the same as the Marinov. If this is not the case, then the answers are given by the Cardinal formula in 1 with the velocities appropriately chosen.

which

5. I did not know TWT I has been revised three times. I do not have TWT 1/3. However, according to me, vacuum does not generate a magnetic field with the sense this magnetic field can exert forces on other charges, i.e. vacuum does not exert forces on charges. Forces are exerted by real charges on real ones, according to the Cardinal formula in 1. I should emphasize that currents caused in dielectrics exert and receive forces according to the Cardinal formula in 1, because dielectric currents are real charge currents. Therefore, dielectric currents produce a magnetic field in the sense that this field can exert forces on other charges, as well as forces are exercised on dielectric currents by other moving charges, according to the Cardinal formula in 1.

6. Yes I agree. (I presume Bul-Cub is a version of the classical Bruce de Palma machine or the cemented Faraday disk with the external circuit interrupted by two condensers, in a such a way that to avoid some of the external circuit to be imbedded in the magnetic field of the coil). However, contrary to you and what the referees' of the "leading" journals think, (do you imply Physical Review ones?), the rotation is due to the coil as rotor, and to the external circuit including the dielectric as stator, according to the Cardinal formula in 1.

7. Bul Cub is not a patent violation of angular momentum, (nor Graham and Lahoz, nor Kenard). Angular momentum is not stored in the external field, but to the external circuit. See my paper I delivered in Maco's conference in Munchen in 1988, however, not published by mistake in the proceeding, which any way is in your possession.

8. Yes, the Feymann's rotor will begin to rotate, if this is

$$* V_{\text{rot}A} = \{V_y(\partial A_y/\partial x), -V_x(\partial A_y/\partial x), 0\}$$

** 3. If the wire and the magnet are moving together in absolute space,

separate from the coil. The coil takes up the angular momentum not the field, according to Cardinal formula in 1. Angular momentum is conserved. The field is the poorest agent to carry momentum or angular momentum. To do so, it needs enormous amounts of energy which are not available. See my publication Nuovo Cimento 78B, 189, 1983.

9. Again the same answer: NO, Angular momentum is conserved.

10. You should not ask me this question Stefane, the first time you show this experiment with your own eyes, was in my laboratory. YES, it will move according to the Cardinal formula in 1. For the special case of currents the formula is written:

$$F_{12} = -r_{12}(I_1 I_2 / r_{12}^3) [2ds_1 \cdot ds_2 - (3/r_{12}^2) (ds_1 \cdot r_{12})(ds_2 \cdot r_{12})] *$$

11. If the currents are replaced by displacements currents in vacuum condensers, then the ponderomotive force on the bridge will be diminished. If the condensers are filled with dielectric the force will diminish less, only by the amount corresponding to displacement currents in the condensers. Displacement currents do not produce a force according to the Cardinal law. However, some forces will still be exercised by the external real matter circuit, depending on the exact geometry. The precise answer depends on the exact geometry.

12. I answered already this question. There will be a difference as described in (11).

13. Provided there is enough big current through the circuit, (in practice it is too difficult or impossible to have a substantial current through such a small capacitor), a diminished force by the amount exempted by the displacement current, will rotate the bridge, according to the Cardinal law.

Marinov claims to have executed this experiment. However, the Marinov experiment gives no observable rotation and no relevant information for the reasons I explained in TWT IV. A successful experiment is the Pappas-Vaughan experiment. According to Lorentz law a detectable rotation is expected over the sensitivity by a factor of a 1000. According to the Cardinal law no rotation is expected. No rotation was observed. This agrees with the cardinal formula. The clear conclusion for the Marinov experiment is as follows: Even if there was really an enough big current, then still there would be no rotation as much as predicted by the Lorentz law. (If I am wrong, then Marinov has to demonstrate publicly his experiment, receiving from me 20000 \$ and a nobel prize).

14. No angular momentum is gained, no angular momentum is stored in the field, no violation is seen or expected by the cardinal law.

* In this formula Pappas denotes the current element not by dl , as he requires in point 2, but by ds .

15. There will be a small tension in the machine under the Marinov bizarre name "MAMIN COLIU" for various reasons. First it should be explained that Marinov is doing all his speculations by the flux lines. Flux lines is a convenient way to predict induction. However, according to me, there are no real flux lines. There is only the direct interaction of current on current and charges. There is no magnetic flux amplification nor any shading effect. A magnet may induce magnetization on a material and to assist its own effects- paramagnetism and ferromagnetism, or it may induce magnetization which opposes its own effects- diamagnetism. Ferromagnetism and paramagnetism contradict the Lenz rule and assist the causal magnetization of a magnet. The ability of a magnet to do work is bigger when it is assisted by ferro/paramagnetism. On the contrary, the ability of a magnet is lessen when it is destructed by diamagnetism, which accords to the Lenz rule. However, for a ferro/paramagnetism and permanent magnet based perpetuum mobil, some sort of a periodic process should undergo. For any such periodic process, as far as I know, during part of the cycle, energy is created and during the rest of the cycle the same or bigger amount of energy is destroyed, in a such a way, that during a complete cycle, energy is wasted. I call this empirical law "The Principle of the Reciprocity of Energy", opposed to the "Principle of Conservation of Energy". I do not understand the reason for the validity of "The Principle of the Reciprocity of Energy", as I believe, nobody can really understand the "Principle of Conservation of Energy". Marinov works here according to the "The Principle of the Reciprocity of Energy". However, I do not believe Marinov has ever observed what he claims here, (as I believe he has never observed this in any other of his experiments), i.e. excess energy in a complete cycle, i.e. the mechanical energy of the braking effect to be less than the electrical energy output over many cycles. I offer another 20000 \$, to Marinov, if he makes a public demonstration of what he claims for his MAMIN COLIU machine and I presume the humanity will be willingly to offer him another Nobel prize.

16. I have already answered this question. I expect there is an electromagnetic braking effect for MAMIN COLIU. Marinov claims the opposite. He has to prove it publicly gaining 20000 \$ and a Nobel prize.

17. This machine, MarPap, is a Marinov duplicate of the Pappas machine shown on page 177 TWT IV. The answer given in the text there is that this machine rotates under the action of an electric current. The machine does rotate, according to the cardinal law.

18. I have discussed this machine on page 169, TWT IV, in my article: "Induction in a Circuit Containing a Rotating Disc". I have travelled to California to Bruce de Palma to do this experiment. I have spent two years at NTUA doing this experiment with the assistance of four people. In the Marinov version of my

experiment (no proper acknowledgement is given) the outside wiring is not discussed. The rotation of this machine depends on the orientation of the outside wiring. From the picture in TWT IV, p. 149, I can see one external wire being axial, if the other external wire is also axial, then the machine, according to the Cardinal law, does not rotate.

19. There is no contradiction between the answers in 17 and 18, both are according to the cardinal law and have been confirmed by my observations.

20. The answer is positive. However, it surprises me the fact that Marinov considers that I might someday answer negatively question 17. Marinov has kept asking me this question over two years in almost every letter. Always I answer to him positively and he keeps asking me from the beginning. Really I can not explain this Marinov puzzle.

21. These questions are clearly discussed in my article "Induction in a circuit containing a rotating disc" TWT IV, page 169. The external circuit in RABSC is not defined and we do not know whether it will even rotate, see answer 18. The experimental findings of Pappas in Santa Barbara California, in the presence of Bruce de Palma and his colleagues showed that the back electromotive is less than the corresponding mechanical energy whenever the Cardinal law is the only law applicable, i.e. whenever the cardinal law is not equivalent to the Lorentz law. I expect the MarPap to give similar results to the results of Santa Barbara. The results of RABSC depend on the interacting parts. The external interacting part is not defined. The answer can not be defined.

22. The answer is given in 21. However, the answer is irrelevant to Marinov's wrong formula, according to the Lorentz law, I believe (I can not read Russian), which is only valid between closed circuits. In a rotating Ampere bridge the interacting parts are not closed circuits. Therefore, I do not expect Lorentz law to be valid in this case; I do not expect the Lenz rule to be valid; and I do not expect conservation of energy to be valid. My answer is the same as in 21. The BET is different than the equivalent to mechanical energy amount. The exact amount of BET depends on the particular geometry and on the departure of the interacting parts from closed circuits.

23. This answer depends on the exact geometry. No analytical formulas are known to me. Generally, there are no analytical formulas for the interactions of non complete circuits. One can make only numerical calculations with the methods of numerical analysis.

24. Marinov's formula is definitely wrong as it does not depend on the external interacting circuit on the bridge. The answer is

already given in 23. There is not a particular analytical expression for each geometry.

25. I consider that the TESTATIKA is possible. However, I only believe what is proven to me.

26. Yes I am Interested to see the Machine Testatika.

no. 16a

P. T. PAPPAS

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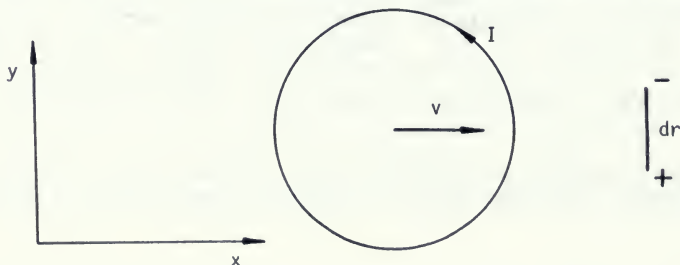
MARINOV'S COMMENTS TO THE ABOVE ANSWERS OF PAPPAS

Dr. Pappas evaded to give direct answers by "yes", "no", "I do not know" which would enable the reader easily to grasp his view-point and without difficulties to reveal his contradictions by applying the laws of the formal logic. Thus I tried to decypher Pappas' answers and inserted them by "script" type in the preceding questionnaire. If Pappas will object that I have wrongly interpreted his answers, this will be only his own fault.

Although our discussion with Pappas has become pretty boring and tedious, I give here some short comments to some of his answers:

1. Pappas defines an inertial frame as follows: "As inertial frame here is not meant a Newton's or Galileo's inertial frame, but a privileged frame (a sort of "system dragging frame"), which is defined as the system of the least coupled system energy." To such an idiotic definition even Einstein will become jealous.

