ANTIGRAVITY LIFT AND EXOTIC FLIGHT (I): CRITICAL OVERVIEW OF THEORIES AND TECHNOLOGIES

By Paulo N. Correa & Alexandra N. Correa,

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Aetherometric Theory of Synchronicity (AToS) Volume II The Gravitational Aether, Part II: Gravitational Aetherometry (6) Antigravity Lift and Exotic Flight (I): Critical Overview of Theories and Technologies

by

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AETHEROMETRIC THEORY OF SYNCHRONICITY (AToS)

VOLUME II

THE GRAVITATIONAL AETHER, Part II:

Gravitational Aetherometry (6) -

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ABSTRACT

In the second of a group of four communications dedicated to the scientific, technological and political problems presented by exotic flight and lift systems, in particular those relating to possible control of gravity, we examine the main post-WWII efforts to devise new flight and space-travel technologies. In the present communication we focus on early speculations about possible electric and magnetic control of gravity, and on the development of electric propulsion (EP) systems.

NOTE

The previous monograph ^[1] introduced the monopolar lift effect that lies at the heart of the so-called 'Brown-Biefeld effect'. It was originally intended for publication in *Infinite Energy* at the personal request of Dr. Eugene Mallove. The critical part of the electrometer investigation was under way in the weeks before his murder - and on the 8th of May, 2004, we had a long phone conversation about it. The results were rather promising of an electric control of gravity, so Dr. Mallove was naturally excited to publish that report.

Gene's murder, in our opinion still unsolved to this day, would change the fate of these four monographs, along with all else it changed - including the direction of *Infinite Energy* and of the New Energy Foundation that Gene had just created. This sad event stands as another dark marker in the journey of Aetherometry - one far more horrible than the event which marked the completion of the aetherometric theory of the electroscopic functions in the AS2-02 monograph, and involved an assault on our own facilities. That case, too, remains unsolved (even if our own investigation has indicated that the People's Republic of China was not foreign to this event).

The present monograph - and the two that follow - were written for Gene Mallove and the publication that he created, with the idea of presenting the limitations of existing flight and lift technologies, together with the limitations of the main modern analytical models of gravity and antigravity. One of the essential contentions of these papers is one that was dear to Gene's heart ^[2] - that it is most unlikely that any governmental skunkworks or black-ops have what it takes to understand gravity well enough to be able to engineer it through advanced technologies. Gene wanted to publish these communications in *Infinite Energy*, but we wanted to do so only after publication of the AS3-II.7 monograph.

At last, fully revised, extended and edited in 2006, these three monographs are here offered to the reader. We had no ambition to be comprehensive throughout, only to provide the reader with an overview of what has happened in the fields of exotic flight and lift, with the attendant theoretical efforts that have tried to explain gravity (and antigravity) in the last 60 years. Our objective was to provide a context to better situate our own theoretical and experimental effort, ie Aetherometry, with respect to the novel theory of gravity and gravitation that we propose.

INTRODUCTION

1. The socio-political context of the limitations to scientific understanding

We begin our examination by assessing, in broad lines, the status of lift and flight technologies in the post WWII period; we will then move on to assess the fundamental lines of thought and development, with central reference to gravity research, in the institutional research frameworks that have been or have become dominant since then.

It is obvious that neither we, nor most of the mortals, even those placed in high positions in the US government, actually know, or can effectively know, the full extent and implications of the entire lift and flight research map. Classification of most or all of this research of necessity precludes direct knowledge and above all a suitably encompassing insider perspective. However, technological developments do not occur in a vacuum. They are based upon scientific hypotheses, have technological precedents and military objectives and requirements; they leave behind all manner of trails, and eventually select technological advancements issued from the core research are released to the public domain and civil society. That is the historical law behind scientific development, essentially dictated by the fact that it is the select military advantage conferred by a technological innovation which generally determines its original investigation, just as it is the select political-economic advantage that the innovation may also come to confer which determines its release, sooner or later, to civil society (viz the instances of the telegraph, the transistor, the personal computer and the internet, etc).

Re-examination of lift and flight technologies in the post-WWII period, and the basic science behind them, is particularly relevant in light of the UFO phenomena (plural indeed), and we hope it will serve as the reality check that is absolutely necessary for any attempt at scientifically examining and understanding these phenomena, and accordingly differentiating between them. As such, there is also an inevitable ethical and political problem which these issues raise. An overview of the scientific models and technologies of advanced flight and lift systems cannot avoid an evaluation of the intended or projected uses for these technologies, anymore than it can avoid a discussion of the historical direction taken by the development of these technologies. Moreover, it is when science is most intensely assailed by power systems that one realizes how, more than ever, it must demand a micropolitics of defense against the increasing sheer volume of rampant lies that both fake scientists and strident ufologists have been feeding the public, ranging from all the idiocies about the nature of gravity and antigravity to those about the conspiracies of various governments with little slimy ETs. Our epoch is an age deranged by the media power of the spectacular and the fantastic, and moved by the interests of an all-pervasive, unstoppable show-biz. Science and technology are not immune to this derangement, much on the contrary - they are its gold mine, what supports it and provides its technological infrastructure. But to the extent we derange our science and out technology, we also bring about - not the much taunted end of science "because all that there is to know is somehow already known" - but a generalized anti-intellectual and unethical state of stupor, impotence and fearless imbecility; simply because all we're left with is high-flying metaphysics, not even worth the spit of last-ditch priests. These are symptoms of a great decay in our society, the complete bankruptcy of a culture that is unable to confront the next level of the challenges which its