2. Pappas writes: "I assume Marinov implies the standard definition $A = idl/r$, where dl is the current element length and r the distance of dl from the point of consideration and not $A = idr/r$ as it is written by Marinov I presume by mistake." Whether the oriented wire element is denoted by dl or by dr is not a mistake and Pappas as a professor in mathematics and physics knows this *very well*. A mistake is when Pappas writes this formula in the above form, as the right formula is: In the CGS-system of units: $A = Idr/cr$ ($= idl/cr$) and in the SI-system of units: $A = \mu_0 Idr/4\pi r$ ($= \mu_0 idl/4\pi r$). I should like to note that Pappas' question whether by moving a wire in parallel to its length one can induce electric intensity in parallel to the wire is *very good*. This question shows that Pappas becomes familiar with the formula $E = (v \cdot \text{grad})A$ which is NOT accepted by conventional physics and I hope that soon he will begin to defend the legitimacy of this formula. An experiment revealing the mentioned by Pappas effect is suggested on p. 157 of TWT-II, third edition. As I show there, its performance is difficult and nobody has done such an experiment. Here I shall present the problem in a more simple and clear way. In the figure beneath there is shown the cross-section of a *very long* solenoid along



which the current I flows and a piece of wire with a length dr lying in the xy -plane in parallel to the y -axis. If moving the solenoid with a velocity $\mathbf{v} = v\hat{x}$, at the wire's ends the following induced electric tension will appear

$$U = v(\partial A / \partial x) dr, \quad (1)$$

where $A = \oint \mathbf{A} \cdot d\mathbf{l}$ (A is positive if the current in the solenoid is counter-clockwise) is the magnetic potential generated by the solenoid at the point where the wire dr is placed, and for U positive the positive charges are pushed downwards. The analytical expression of A is (see TWT-II, first ed., p. 122): $A = 2\pi n(x^2 + y^2)^{1/2}/c$, where n is the number of the windings at a unit of length. One can easily find the sense of the induced tension by considering the solenoid at rest and by increasing its current, as this leads to a similar change in the magnetic potential. According to the formula

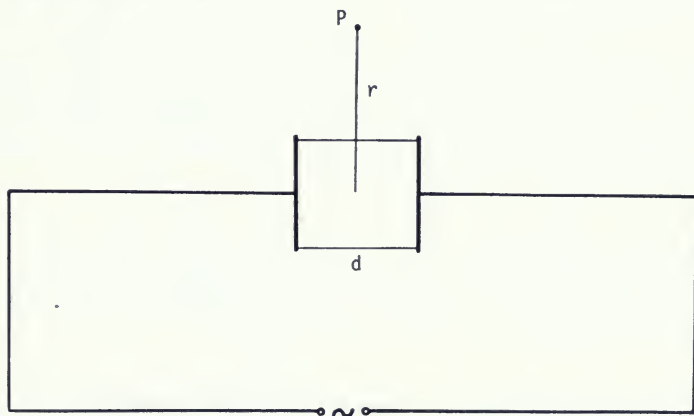
$$\mathbf{E} = - \partial \mathbf{A} / \partial t, \quad (2)$$

one sees that for a counter-clockwise current the positive charges in dr will be pushed downwards. It is important to note that if moving the wire dr to the solenoid NO tension will be induced, as $\mathbf{B} = \text{rot} \mathbf{A} = 0$. Finally if moving solenoid and wire with the same velocity $\mathbf{v}$ (with respect to absolute space!), the same tension (1) will be induced. I know that not only Einstein and the whole herd following him, but also Pappas cannot swallow the last assertion but if he has begun to use the formula $\mathbf{E} = (\mathbf{v} \cdot \text{grad}) \mathbf{A}$, soon he will be impelled to swallow this assertion.

3. See my comments to point 2.

4. Pappas writes: "The correct answers are the same as Marinov's. If this is not the case, then the answers are given by the Cardinal formula in 1 with the velocities appropriately chosen." With this words' acrobatics Pappas evades to give a clear answer to my CLEAR questions. The Cardinal formula gives the FORCE OF INTERACTION between current elements, while my questions are from the domain of the INDUCTION PHENOMENA. I wish only to note that if to the last question in point 4 he gives the answer "yes" (as Marinov), then he is in a formal contradiction with his answer to question 3 which is $E = 0$, i.e., no induced electric intensity.

5. Pappas knows very well this experiment which is reported on p. 317 of TWT-I, third edition, as we have many times discussed it. Here is its scheme.



An alternating current, always of the same intensity, crosses a parallel plates condenser in the form of a displacement current. The distance between its circular plates is d . The magnetic intensity is measured at a distance r from the condenser's axis. The question is: will the magnetic intensity decrease with the increase of d or it will remain the same as it is accepted in Maxwell's theory. If the volume between the plates is a dielectric with a high dielectric constant (BaTiO_3), then the whole electric

field is concentrated in the volume between the condenser's plates. If there is vacuum between the plates, the electric field will partly go out from the volume between the plates and thus also according to Maxwell a *slight* decrease of B at point P will be observed with the increase of d . However, accepting, for clarity's sake, $r \gg d$, this slight decrease can be neglected. Pappas gives Marinov's answers for vacuum and Maxwell's answers for dielectric.

6. With his answer Pappas shows that he has not understood the Bul-Cub machine without stator. In this machine *the whole system rotates* and the current is conducted *along the axis of rotation*. His words: "The rotation is due to the coil as rotor and to the external circuit including the dielectric as stator" are a *pure idiotism*. Let me note that on p. 20 of TWT-III Pappas is photographed holding in his hands the effective Bul-Cub machine. It is time that he understands how the Bul-Cub machine is built. If he remains completely ignorant, what to say about the other people who have not seen a Bul-Cub machine. Wesley many times wrote me that my descriptions of the Bul-Cub machine are so bad, that he cannot understand *what* this machine is. Meanwhile the machine is so simple, so simple! It is not my fault that Wesley and Pappas do not understand the functioning of the Bul-Cub machine. This machine, as a matter of fact, was discovered by Müller. I understood its functioning, made additional developments and analysing the observed effects I discovered the motional-transformer induction. Later I constructed the Bul-Cub machine without stator which was the first experiment in the history of electromagnetism (the experiment of Graham and Lahoz is not pure, as there the coil is solid to the laboratory) where a violation of the angular momentum conservation law was observed. If Pappas has taken the pain to understand well Müller's paper published in TWT-II five years ago, all these discoveries could be done by him.

7. Thus according to Pappas, the opposite angular momentum is stored in the external circuit which is a wire coming from infinity and going to infinity along the axis of rotation along which alternating current flows. *Idiotism!*

8. According to Pappas Feynman's gadget as delineated by Feynman (see TWT-IV, p. 211) will not rotate (as Feynman, conventional physics and Marinov assert). According to Pappas the disk will rotate only when the solenoid is mounted on another disk and in such a case the solenoid's disk will begin to rotate in the *opposite* direction. Since many years Pappas sustains the *idiotism* that a cylindrical solenoid can be set in rotation along its axis if acting on it with the magnetic fields of other circuits, although, on the other hand, he asserts that the forces acting on the current elements of a circuit caused by other circuits are always perpendicular to those current elements and consequently a cylindrical solenoid can *never* be set in rotation about its axis. Pappas has moreover to take into account that: a) the current in the solenoid is falling to zero, b) the magnetic field of the electricized spheres is very feeble as their velocities increase from zero to a certain very low velocity.

9.

10. Yes, I saw such an experiment for the first time in Pappas laboratory in Athens in September 1983 and the photograph of this historical visit is published on p. 109 of TWT-II, third ed. and on p. 327 of TWT-IV. In Pappas experiment, however, the conducting current wires are parallel to the "legs" of the Ampere bridge (as shown in fig. 7b on p. 108 of TWT-III, third edition) and not perpendicular to them (as shown in fig. 3 on p. 134 of TWT-IV).

11. Pappas again evades to give clear answers, although seeing an absolutely clear scheme in fig. 9 on p. 82 of TWT-III, sec. ed. with a *precise* geometry. Thus Pappas' answers must be: a) If the currents BC and FG will be replaced by displacement currents in vacuum, the ponderomotive force acting on the bridge will *disappear*. b) If the currents BC and FG will be replaced by displacement currents in dielectrics with high ϵ , the ponderomotive force will remain the same (cf. point 5).

12.

13. Pappas again evades to give a ^{response} clear to a clear question and obfuscates his answer with the following words: "Provided there is enough big current through the circuit, a diminished force by the amount exempted by the displacement current will rotate

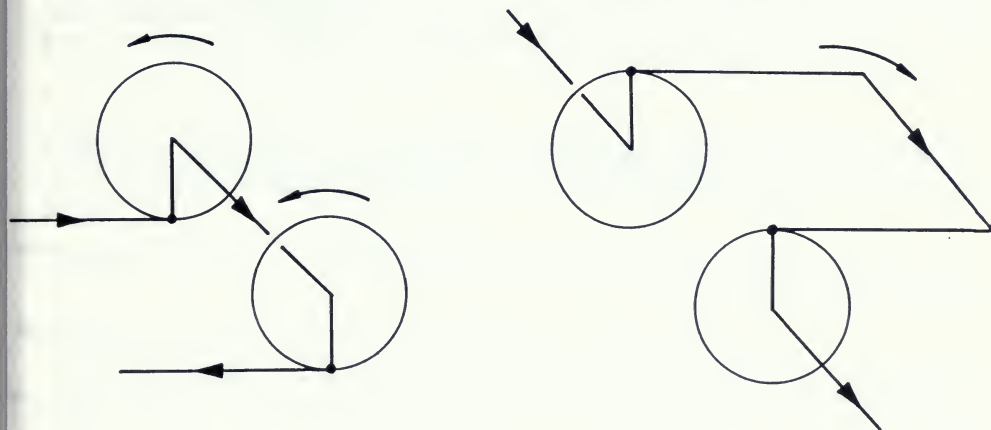
the bridge, according to the Cardianl law." I shall help him. His answer must be a clear NO.

14. As the answer to the previous question was negative, question 14 cannot be answered, as there is no rotation. Fullstöp.

15. Pappas is a professor in mathematics and physics and he knows very well that a certain quantity can be big or small only with respect to another quantity of the same character. Nevertheless he writes: "There will be a small tension in the machine MAMIN COLIU." A tension small *with respect to what*? I agree that if one will compare MAMIN COLIU with a conventional generator of the same weight, the same strength and geometry of the magnets, the same number and geometry of the windings, then the tension in MAMIN COLIU will be considerably lower. Thus Pappas answer to question 15 must be YES. Pappas further writes: "There are no real flux lines." I agree with him. There are no *real* flux lines. The magnetic flux is only a mathematical construction which helps us to understand the magnetic phenomena. But what in physics is not a mathematical construction? - Then Pappas jumps again from principal questions to observed effects and writes: "I do not believe Marinov has observed what he claims here, i.e., excess energy in a complete cycle, i.e., the mechanical energy of the braking effect to be less than the electric energy output over many cycles." In all my six models of MAMIN COLIU I have *never* observed that the generated electric power, P_{gen} , should be higher than the consumed electric power, P_{mot} , spent for driving the motor. If I had succeeded, then in 24 hours the world will know this. On p. 171 of TWT-III, sec. ed., i.e., in my letter to the Nobel committee published in NATURE in August 1986, the reported relation was $P_{gen}/P_{mot} = 0.17$. Pappas has also attentively to read p. 91 in TWT-III, sec. ed., before beginning with his vociferations, as such vociferations are desorienting the reader who has not the time to read (and to know) all my books.

16. Thus, according to Pappas MAMIN COLIU is a conventional electric generator.

17. Pappas still cannot understand that there is substantial difference between the Ampere-Faraday Rotating Disks (one can have only *one* Ampere-Faraday disk) sketched here



on the left (an experiment which he has constructed, the report on which and on the measured back tensions was published in TWT-IV, p. 169) and the Rotating Ampere Bridge sketched here on the right (an experiment constructed by me). In the Ampere-Faraday Rotating Disk the current in the "stator" sets the disk in rotation, while in the Rotating Ampere Bridge (according to my nomenclature it is better to say Rotating Ampere Bridge with Sliding Contacts (RABSC)) the "rotor" is self-propulsing. Pappas gives a firm answer that the machine MARPAP *will rotate*. Comparing the MARPAP machine, shown in fig. 4 on p. 150 of TWT-IV with the RABSC shown in fig. 3 on p. 134 of TWT-IV, one sees that these two machines are in principle *identical*.

18. Pappas asserts that the machine shown on p. 149 of TWT-IV (neglect the cemented Faraday disk!) will not rotate when current will be conducted to the sidewise screws. But this machine is *technical realization* of the RABSC!

19. There is a flagrant contradiction between the positive Pappas' answer to question 17 and his negative answer to question 18, as the machines MARPAP and the *motor part* of the machine RAF are two identical machines which I call Rotating Ampere Bridge with Sliding Contacts. Pappas writes an *idiocy* asserting that he has experimentally confirmed that the machine MARPAP will rotate but the motor part of the machine RAF will not rotate, as he *never* has constructed a ROTATING AMPERE BRIDGE.

20. My puzzling is that Pappas asserts: MARPAP (which is still not constructed) will rotate, while the motor part of the RAF-machine (which is constructed and *rotates*) will *not* rotate. As a matter of fact, I am not "puzzling". I simply tried to show to Pappas his aberrations. Unfortunately, until the present day, without success.

21. Pappas writes: "The external circuit in RABSC is not defined and we do not know whether it will even rotate, see answer 18." The external part of the circuit in the RABSC shown in fig. 3 on p. 134 of TWT-IV is absolutely clearly defined. It is time for Pappas to take a firm decision whether this bridge will rotate or not and to stop to oscillate between the positive answer to question 17 and the negative answer to question 18. And it is time for Pappas to construct a Rotating Ampere Bridge and to see the effect of rotation. In my article published on p. 136 of TWT-IV I describe how he can construct a Rotating Ampere Bridge in a couple of hours.

22. Pappas asserts that my formula (A) for the induced back electric intensity in a propulsive Ampere bridge is *wrong*. But he does not show the right one. He has clearly measured BT (back tension) in his Ampere-Faraday rotating disk which is a tension induced in a *non-closed* circuit. If there is a tension measured along a certain wire, then at the different points of this wire induced electric intensities must act (the tension is a product of intensity and wire length). If a certain quantity *exists* and Pappas himself has measured it, then one must be able to *calculate* this quantity with a more or less exact formula. I offer a formula (and verify it on my and Pappas' experiments). Pappas says, the formula is wrong. ^{to say} Show which is the right one! Without proposing a right formula, Pappas has not the right that my formula is wrong.

23. I wish only to cite without comments the following Pappas "revelation": "Generally, there are no analytical formulas for the interaction of non complete circuits. One can make only numerical calculations with the methods of numerical analysis."

24.

25. Pappas does not believe in my assertion that TESTATIKA is a perpetuum mobile with a CLOSED energetic circle, i.e., a machine which once set in motion rotates eternally. Thank you, Pappas.

26. I wrote that if Pappas wishes to see TESTATIKA, he has to write a letter addressed to me which I have to sent to the Presidency of the community Methernitha. He has not written such a letter. Thus he has not to await to be invited. Let me note that Bruce de Palma has written to Methernitha a letter in a rather harsh tone. His letter remained without answer. My advice for the case that P. will decide to write a letter is: be humble.

STEFAN MARINOV

Morellenfeldgasse 16

A-8010 GRAZ — AUSTRIA

- 303 -

Dr. John Maddox

NATURE

4 Little Essex Street

London WC2R 3LF

6 June 1989

Dear Dr. Maddox,

You deceived me once more. For which time? for a 1001-st time!!!! Are you not tired to deceive me FIVE years. After 1000 of phone conversations, after 5 visits, after tens of faxes and telegrams. Nevertheless, I shall not give up the battle with you.

You have finally to realize that the principles of relativity, equivalence and the laws of conservation are NOT right. Now I have in my hands a functioning PERPETUUM MOBILE. I beg you to take into account the SCIENTIFIC POWER of such a machine.

Thus I am still awaiting for the publication of your "Christmas puzzle" and for the publication of the correspondence Tiomno-Marinov. In our last phone conversation I told you that Tiomno has published a big paper on those problems in the last issue of FOUND. PHYS.

I am further awaiting for your letter in which you shall present motivations for the rejection of my paper PROPULSIVE AND ROTATING AMPERE BRIDGES VIOLATE THE PRINCIPLE OR RELATIVITY, enclosing the photograph and the report of the man who has reconstructed this machine and established that it cannot rotate. Also I am expecting the letter of Graneau on the above my paper.

I am also expecting your information for which date have you scheduled the publication of my big paper (which is composed and is in the hands of Mr. Wenz) EXPERIMENTAL VIOLATIONS OF THE PRINCIPLES OF RELATIVITY, EQUIVALENCE, AND CONSERVATION OF ENERGY AND ANGULAR MOMENTUM. If you will reject this paper, after having scheduled its publication TWICE, please, be so kind to present the motivations.

Now I work "full time" for organizing the presentation ^{of} our film on TESTATIKA in the Moscow TV. The advertisement which I wish to publish in NATURE (see the text in the advertisement department) will help this presentation very much, as it will stir the attention of Marchuk and Sakharov. Yesterday I received a letter from the Soviet Embassy in Vienna that the Soviet side is interested in the machine and that they await for the decisions of Sakharov and Marchuk.

Look what succeeds in China. Don't go against the will of the FOLK. And the folk wishes to know the truth about TESTATIKA.

Enclosed is my appeal for the press-conference which I organize to-morrow in Graz and for the lecture which I shall deliver on the 9 June in the Graz techno-innovative fair (in 1985 I exposed on the TECHNOVA-fair my machines showing violation of the energy conservation law). But NOW THERE IS A RUNNING MACHINE, a RUNNING MACHINE, Dr. Maddox.

Hoping that finally you will begin to collaborate with me ACTIVELY,

Sincerely yours,


Stefan Marinov

Copy: Mr. Sutherland and Mrs. Turnbull.

STEFAN MARINOV
Morellenfeldgasse 16
A-8010 GRAZ — AUSTRIA

6 June 1989

Mr. Andy Sutherland
Mrs. Hilary Turnbull
Advertising Department
NATURE
4 Little Essex Street
London WC2R 3LF

Copy: Dr. Maddox

Dear Mr. Sutherland,
Dear Mrs. Turnbull,

I send you the three covers of my book TWT and the text of a TWO-PAGES advertisement for NATURE. A copy of the document with which my bank transferred today to your bank account the sum of £ 950 for the charge is also enclosed.

The advertisement is to be published exactly in the same way as this one which was published on p. xii in the 26 Sept. 1985 issue (I enclose a photocopy of this advertisement). Thus, on the left page are to be published two of the covers and on the right page one of the covers. The text is to be inserted beneath the covers. I beg you to publish this advertisement as soon as possible. But I should like to see the proofs.

You can send the proofs to the following fax number: Austria 0316/827560. The phone of the telefax is 0316/830063. I shall send you the corrected proofs on the same day of their reception to the fax number of NATURE.

You certainly will await for the consent of Dr. Maddox. He will be back in the office on the 12 June. If you should like to insert some corrections in the text, please, write your suggestions in a fax and I shall see what to do.

I should like to see this advertisement published on the 15 June or on the 22 June. I beg you for your collaboration in the name of mankind's future. I shall write also a letter to Dr. Maddox begging him to help my endeavours to bring the perpetuum mobile TESTATIKA as soon as possible to the attention of the world.

Expecting your fax-answer,



CREDITANSTALT

Telegrammcode: credit IMH 0043427

GRAZ, 08.06.1989/PI9

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HERRN PROF.
STEFAN MARINOV

SCHALTERLAGERND - 88/04

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Sincerely yours,

Stefan Marinov

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The PERPETUUM MOBILE is discovered

In *Nature*, **317**, p. xii (26 Sept. 1985) I advertised the second volume of my book THE THORNY WAY OF TRUTH (TWT). Now I advertise the third, fourth and fifth volumes.

Finally there is a machine violating the energy conservation law where the energetic circle is closed, i.e., the machine sustains its own motion and presents the classical wonder called *perpetuum mobile*, about which established science says that its construction is impossible. This is the machine TESTATIKA.

As a representative of the Christian community METHERNITHA which is owner of TESTATIKA, I addressed first Dr. Maddox, the editor of *Nature*, with the proposal to see and examine the machine. Dr. Maddox showed an interest but during half a year he has neither written the letter for expressing the desire to see the machine as this is the formal way for opening the doors of the community. Then I addressed Prof. B. Nagel from the Nobel Committee for Physics who showed an interest even less than Dr. Maddox.

I remained perplexed. There is a machine which solves the energetic crisis of our world and a big part of the ecological crisis, but the leading Western scientific institutions are not interested in it. On the other hand, all my papers in which I give reports on experiments and machines violating the principles of relativity, equivalence and the laws of conservation of momentum, angular momentum and energy are systematically rejected by the established physical journals. My review article dedicated to these violations was accepted by *Nature* some years ago as a result of my selfimmolation threat (see J. Maddox, *Nature*, **311**, 399, 1984). I composed this article with the help of Dr. Maddox during my visits of his editorial office in March 1987 and in June 1988, and it was scheduled to appear first on the 18 August 1988, then, because of the Benveniste case, was postponed for the 13 October, but it is still not published and the edited copy can be read only in TWT-III.

In December 1988 I was invited again by Dr. Maddox (this time he paid me even the trip) to visit him in London and to have lengthier discussions. At the end of our conversations Dr. Maddox said: "A man in whom I have confidence will replicate your Rotating Ampere Bridge with Sliding Contacts (the RAF-machine). If it will rotate as you assert, your report will be published. From my side I shall write a 'Christmas puzzle' based on the experiments à la Kennard analysed in your address MARINOV TO THE WORLD'S SCIENTIFIC CONSCIENCE (*New Scientist*, **112**, 48, 1986)."

Later Dr. Maddox informed me that this man has replicated my machine and it does *not* rotate but he does not send me (as he promised) the photograph and the report of this man (whose name he refused to disclose), so that I can publish them in TWT and show to the world that England which once was a leading technological nation has totally degenerated and there one is unable to construct even a childishly simple gadget (my laboratory is in the stable where I earn my bread as a groom).

Dr. Maddox' "Christmas puzzle" had to appear later as an "Easter puzzle", then as a "Whitsun puzzle" and now as a "Corpus Christi puzzle".

The same "puzzle" appears this month in the Italian magazine *Rigidaire* under the

title *Come i bambini di 12 anni mettono il dito nel culo della relatività*. Indeed, as everybody can persuade himself reading my above mentioned address in *New Scientist*, the fallacy of the idiotic theory of relativity, which for half a century hampers the sound evolution of physics, can be revealed in a minute comparing the effects of induction in a double circular and in a rectangular current loops. With the help of this not at all puzzling experiment I have recently measured the Earth's absolute velocity with a childishly simple set-up. The report on this quasi-Kennard experiment is in the drawer of Dr. Maddox.

As in the Western world any original and revolutionary scientific idea and experiment are cruelly suppressed (my series of documents TWT gives a striking proof of this assertion), I addressed Acad. Marchuk, the President of the Academy of Sciences of USSR, and my friend, Acad. Sakharov, with the invitation to visit personally our community and to examine TESTATIKA, or to send men in whom they have confidence for the inspection. Then, if they will persuade themselves that the machine is a *perpetuum mobile*, to introduce on the first channel of the Moscow TV the 40-minutes film which we recently produced. This film is presentation not only of TESTATIKA. It is also our address to the world regarding the ethical future of mankind.

We consider TESTATIKA as a gift of our Lord. We wish that this gift remains only for the benefit of mankind. We do not intend to patent the machine or to commercialize it in one or another way. In our opinion free energy is not some exceptional gift. Air, water, rocks, grass, woods, animals, light are no less wonderful things than energy produced from nothing.

Our machine surely will smash the power of these social groups who have monopolized the energetic sources on this planet, the incubus of the nuclear power stations will disappear, the cars and the planes will no more pollute the atmosphere.

But will man begin to enjoy piecefully and humbly the gifts of our Lord and will he renounce to his eternal striving for power?

God once more stretches His mercieful hand to man. Will man finally understand that he was never expelled from the paradise?

Stefan Marinov

Morellenfeldgasse 16
A-8010 Graz, Austria

EINLADUNG FÜR DIE PRESSEKONFERENZ

DAS PERPETUUM MOBILE "TESTATIKA" UND DIE WEGE SEINER PRÄSENTATION DER WELTOFFENTLICHKEIT

Am 7 Juni 1989 um 10⁰⁰ in dem LANDHAUSKELLER (Schmiedgasse) wird Stefan MARINOV der österreichischen Presse eine Information von dem ersten laufenden Perpetuum mobile, die Maschine TESTATIKA, vorlegen.

Für eine vorläufige Information sind beigelegt:

1. Der Dialog-Beitrag von Stefan Marinov in der deutschen Zeitschrift RAUM UND ZEIT, Nr. 39 (April/Mai 1989).
2. Der Umschlag von Marinovs Buch THE THORNY WAY OF TRUTH, Part V.
3. Das Vorwort und Nachwort dieses Buches. (Weitere Information findet man in dem Buch, das an der Pressekonferenz vorhanden wird.)
4. Die Bilder der kleineren und mittleren Maschinen TESTATIKA.

Marinovs Untersuchungen in dem Gebiet der Verletzungen der Erhaltungsgesetze führten seinen Weg zu der Gemeinde METHERNITHA in dem Dorf Linden, 30 km südlich von Bern. In dem letzten Jahr besuchte Marinov mehrmals die Gemeinde und ist inzwischen auch ihr Mitglied geworden.

Marinov war entsetzt zu sehen, daß eine Maschine, die alle energetischen und einen guten Teil der ökologischen Probleme der Menschheit löst, 10 Jahre nach ihrer Entdeckung nur sehr engen Kreisen der Menschheit bekannt ist. Die Maschine wurde nur von einigen Hunderten von Leuten gesehen und ist nur in Randzeitschriften diskutiert.

Der erste Vorschlag von Marinov an dem Gemeinderat war, seinen "guten" Freund, Dr. Maddox, der Herausgeber von NATURE, nach Linden zu bringen. Das wurde in Dezember 1988 während Marinovs fünften Besuch in der NATURE-Redaktion besprochen (diesmal wurde Marinov von Maddox eingeladen und Dr. Maddox bezahlte ihm die Reise - s. TWT-IV). Bis heute ist aber Dr. Maddox nach Linden nicht gekommen (s. TWT-V).

Dann wendete sich Marinov an das Nobelkomitee (eine Kopie des Einladungsbriefes ist beigelegt). Das Nobelkomitee hat an diese Einladung überhaupt nicht reagiert (eine Kopie der Antwort des Komitees ist beigelegt).

Als in der Gemeinde Methernitha ein 40-Minuten Film über die Maschine gedreht wurde (die Gemeinde ist im Besitz eines erstklassigen Ton und Filmstudios), machte Marinov dem Gemeinderat den Vorschlag diesen Film mit einer Ansprache des Akad. Sacharow oder des Präsidenten der sowjetischen Akademie der Wissenschaften über das erste Program des moskauer FS auszustrahlen und so den Beginn einer neuen Ära in der menschlichen Geschichte zu verkündigen.

Marinov arbeitet jetzt um den Besuch sowjetischer Akademiker und diese Filmausstrahlung zu organisieren (beigelegt sind die Briefe Marinovs an Sacharow, an dem Präsidenten der Akademie und an dem sowjetischen Botschafter in Wien).

Mit der Einberufung der Pressekonferenz am 7 Juni möchte Marinov die Verwirklichung dieser Ausstrahlung des Filmes beschleunigen.

Marinov wendet sich an die österreichische Presse mit der Bitte ausführlich (wenn möglich auf den ersten Seiten) über die Maschine TESTATIKA Berichte zu geben, über das hochnasige Benehmen von NATURE und von dem Nobelkomitee zu den Einladungen und über die Hoffnungen, daß die sowjetische Akademie der Wissenschaften und das moskauer Fernsehen in der heutigen Epoche der GLASNOST der Menschheit die Möglichkeit geben werden von der Maschine TESTATIKA zu hören und sie im Laufe und bei der Erzeugung von "freien Energie" zu sehen. Ein Teil des Filmes ist auch der heutigen geistigen Krise unserer Welt gewidmet, denn um eine gesunde Erde unseren Kindern zu überlassen, reicht nicht nur die technische Lösung der heutigen energetischen Krise. Nötig ist auch eine radikale Lösung der heutigen geistigen Krise.

Institut für fundamentale Physik
Morellenfeldgasse 16; A-8010 Grätz

STEFAN MARINOV
Morellenfeldgasse 16
A-8010 GRAZ — AUSTRIA

8 June 1989

Prof. J.-P. Vigiér
PHYSICS LETTERS A
Institut Henri Poincaré
11 Rue P. et M. Curie
F-75231 Paris Cedex 05

Dear Prof. Vigiér,

Thank you very much for your letter of the 1 June 1989, although the rejection of my papers V791a and V792a was, of course, not pleasant for me.

I wonder why your referee has examined my papers half a year when he has written referee's opinions which can be elaborated in no more than 15 minutes. I give apart my motivated objections to the referee's comments on my paper V791a. This paper is based only on LOGICAL suppositions. Any well posed problem can have only ONE answer but not two contradicting answers. Such is the problem about the electric intensity induced in a wire when a magnet moves with a velocity $\mathbf{v}$. Is the induced electric intensity equal to $\mathbf{v} \times \text{rot} \mathbf{A}$, as conventional physics asserts, or equal to $(\mathbf{v} \cdot \text{grad}) \mathbf{A}$? If your referee (or you yourself) will not give an answer, I cannot accept the rejection of the paper.

I am expecting your decision on my papers V726a and V727a. As you may notice comparing the numbers of the examined and unexamined papers, you will realize that these two last papers have been submitted LONG TIME before the examined papers.

You write that papers rejected by one editor of PLA cannot be handled by another referee. Obviously, Prof. Agranovich does not know this, as HE suggested to me to submit to you papers which he after a year returned to me without enclosing referee's comments. It will be good if you will inform Prof. Agranovich to not give a second time such advices to his contributors.

Sincerely yours,

J. Marinov
Stefan Marinov

OBJECTIONS OF STEFAN MARINOV TO THE REFEREE'S COMMENTS ON MARINOV'S PAPER
"THE ABSOLUTE AND RELATIVE NEWTON-LORENTZ EQUATIONS" - V791a

The referee writes:

This manuscript introduces a situation in which vector potential depends on time via the changing positions of the sources producing the vector potential. The author claims that conventional physics does not recognize the formula describing this situation directly, and must instead resort to a relativity argument starting in a different coordinate frame. I don't agree that this is so.

I repeat. If a wire is moving with respect to a magnet which generates the potential $\mathbf{A}$ at a certain distance from it where the wire is placed, then the electric intensity which acts on the charges in the wire is

$$\mathbf{E}_1 = \mathbf{v} \times \text{rot} \mathbf{A}. \quad (1)$$

If, however, the wire is at rest but the magnet moves with the opposite velocity $-\mathbf{v}$, the time varying magnetic potential produces the following electric intensity which will act on the charges in the wire

$$\mathbf{E}_2 = - \frac{\partial \mathbf{A}}{\partial t} = - \left(\frac{\partial \mathbf{A}}{\partial x} \frac{\partial x}{\partial t} + \frac{\partial \mathbf{A}}{\partial y} \frac{\partial y}{\partial t} + \frac{\partial \mathbf{A}}{\partial z} \frac{\partial z}{\partial t} \right) = - (\mathbf{v} \cdot \text{grad}) \mathbf{A}, \quad (2)$$

where $\mathbf{v} = \partial \mathbf{r} / \partial t$ is the velocity OPPOSITE to the velocity of the magnet.

According to the principle of relativity it must be $\mathbf{E}_1 = \mathbf{E}_2$, as for the theory of relativity these two cases are ABSOLUTELY IDENTICAL!

However, as formulas (1) and (2), which follow with the most simple and evident mathematical RIGOROSITY from the Lorentz equation, show, it must be $E_1 \neq E_2$.

I beg the referee to take the pencil and to write on a white sheet of paper, which must be, according to him, the electric intensity acting in the second case:

$$E_2 = - (\mathbf{v} \cdot \text{grad}) \mathbf{A},$$

as I assert, or

$$E_2 = \mathbf{v} \times \text{rot} \mathbf{A},$$

as the theory of relativity asserts.

Then the referee has to give his MATHEMATICAL predictions for the electric tensions induced in the wire in fig. 1 of my paper for the indicated two different cases of motion.

If the referee or the Editor will not do this, I think my paper CANNOT be rejected.

It is time for the referees of PHYSICS LETTERS to begin to write formulas, i.e., to begin to discuss PHYSICAL EFFECTS and to stop to pour only words in their comments.

The referee concludes his comments with the words:

Conventional physics accepts time variation of the vector potential as a cause for an electric field, regardless of what it is that in turn causes the time variation. If there exists some commonly used text that seems to say otherwise, Marinov should point it out.

Conventional physics assumes that the electromagnetic effects depend on the intensities and considers the potentials as "physically non-observable quantities". According to conventional physics the only experiment where a magnetic potential "can be observed" is the so-called Aharonov-Bohm effect in quantum physics. How then conventional physics which does not consider the potentials as PHYSICAL QUANTITIES and can change them at will in the frame of the so-called gauge transformation, can make calculations with the "time varying magnetic potential due to the motion of the magnet". Conventional physics is unable to calculate even the electric tension induced in the secondary coil of a cylindrical enough long transformer. The secondary coil is in a space domain where the magnetic intensity is identically equal to zero. Consequently by changing the current in the primary coil NOTHING has to appear in the secondary coil. The experiment, however, shows that there is induced tension in the second^{ary} coil, thus that the magnetic potential CAN BE OBSERVED. If one will not realize as soon as possible that conventional physics is an IDIOTIC theory, never humanity will understand why my machines described in the sequence THE THORNY WAY OF TRUTH work as they work violating the laws of conservation of angular momentum and energy.

The only author (besides O'Rahilly whose mathematics is atrocious) who has tried to understand what electromagnetism may be and which is the physical essence of the magnetic potential was Cullwick. He considers the "motional" and "transformer" actions of the magnetic potential in section 4 of chapter 5 of his book THE FUNDAMENTALS OF ELECTROMAGNETISM (Cambridge University Press). As Cullwick has seen that unplea-

sant problems appear when he digs and delves the "field of the magnetic potential" which can be not resolved from a relativistic point of view, in the third (1966) edition of his book Cullwick simply suppresses fig. 132 from the previous editions and jumps from fig 131 to fig. 133 without taking the care to change the numeration and to "hide the traces of his crime".

The traditional way which conventional physics follows when considering the motional effects is the following (see, for example, R. Stevenson and R. B. Moore, Theory of Physics, Sounders Co., Philadelphia, 1967, or Landau and Lifshitz, The Theory of Fields):

There is a magnet at rest generating the magnetic intensity B . No electric intensity will act on the charges of a wire at rest. When the wire will move with a velocity v along the x -axis, the electric intensity which will act on its electrical charges can be found by the help of the Lorentz transformation formulas for the electromagnetic intensities

$$E'_x = E_x, \quad E'_y = \frac{E_y - (v/c)B_z}{(1 - v^2/c^2)^{1/2}}, \quad E'_z = \frac{E_z + (v/c)B_y}{(1 - v^2/c^2)^{1/2}}.$$

Assuming $E = 0$ and disregarding the effects of second order in v/c , we obtain

$$E'_x = 0, \quad E'_y = -vB_z/c, \quad E'_z = vB_y/c.$$

THIS IS TRUE. But when the magnet and NOT the wire will move, we cannot use the above transformation formulas, as they lead to a WRONG result. In this case the electric intensity acting on the charges of the wire will be

$$E'' = (v \cdot \text{grad})A,$$

if v is the velocity of the MAGNET. Thus in this case we cannot even work with the intensities, as the PRIMARY OBSERVABLE QUANTITIES ARE THE POTENTIALS and the intensities are SECONDARY MATHEMATICAL PRODUCTS of the potentials obtained by the help of space and time differentiations and thus many aspects of the physical problems become DELETED (a patent example is the above considered cylindrical transformer).

If the referee (and the editor of PHYSICS LETTERS) wish to understand WHAT electro-magnetism is, he (they) must read my book CLASSICAL PHYSICS and realize that there are TWO KINDS of invariances: the Lorentz invariance and the Marinov invariance. One uses the first invariance when the observed particle changes its character of motion with respect to absolute space (i.e., with respect to distant matter), while one uses the second invariance when the observer changes his character of motion with respect to absolute space. The Lorentz transformation is to be applied only in the first case, as I did above for the case when the observed electrons in the wire change their character of motion with respect to distant matter, meanwhile the magnet always remains at rest. In this first case the potentials generated by the system remain the same in absolute space (represented by the rest frame of reference). If the magnet is first at rest and then moving, the potentials generated by the system (the magnet) do not remain the same in absolute space and we cannot apply the Lorentz transformation.

STEFAN MARINOV: DAS PERPETUUM MOBILE »TESTATIKA« UND DIE WEGE SEINER PRÄSENTATION IN DER WELTÖFFENTLICHKEIT

EINE KURZE INFORMATION ÜBER DIE FALSCHEN SEITEN DER HEUTIGEN LEHRE VOM ELEKTROMAGNETISMUS: A) UNGÜLTIGKEIT DES RELATIVITÄTSPRINZIPIES. B) DIE POTENTIALE, NICHT DIE INTENSITÄTEN BESTIMMEN DIE ELEKTROMAGNETISCHEN EFFEKTE. C) ENTDECKUNG DER BEWEGUNGSTRANSFORMATORISCHEN INDUKTION. D) VERLETZUNG DES 3. NEWTONSCHEN SATZES. E) VERLETZUNG DER ERHALTUNGSSÄTZE DES IMPULSES, DES DREHIMPULSES UND DER ENERGIE.

- 311 -

ANSCHLIESSEND EINE AUSFÜHRLICHE INFORMATION ÜBER DAS ERSTE FUNKTIONIERENDE PERPETUUM MOBILE UNSERER ERDE, DIE MASCHINE TESTATIKA — UND ÜBER SEINE BEVORSTEHENDE PRÄSENTATION IM MOSKAUER FERNSEHEN.

9. JUNI 1989, 15 UHR, SAAL KLAGENFURT DER
GRAZER MESSE. IM RAHMEN DER FACHMESSE
»TECHNOVA INTERNATIONAL 1989«

89-06-12 17:04
864411964+
411964a ans su
312275 ibsg a*
411964a ans su

89-06-12 17:04

tlx.nr. 3151 sm/ep

to: academy of sciences of ussr
att: the president
leninski prospekt 14
moscow v-71, ussr

from: stefan marinov
morellenfeldgasse 16
a-8010 graz
tlx.: a-312275 ibsg a

dear mr. president,

i addressed you (express letter of the 18th may) with the proposal to present on the moscow tv a 40-minutes film dedicated to the first functioning perpetuum mobile on our planet, the machine testatika.

the soviet embassy in vienna wrote me a letter (without date) that the soviet side is interested in the matter and that the embassy is awaiting for the decision of the academy which will be immediately resent to me.

the council of our community m e t h e r n i t h a wishes to know as soon as possible (preferably before the end of this week) the decision of the soviet academy, as if the soviet academy will be not interested in the presentation of this machine to the world, we shall search for other ways to make such a solemn presentation.

in my letter of the 31st may to the scientific attache of the soviet embassy in vienna, mr. asarenkov, i proposed as a first step that employees of the soviet embassy in bern (which is 30 km far from our community) visit m e t h e r n i t h a to see the machine and convince themselves that it is a perpetuum mobile. then representatives of the academy can also come to examine the machine, and if the academy will give the consent, our 40-minutes film with an introductory speech of you and/or acad. sakharov can be presented on the moscow tv.

if you would like, i can come to moscow at any time for establishing more effective contacts.

sincerely yours
stefan marinov *
411 4a ans su
312

STEFAN MARINOV
Morellenfeldgasse 16
A-8010 GRAZ — AUSTRIA

- 313 -

To TELEFAX: 0044/1/836 9934

12 June 1989

Mr. Andy Sutherland
Mrs. Hilary Turnbull
Advertisement Department
NATURE
4 Little Essex Street, London WC2R 3LF

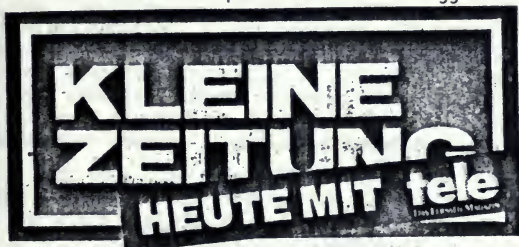
Dear Mr. Sutherland and Mrs. Turnbull,

On the 6 June I sent you my 2-pages advertisement THE PERPETUUM MOBILE IS DISCOVERED and a copy of the document for the payment of the charge.

I beg you to send me your answer to the TELEFAX: Austria 0316 827560 whether the advertisement is accepted for publication and on which date it will eventually appear.

In the case of acceptance I should like to see the proofs of the advertisement in the form in which it will appear. Send these proofs to the same telefax number and, please, be so kind to inform me in your answer on which date you intend to send the proofs, as I have no phone and I must go personally from the stable, where I clean the horses, to the fax-office to see whether there is a post for me. This costs me, obviously, too much time and efforts.

On the 7 June I made a press-conference in Graz announcing the eventual presentation of the machine TESTATIKA in the Moscow TV on whose organization I am now working. Here is the information published in the biggest Graz journal



I beg you to send me your answer on the 13 June before 17.00 London time.

Sincerely yours,

Stefan Marinov

Donnerstag
8. Juni 1989
Nr. 130 S 7.-
Dinar 10 000.- / Lire 1500.-
Auflagengröße
Bundesländer-
zeitung P.b.b.
Unabhängig
Erscheinungsort
Graz, Verlags-
postamt 8020 Graz
Telefon 0 316/80 63-0

Seite 12 Kleine Zeitung
Donnerstag
8. Juni 1989

Perpetuum mobile schon erfunden?

Der bulgarische Dissident und Physiker Stefan Marinov, der behauptet, die Relativitätstheorie Einsteins, den dritten Newtonschen Satz und den Energieerhaltungssatz experimentell widerlegt zu haben; glaubt, das Perpetuum mobile gesehen zu haben. Erfunden hat es nach seinen Angaben Paul Baumann, der als Oberhaupt der christlichen Sekte Methermita im schweizerischen Lindlen (30 km südlich von Bern) lebt.

Marinov, der mittlerweile Mitglied dieser Gemeinde geworden ist, will die Weltöffentlichkeit davon überzeugen, daß dieses Perpetuum mobile tatsächlich existiert. Er versucht das erste Moskauer Fernsehprogramm dafür zu gewinnen, einen 40minütigen Film über das Perpetuum mobile mit einer vorgeschobenen Ansprache von Andrej Sacharow auszustrahlen.

THE PHYSICAL REVIEW
AND
PHYSICAL REVIEW LETTERS

EDITORIAL OFFICES - BOX 1000 - RIDGE, NY 11961

Telephone (516) 924-5533

Telex 971599 FAX (516) 924-5294

Cable Address: PHYSREV RIDGENY

BITNET address: pr (a, b, c, d or l) @ APSDEOFF

13 June 1989

Dr. Stefan Marinov
Morellenfeldgasse 16
A-8010 Graz, AUSTRIA

Re: The electromagnetic effects are
determined by the potentials and not...

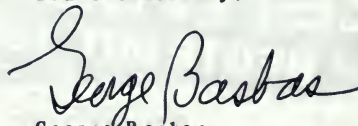
By: Stefan Marinov

SE4111L

Dear Dr. Marinov:

We regret to inform you that your manuscript is not considered suitable for publication in Physical Review Letters. We are therefore returning your manuscript.

Yours sincerely,



George Basbas
Editor
Physical Review Letters

enc.

Editorial note. This letter is answered by Marinov's letter of the 25 June 1989 to Prof. D. Lazarus.



STEFAN MARINOV

Morellenfeldgasse 16

A-8010 GRAZ — AUSTRIA

To TELEFAX: 0044 1 8369934

17 June 1989

Mr. Andy Sutherland
Mrs. Hilary Turnbull
Advertisement Department
NATURE
4 Little Essex Street
London WC2R 3LF

Dear Mr. Sutherland and Mrs. Turnbull,

To all my faxes which I send you since a week EVERY DAY, I do not receive an answer. I am wondering WHY. I have published in NATURE 4 big advertisements. During my visit in June 1988 I visited personally Mr. George Loweto make a "visual" contact which would help our future contacts. I spoke also with Mrs. Elizabeth Hughes. You know that since many years I am fighting to bring some scientific discoveries to the attention of mankind. In those years I visited five times your editorial office, I had long conversations with Dr. Maddox and in the last years I speak almost EVERY DAY with him (at least 1000 phone calls altogether!). I know that it is a difficult task to show that almost all fundamental principles in physics are WRONG. But now I have a functioning PERPETUUM MOBILE in my hands, not to speak about my machines which violate the law of angular momentum conservation or the experiments for measuring the Earth's absolute velocity. With a functioning PERPETUAL MOTION machine the resistance of official physics will be broken.

Now I am organizing a visit of Soviet academicians for an inspection of our machine TESTATIKA and then, if our proposal will be accepted, we should like to present our 40-minutes film on the first channel of the Moscow TV. For the organization of this visit I need the publication of the advertisement THE PERPETUUM MOBILE IS DISCOVERED which I submitted to you on the 6 June. I beg you to send me a telefax today before 17.30 to my fax number: Austria 0316 827560 whether this advertisement will be published and WHEN or whether it will be rejected and WHY.

I must know your answer TODAY, as in the case of a negative answer I must undertake other paths for realizing my plan for the presentation of the first PERPETUUM MOBILE to the world's attention.

Transmit my cordial greetings to Dr. Maddox.

Sincerely yours,



Stefan Marinov

22 June 1989

To my letter of the 6 June and to all following telefaxes I have still not received an answer and I do not know whether my advertisement THE PERPETUUM MOBILE IS DISCOVERED is accepted for publication (and when it will appear) or not. I phoned to Mr. George Lowe whom I know personally and he promised to me to speed the elaboration of the decision. Nevertheless there was no answer. I phoned to Dr. Maddox who told me that he still has not seen the advertisement but my 15-years contacts with Dr. Maddox learned me that when he says "black" he means "white" and when he says "no" he means "yes" (and vice versa). Then I phoned to you, Mr. Sutherland, but you refused to speak directly with me and said through the intermediation of the operator (in this way I had to pay twice as much as your words were said once to the operator and then another time by the operator to me) that you must elaborate the decision together with Dr. Maddox.

I beg you to elaborate the decision and to communicate it to my telefax: Austria, 0316/827560 today before 16.30 London time. If Dr. Maddox wishes to see the perpetuum mobile TESTATIKA, he is welcome to visit our community METHERNITHA at any time convenient for him. But if he will block my paid advertisement and try in this way to stop the spreading of the information on the first perpetuum mobile on this planet, he will put on his shoulders a very heavy burden.

Sincerely yours:

Stefan Marinov

STEFAN MARINOV
Mobil 111 111 111
A-8010 GRAZ - AUSTRIA

22 June 1989

Dr. Neil Ashby
GR-12
Department of Physics
CO 80309 - 0390
Boulder

Dear Dr. Ashby,

To my letters of the 31 March 1989 and 29 May 1989, a copy of which is enclosed I did not receive an answer from Dr. Newman.

But yesterday arrived your letter to me (without date) that my paper

The Principle of Relativity and Equivalence, and the Laws of Conservation of Momentum, Angular Momentum and Energy are not Valid

is accepted as poster in the Workshop A3.

I informed Dr. Newman that I come to present to the Conference the first PERPETUUM MOBILE on this planet and I should like to bring with me a film on this machine. On the other hand, taking into account my TWO expulsions from the GR-11 and the aether conference in the Imperial College last year, I wished to have some written assurances that this shameful action will be not repeated on GR-12. I do not receive such assurances.

I see that the organizers of GR-12 do not realize the importance of the information which I bring with me. On the other side I shall deliver a very hard attack against the theory of relativity backed by all my experiments which have disproved its validity. This can be done only in a speech.

I know that there are too many contributions and that not all contributors can obtain time for speeches, but the organizers have to make a choice between the IMPORTANCE of the submitted papers.

Thus I beg you (or Dr. Newman) to state writtenly:

1. That I shall be not expelled from the conference.
2. That, after taking into account the importance of the matter which I should like to communicate a decision is taken:
 - a) to give me time for speech (how many minutes), or
 - b) to give me only poster presentation.
3. Whether the organizers will give me a possibility for the presentation of the 40-minutes film on the first PERPETUUM MOBILE on this planet, the machine TESTATIKA.

I beg you VERY MUCH to send me your answer to my telefax: Austria 0316/827560 (phone for speaking with the fax-operator: 0316/830063).

I can take a definite decision to visit GR-12 only after receiving your fax. As there is no much time to the beginning of the Conference, please, be so kind to send me the fax at the day of receiving this letter.

Please, mention in the fax whether the abstract of my contribution has been published.

Sincerely yours,

Stefan Marinov

Editorial note. The answer to this letter is given with the fax of Dr. N. Ashby of the 29 June.

STEFAN MARINOV

Morellenfeldgasse 16
A-8010 GRAZ — AUSTRIA

Prof. David Lazarus
Editor-in-Chief of PHYS. REV. LETT.
Dept. of Physics
University of Illinois
1110 West Green St.
Urbana
IL 61801

25 June 1989

Dear Prof. Lazarus,

I use the ^{occasion} to thank you for your letter of the 27 April 1989, although your rejection to revise the rejections of all my papers submitted in the last years to PHYSICAL REVIEW and PHYS. REV. LETT was, of course, not pleasant for me.

Your opinion was that the treatment of my papers in PHYS.REV. was fair.

I have no other choice in my endeavour to revise contemporary physics, which I find in many aspects wrong, than to continue to submit papers to these physical journals of the world which still maintain gentleman relations with me and examine my papers.

Thus with a letter of the 19 May 1989 I submitted to PHYS.REV.LETT my paper

THE ELECTROMAGNETIC EFFECTS ARE DETERMINED BY THE POTENTIALS AND
NOT BY THE INTENSITIES.

The paper was rejected by Dr. Basbas with his letter of the 13 June 1989 without presenting motivations and without enclosing negative referee's comments.

I think that such a procedure is unfair. If you agree with me, please, be so kind to send the paper again to Dr. Basbas and to ask him to examine the paper and in the case of suggestion for rejection to send to me the referee's comments.

I submit papers to PHYS.REV. since about 20 years without having published even a single paper. This costs me too much time, efforts and money. Surely the contacts with me cost also time, efforts and money to PHYS. REV. Thus I beg you, if PHYS. REV. does not wish to receive papers from me, to write me this clearly, so that both sides can dedicate their activity to other contacts. As an example of such a letter I send you the letter of G. Thomas (EUROPH. LETT.) of the 16 May 1989 (you could see many similar letters in TWT).

PHYS. REV. did not wish to buy my books THE THORNY WAY OF TRUTH (TWT). The postage for sending back the books (via air mail) was 40 dollars (photocopy of the envelope is enclosed). Meanwhile the price of the books was 100 dollars. Thus I have the feeling that PHYS.REV. simply does not wish to have these books in its library, as they can influence some of its collaborators.

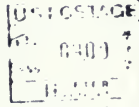
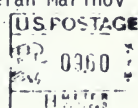
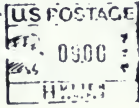
See enclosed all mentioned above letters and the covers of TWT-V and TWT-VI which you have not seen. If you wish to receive them, send me 50 \$ (+ 10 \$ for air mail).

Hoping to receive soon your answer which will lead to more fair examination of my papers or will break the contacts between PHYS. REV. and me,

Sincerely yours,

Stefan Marinov

THE PHYSICAL REVIEW
AND
PHYSICAL REVIEW LETTERS
1 RESEARCH ROAD - BOX 1000
RIDGE NEW YORK 11961-2701
ADDRESS CORRECTION REQUESTED



Via Air Mail
Par Avion

Dr. Stefan Marinov
Morellenfeldgasse 16
A 8010 Graz, Austria

STEFAN MARINOV

A-8010 GRAZ — AUSTRIA

25 June 1989

Prof. V. M. Agranovich
PHYSICS LETTERS A
Institute of Spectroscopy
Troitsk
Moscow 142092

Глубокоуважаемый Проф. Агранович!

Очень благодарен Вам за Ваше письмо от 29 марта 1989 г., хотя отклонение моих статей, конечно, не было приятно для меня. Чтобы избавить Вас от нервоотрепки рыться в папках, посылаю Вам копию Вашего письма.

Отвечаю Вам с очень большим опозданием, так как этой весной я был гость-профессором в перуджинском университете и вернулся оттуда недавно, потом у меня была длительная поездка в Швейцарию к вечному двигателю ТЕСТАТИКА.

Мне, конечно, не было приятно, что Вы не послали мне Ваши рецензенты. Как Вы знаете, я публикую в мою серию THE THORNY WAY OF TRUTH /в этом первом полугодии только вышло три тома!// все полученные мною отрицательные рецензии, чтобы потомкам было ясно как трудно научной истине, самой простой, понятной и экспериментами подтвержденной истине пробить себе путь среди льдов вымученных, алогичных и экспериментами не подтвержденных догм. А когда рецензий я не получаю, тогда публикуя письма соответных редакторов журналов, я выявляю только их неетичность, но я не в состоянии показать НЕСОСТОЯТЕЛЬНОСТЬ отказа. А читатели моего Тернового Пути покупают мои книги, чтобы наслаждаться, как я рецензентов распеваю и над ихними глупостями ехидничаю.

Я прилагаю копию письма Проф. Визке, который, на мой вопрос, хотел бы он рассмотреть статьи, отклоненные Вами, дал отрицательный ответ.

Теперь я посылаю Вам для публикации в PHYSICS LETTERS A одну статью, которую Проф. Визке не принял, вместе с мнением его рецензента и моим ответом /все эти материалы вышли в TWT-VI/

THE ABSOLUTE AND RELATIVE NEWTON-LORENTZ EQUATIONS,

и статью

THE DEMONSTRATIONAL MOLLER-MARINOV MACHINE.

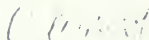
Physics Abstracts class. numbers обеих статей: 03.30, 03.50, 41.10.

Буду рад получить Ваше уведомление о получении статей и потом в резонном сроке Ваше окончательное решение, а в случае отказа также мнение рецензента. Я посылаю Вам только одну копию статей, так как знаю, что Вы только одному рецензенту отошлете статьи и незачем загромождать Ваши папки лишними бумагами /"журнал крепнет, когда очищает себя от ненужных статей" Вл. Ил./.

Как я Вам уже писал, я готов прилететь в Москву и защитить мои статьи в присутствии Ваших рецензентов на научном семинаре. Поездку и пребывание я оплачу себе сам.

Посылаю Вам фотокопии обложек 5-го и 6-го томов ТЕРНОВОГО ПУТИ. При интересе с удовольствием вышлю Вам эти тома, чтобы сотрудники Вашего института могли с ними познакомиться. Для Вашей информации посылаю несколько страниц из шестого тома, которые связаны с показом машины ТЕСТАТИКА советским академикам и изготовленного нами фильма об этой удивительной машине по московскому телевидению. Стараюсь, как видите. И должен из всех сил стараться, ибо в моем кармане лежат ключи от многих замков.

В ожидании Ваших скорых ответов,

Искренне Ваш: 

Стефан Маринов

STEFAN MARINOV

Marcellstrasse 16

A-8010 GRAZ — AUSTRIA

27 June 1989

My Fax is: Austria 0316/827560

Mrs. Elizabeth Hughes

NATURE

4 Little Essex Street

London WC2R 3LF

Also to the attention of:

1) Dr. John Maddox

2) Mr. Andy Sutherland

Dear Mrs. Hughes,

On the 6 June I sent my two-pages advertisement THE PERPETUUM MOBILE IS DISCOVERED to Mr. A. Sutherland attaching a document for the payment of £ 950 for the charge and begging Mr. Sutherland to fax me the proofs.

As no answer came, I sent five additional faxes on the 12, 14, 15, 17 and 22 June, asking for a fax answer whether the advertisement is accepted for publication or not.

As there was no answer, I phoned to Mr. Lowe, whom I know personally. He promised that the answer will be soon elaborated. As again no answer came, I phoned to Mr. Sutherland who told me through the operator, that before taking a decision he must speak with Dr. Maddox. During our routine phone conversations with Dr. Maddox in these days (since 5 years I speak with him, as a rule, 2-3 time in a week), he always told me that he has not seen the advertisement, but as Dr. Maddox' "no" is the English "yes", I make the conclusion that he has seen it. Why then Mr. Sutherland does not send me the elaborated decision? I beg you that you send me the decision tomorrow before noon. If NATURE will treat its advertisers in such an idiotic way, soon no one will advertise on its pages.

During my visit in London in June 1988 you remember very well that Dr. Maddox promised to you to publish my paper "The experimental violations..." on the 18 August 1988. Then with a letter he postponed the date for the 13 October 1989. But the paper is until the present day not published. Please, fax the date when the paper will appear.

During my visit in December 1988 (Dr. Maddox invited me and paid me the trip) Dr. Maddox promised to publish a certain "Christmas puzzle" on the 22 December. This puzzle had then to appear as "Easter puzzle", then as "Whitsun puzzle" and so on. Please, fax on which saint day will this puzzle appear.

In my phone conversation yesterday Dr. Maddox assured me that a letter has been sent to me a couple of days ago where he:

- 1) Gives his motivations for the postponement of the paper "Experimental violations.."
- 2) Gives his motivation for the rejection of the paper "Propulsive and rotating Ampere bridges violate the principle of relativity", attaching to it the photograph and the description of the repetition of my experiment where no rotation has been observed, contrary to my report on the observed rotation. Also the letter of Prof. Graneau whom I have suggested as a referee had to be attached.
- 3) Confirms writtenly when the "Christmas puzzle" will appear.
- 4) Confirms writtenly when my correspondence with Tiomno will be published.
- 5) Attaches a letter asking for permission to visit the perpetuum mobile TESTATIKA.

As this letter has not come, I conclude that Dr. Maddox has deceived me once more. Please, fax whether Dr. Maddox has sent such a letter.

I beg you to take into attention that there is a functioning perpetuum mobile in my hands. And I am the only man who can forward this machine to humanity. I have not the physical possibility to be in contact with more journals. As any journal will proceed exactly in the way as NATURE, I concentrated all my efforts on NATURE. Please, explain to Dr. Maddox that in this way he undermines the moral and scientific reputation of NATURE.

The text of your fax of tomorrow will show whether you are really concerned about the reputation of your journal which it has strengthen during 100 years of existence.

last,
In my phone conversation when Dr. Maddox said: "The letter is sent last week. The puzzle will appear next Thursday", I answered: "Dr. Maddox, I kiss you." If you only know, Mrs. Hughes, how many times I have kissed him. And always I believed in his words. Because he is a CHARMING PERSON and I LIKE HIM. And this is NOT a hypocrisy. I like him. And if I have not broken the contacts, it is because I LIKE HIM.

Yours,



University of Colorado at Boulder

Department of Physics

BITNET ADDRESS:

GR12@COLOPHYS



FACSIMILE TRANSMISSION

DATE TRANSMITTED: June 29, 1989

TIME TRANSMITTED: 2:50 PM

NUMBER OF PAGES: 1 of 1

TO: Stefan Marinov

FROM: Neil Ashby

DEPT./CO.: Morellenfeldgasse 16
A-8010 Graz - Austria

DEPT./CO.: Physics - GR12

TELEPHONE #: fax 43 316 827560

TELEPHONE #: fax (303) 492-5119

voice

voice (303) 492-4980

COMMENTS: Your letter dated 22 June 1989 arrived today. Responsibility for selecting papers to be given orally was delegated to the Symposium Chairpersons, and your paper "The Principle of Relativity and Equivalence, and the Laws of Conservation of Momentum Angular Momentum and Energy are not valid" was selected for presentation by poster rather than verbally. Due to the large number (in excess of 700) abstracts which were submitted, most of the papers will be given via poster. The Local Organizing Committee cannot change these decisions. Your paper has been allocated poster space in the A3 Symposium. Because the number of papers is so large the Local Organizers will not be able to arrange an additional room and projector for your film as you requested.

Your abstract is published in the abstract book.

STEFAN MARINOV

Microfilm Edition 16

A-8010 G77 - AUSTRIA

- 321 -

Dr. Neil Ashby
GR-12
Department of Physics
CO 80309 - 0390
Boulder

29 June 1989

Dear Dr. Ashby,

Thank you very much for your telefax of the 29 June.

I did not receive a written assurance that I shall not be expelled from GR-12 (as this was the case with the GR-11 and the aether conference in September in the Imperial College where I was ACCEPTED as a participant). Nevertheless I am sure that this time I should not have to be expelled as the American have a much higher sense for freedom and for toleration of dissent opinions than the Europeans.**

But your decision to not allow me to present the 40-minutes film on the FIRST PERPETUUM MOBILE on the planet Earth let me with an open mouth. Have you not thought a little bit with what name will you remain in history?

At this situation I decided to abstain from visiting GR-12. This trip would cost me much money and I had to spent more than a week, now, when any hour is very precious for me (I am organizing the visit of Acad. Sakharov and of the President of the Soviet Academy of Sciences in Linden for seeing and testing the machine TESTATIKA and then our 40-minutes film will be presented on the first channel of the Moscow TV).

For my decision for abstention an important factor was also your unwillingness to give me time as speaker where I could deliver a strong attack against the relativistic concepts. I am the world patriarch in space-time absoluteness and GR-12 was a very convenient place for heralding the decline of relativity, as for the GR-13 relativity will be world-wide recognized as dead.

I shall be very thankful to you if you will POSTER this letter of me, so that the participants of GR-12 will be able to see the reasons for which I have not visited the Conference.

Hoping to meet you at GR-13,*

Sincerely yours,

Stefan Marinov

* On certain streets in Bulgaria there is no house Nr. 13. After the house Nr. 12 a house Nr. 14 follows. I should give the same advice to the organizers of the GR-Conferences: jump the FATAL number 13!

** Remember the decision of the American court about the freedom of burning the American flag.

STEFAN MARINOV

16
AUSTRIA

5 July 1989

To TELEFAX: 0044 18369934

Dr. John Maddox

Nature

4 Little Essex Street, LONDON WC2R 3LF

Copies to be handed to:

1) Mrs. Elizabeth Hughes

2) Mr. Andy Sutherland

Dear Dr. Maddox,

I write you after our today's phone conversation. You said that the text of my advertisement is too tendentious. As this text concerns at the most our mutual contacts which we both know very well, I give you the freedom to CORRECT the text in ANY convenient for you way. I shall accept ANY your correction, but I should like to see the proofs of the advertisement before sending it for print. In the case that you will reject the advertisement, I beg you, in your TELEFAX to present motivations for this rejection and explanation why the elaboration of the rejection has lasted a MONTH, although receiving from me during this months SIX faxes with a request for a speedy answer and several phone calls.

With this advertisement I wish to speed the visit of Sakharov and of the President of the Soviet Academy of the Sciences in Linden for an inspection of the perpetuum mobile TESTATIKA. The world must understand that THERE IS A PERPETUUM MOBILE. My letters are not read by the bureaucrats in science, my books are not read. Humanity loses days, weeks and months. For this reason I publish an advertisement having found with an ENORMOUS DIFFICULTY 1000 £ to pay the charge. And you intend ONCE MORE to SPIT over all my endeavours and SACRIFICES. WHY? WHY ? WHY?

Maybe you will object that you can correct the text of the advertisement but you cannot correct the text on the cover of TWT-V (which is already on sale in all scientific bookshops of London) and there I write: "...Dr. Maddox behaves himself as an ass on a bridge." Dr. Maddox, I do not say that you are an ass, I say that you "behave yourself on an ass on a bridge". An ass on a bridge goes neither forwards nor backwards. Exactly this are you doing since 5 years with respect to me. I proposed you hundred times to break our relations. You do not break the relations. On the other hand during five years you give me only promises, you deceive^{me} in any of our phone conversations and you do not publish even a single line of me (nor of you on me, as you have promised). Decide finally as a MAN: either to go forwards (and to fulfil all your promises) or backwards (and to break our relations). I will not break our relations, as I invested in the battle with you five years and ALL MY MONEY.

If you will decide as a MAN to go forwards, then send me in a fax (no later than tomorrow 16.30 London time: (if necessary, I shall pay you the faxes!!!!))

1) A copy of the letter which you insist of having sent to me and which has not reached me.

2) The composed text of your "Christmas puzzle".

3) Acknowledgement for the acceptance of my advertisement or a motivated rejection.

4) Precisation of the date when the "Christmas puzzle" will be published.

5) Precisation of the date when our correspondence with Tiomno will be published.

6) Answer whether my big paper "Experimental violations..." will be published, and if the answer is positive, when, or motivated rejection.

7) Letter that you desire to visit the community METHERNITHA and inspect TESTATIKA or letter that you do not wish to see the machine.

Hoping to read your fax tomorrow,

With love:

PS. I wished to bring the 40-minutes film on TESTATIKA to the GR12 Conference where I am accepted as a participant. With a fax of 29 June Dr. Neil Ashby informed me that it is not allowed to me to present the film! PITIABLE OBSCURANTS!

JOHN MADDOX to STEFAN MARINOV
18 July 1989

TELEFAX of John Maddox to Marinov

Dear Dr Marinov,

I am writing what I intend to be a sympathetic letter, but I also wish to make it clear that there must be clear limits to this relationship of ours.

To put the case simply, I do not see why I should provide you with a whole set of documents in a great hurry, and when I have other things to do, simply so that you can publish them in the next edition of your book.

But, for what it is worth, we shall in due course publish the exchange between you and the Brazilians in scientific correspondence when it has been edited, and I shall find a convenient occasion in which to publish the account of your conundrum in the form of a puzzle that our readers can scratch their heads about.

I have explained that there is no possibility of my agreeing to the publication of your advertisement. Quite apart from the merits (but I mean the opposite) of its content, I do not believe it proper that advertisements with a scientific content should not be published in our regular scientific section after satisfying our referees.

I would be glad of a chance to see the alleged perpetual motion machine in Switzerland -- these things are always interesting -- but I do not consider it to be worth a special journey. I shall write to you in advance when next I am going to be in Switzerland, in the hope that it will then be convenient for the custodian of the machine.

You will find shocking my statement that a perpetual motion machine is not worth a special journey. Let me carefully explain why.

You tell me that, in some basement laboratory in Switzerland, there is a machine that generates endless energy and which also contradicts the laws of physics as we know them. But you are well aware that this is not the first claim of its kind in the past three millenia, and that all previous claims have either been disproved or abandoned by their authors.

Faced with such a phenomenon, there is no doubt what a good scientist would do. He would test the behaviour of his machine against the known laws of physics, seeing whether there is any possibility that his phenomenon has a conventional explanation. He would also examine the behaviour of his machine in a variety of circumstances, hoping to learn something about the laws governing its behaviour.

You unfortunately start from the other point of view -- that relativity and (in this case) even Newtonian physics are a pack of lies, say that the true laws are contained in your incomprehensible papers which other physicists say make no sense and then wish us to take your ideas seriously. I believe it is a great tragedy that a man of your energy and enthusiasm should have been diverted in this way. I wish there were some way in which your friends (of whom, I hope, I will remain one) can tempt you back onto sober paths.

You may publish this letter if you wish.

Yours sincerely, JOHN MADDOX

18-JUL-89 TUE 11:51 NATURE LONDON

STEFAN MARINOV

Morellenfeldgasse 16

A-8010 GRAZ — AUSTRIA

18 July 1989

Dr. John Maddox

NATURE

4 Little Essex Street

London WC2R 3LF

Dear Dr. Maddox,

Thank you very much for your today's telefax. It came too late but finally it came!

1. You write: "I do not see why I should provide you with a whole set of documents in a great hurry." You have always asserted on the phone that you have sent to me a letter providing all these documents. And when I said you that such a letter has not reached me (as was the case SO MANY TIMES during the last five years!), you promised to send me a copy of this letter and of all attached documents by fax. It takes only 10 seconds to take the copies of these letter and documents and to hand them to Miss Mary to fax them to me. But you obviously have NOT written such a letter and you have NOT these documents in your files. If in your next letter you will assert that such a letter WAS written, you can retain the £ 950 which I have sent to your bank account. Only for a WRITTEN declaration that such a letter WAS written you can win £ 950, even without sending the letter!

2. You always asserted that your "Christmas puzzle" is composed and that you have sent the composed text to me. This, obviously is not true. If you will confirm writtenly that indeed the Christmas puzzle WAS composed, you can retain my £ 950 and use them in any convenient for you way.

3. You always asserted that a man in whom you have confidence has replicated my RAF-machine and has established that the Rotating Ampere Bridge with Sliding Contacts does NOT rotate when sending enough current through it (I asserted that with about 1200 A my RABSC rotated with about 5 rev/sec). With this motivation you rejected my paper "Propulsive and rotating Ampere bridges violate the principle of relativity". You always asserted that you have a report on the replicated experiment and a photograph of the machine, that you have sent them to me and you only will not disclose the name of the experiment's executor. If you will send me this report and the photograph of the replicated machine, you can retain my £ 950.

4. You rejected the publication of my prepaid advertisement with the motivation: "I do not believe it proper that advertisements with a scientific content should not be published in our regular scientific section after satisfying our referees." In the 20 years of our mutual contacts I have submitted to NATURE some 100 papers. For about the half of these papers I received rejection letters, for the other half neither rejection letters and for one third nor acknowledgements for reception have reached me. And to ALL THESE 100 PAPERS I have received not a SINGLE referee's opinion. Peruse all six volumes of TWT. There are a plenty of your letters but not a SINGLE referee's opinion. If you will find in your files at least ONE referee's opinion on some of my submitted papers, you can retain my £ 950. - I published in a couple of advertisements in NATURE and NEW SCIENTIST some VALUABLE SCIENTIFIC information, as ALL OTHER WAYS for contact with thinking creatures are closed for me by you and by your colleagues-editors from the other journals. Now you block also the way for my TREMENDOUSLY IMPORTANT INFORMATION through a paid advertisement. Poor Dr. Maddox!

5. If not counting the stupidity which you have written when trying to solve 4 years ago the "puzzle" which you call now "Christmas puzzle" (see TWT-II, third ed., p. 296), the idiotic objection which you raised once in our conversation that an operator (∇ .grad) does not exist, and the objection that I have not given the precise number of the holes in my "coupled shutters" experiment (see TWT-II, p. 267), the UNIQUE scientific REASONING which you dedicated to my theory and experiments was the following (NATURE, 316, 209, 1985) Marinov claims that his results, most recently obtained with home-made equipment at Graz, demonstrate that the velocity of light is not the same in all directions. He even claims to have been able to detect the velocity and direction of the Earth's movement through absolute space and time.

None of this proves that there is anything wrong with special relativity. Any physicist will tell you that the last your CONCLUSION is an idiotism. If you will find a living physicist who will confirm that this conclusion is not an idiotism, you can retain my £ 950.

6. You write: "(According to you) relativity and even Newtonian physics are a pack of lies, say that the true laws are contained in your incomprehensible papers which other physicists say make no sense." I have published 13 books where I clearly show what is

wrong with relativity and what is wrong in Newtonian physics (violation of Newton's third law in magnetism which in Newton's time did not exist as mathematical science) having never said that Newtonian physics is a "pack of lies" (although recent pure mechanic experiments have also shown violations of Newton's third law - see TWT-VI which is dedicated quite the whole to those problems). But there is not a SINGLE paper in the world in which I have been accused by some physicist that my papers are incomprehensible and that they do not make sense. If you can cite such a paper, you can retain my £ 950. Otherwise you must recognize that this your accusation is a CALOMNY. - You may intend that anonymous referees have attacked my theories and experiments. Noble men do not take into account the coward opinions of anonymous scoundrels!

7. With regard to the machine TESTATIKA you continue your "ass-on-a-bridge" tactic. Look, Dr. Maddox, let us move finally the ass from the bridge. Either you will come SPECIALLY to Linden, or we shall cross your trip from the program at all. We are not beggars awaiting for your benevolence. You have to come to Linden paying your trip alone (in Switzerland you will be our guest). Then you have to publish a photograph of you when inspecting the machine and a declaration that:

- a) according to you the machine is NOT a perpetuum mobile,
- b) according to you the machine IS a perpetuum mobile.
- c) you can not decide whether the machine is or is not a perpetuum mobile.

In the first case you will receive from me £ 10,000. Those are our conditions. Either you accept them or not. And if you are really interested in the machine you have first to order TWT-V. I shall no more grant you my books. And, please, be so kind and put aside your STUPID advices what has to do a "good" physicist with TESTATIKA. There is a WONDER in Linden. Please, stop to play the fool that you do not understand what a perpetuum mobile is. One gives a couple of pushes to the machine AND IT RUNS. And wish with an ADVERTISEMENT to SAY THIS TO THE WORLD! Going against the financial interests of your journal you show moreover that you are a BAD physicist, a very very bad physicist.

8. If you will not reconsider your decision for the rejection of my advertisement and if you will be unable to retain my money by fulfilling the requirement of at least one of items 1-6, please, be so kind to send back my £ 950 to my bank account: CREDITANSTALT, Graz, Konto 0082-17077/00, Stefan Marinov. And, please, send back all records sent by me.

9. You express the desire to remain my friend. I appreciate VERY MUCH this your noble gesture. I should also like to remain your friend, as I ever was. But friends do not lie each other. I hope that from now you will finish with your lies. Thus be so kind and write me a letter IN A TIME CONVENIENT FOR YOU stating:

- a) when will my correspondence with Timmo appear,
- b) when will your "Christmas puzzle" appear,
- c) will you publish my already composed paper "Experimental violations..." and when, or you will reject it and will you send me SCIENTIFIC referee's objections,
- d) as you cannot present a report for the repetition of the RAF-machine with a negative result, will you (and when) publish my paper "Propulsive and rotating..." as you promised me during my visit last December.

With a friendly embrace,

Stefan Marinov

Editorial note. This is Marinov's answer to the fax of Dr. Maddox of the 18 July 1989.



КАК СЕ КОПИРА ДНЕС БОДЛИВАТА ТЕЛ НА ЗАПАДНАТА БОРСА

Ганю пак последен остана.

- Къде остана последен?

Ами как! Всички се паредиха с канчетата - и ясновелможите панове, и ялтиш-гулаш-комунистите - чакат чинню, чичо Сам като шета насам-натам по Европата, да мине да им силе с черпака. А Ганю пак го няма да притича и той ред да чака.

Все последни. Когато трябваше дивотии и щуротии да се вършат, тогава първи бяхме. А когато питомното на вратата му дойде, Ганю ще я залости здравата и ще пусне кучетата по питомното да лаят.

Спомням си я оная пуста телеграма дето я би Никитушка след двайстия конгрес:

Дарагой тавариш Чирвийенкав, по-рана нийе ката прйдийехмйе, вийе се пасирахтйе.

Сига ний сйе асрахмйе, а ний и да прйдийетйе ни смеитйе.

В Съюза втори път вече се осират от яко по-яко, а у нас пак нищо - ни звук, ни мириз. Тихо и зловещо както на самодивска поляна по пълнолуние. Само чат-пат цензора със сатъра ще бацне някой разгорещен Огоньок, а то и на ПРАВДА-то казват се замахвал. Боже, Боже, до какво доживяхме!

Някой по-очилат, по хитро-умен ще се обади от задунайската губерния: "Този път чак до там последни се сме. Телени мрежи по границата със Съюза, както някои други наши северни съседи не вдигаме."

Телени мрежи не вдигали. Не вдигат, понеже границата я няма. Я да я имаше, както я има у някои наши северни съседи!

И все за тия телени мрежи се закачаме. А ако си човек акълтия, от бодлива тел голям келенър можеш да удариш. Вижте ги маджарите до къде се изхитриха. Отрязаха парче ръждина бодлива тел, дават я на чичо Сам и викат: "Аман-заман, плашай. За това парче хиляда милиона."

Чичо ви Сам бърка в джоба, вади сто. "Нег ту дом, викат. Кекемет, кекчемет, малко е. Хиляда милиона искаме. Иначе пустата ни пуста съвсем ще опустее."

Чичо Сам за дзнери, не знае какво да прави. Ясновелможите гракнали, за тяхната тел десет милиарда искат. И Валенсата и той кукурига от бреговете на балтийската море: "Мялче Полска нийе стинийела, ама душа бере. Ако дадете от десет милиарда лев по малко и ще загинее."

Айде, бе Ганю. Сега е момента за експеримента. Режи бодлива тел и продавай. Утре ще ѝ падне цената - километър бодлива тел да занесеш на Ню-Йоркската борса, па ако ще и със застъпка крив по нея, лев няма да ти дадат.

Така е тука на запад. Капитализъм. Моментата трябва да улчиш, пълбисито да натъкмиш, тълпаните да удариш. И продавай. Не улчиш ли момента - всичко свършва. Стоката залежава, пранниш банкрот и от стотния етаж трябва да скачаш долу на паважа. С краката ли падолу, с главата ли, това нече е даже без значение.

Другари, прочее докато се проявече и времето ми изтече. Трябва да свършвам. Да теглим изводите и да ходим да сним. А изводите са следните:

И затуй, понеже не можем си върза гащите
и кър е зарзаватог,
един е лозунгът: Горь Шатите,
свят със НАТО.

C O N T E N T S :

Preface	5
Как се прогонват призраци и духове /есе/	8
SCIENTIFIC PAPERS	
Machines violating Newton's third law	11
The death of rocketry by Joel Dickinson with Robert Cook	35
The space-drive problem by John W. Campbell	158
Detesters, phasers and Dean drives by G. Harry Stine	182
The fantastic machine of Stefano Ricciardi	202
The intriguing ball-bearing motor	213
Effects of reflection from a moving mirror on the velocity of light by A. A. Michelson	215
Historical papers of G. Zamboni	222
Principles of electrostatic motors with free energy merit by P. T. Pappas	240
Cold nuclear fusion and excess energy by P.T. Pappas	243
Dialog-Beiträge und Artikel über TESTATIKA, veröffentlicht in RAUM & ZEIT	246
CORRESPONDENCE	
Year 1989	264
Как се котира днес бодливата тел на западната борса /есе/	326







The sixth part of the collection of documents **THE THORNY WAY OF TRUTH (TWT)** is dedicated quite the whole to the problem about the violation of Newton's third law by the help of inertial forces, with a special attention to the centrifugal inertial forces. In TWT-VI are reproduced: the highly interesting book of J. Dickinson on the Cook drive (in toto), historical papers on the Dean drive, and Marinov's own presentation of the Zorzi-Speri drive (Marinov is photographed above when inspecting the Zorzi-Speri drive). The kernel of these three drives is the Bühler drive which for half a period creates momentum and energy and for the other half of the period annihilates them. All inventors have endeavoured to change the sign of the "second momenta" obtaining continuous propulsion and to create thus momentum from nothing. But nobody in the world has tried to change the sign of the "second energies" and to create thus energy from nothing. Marinov proposes such experiments and shows that as momentum is a vectorial (and undissipative) quantity, while energy is a scalar (and dissipative) quantity, the violation of the energy conservation law by the help of inertial forces is a much more easier technological problem than the violation of the momentum conservation law. Marinov presents the fantastic machine of the unknown Italian inventor Stefano Ricciardi which is neither a turbine nor a piston-engine and at the same time it is a turbine and a piston-engine. Historical pages are reproduced of G. Zamboni on his "elettromotore perpetuo", the first perpetuum mobile in our world which since 150 years is in motion in the Clarendon Laboratory of the Oxford University.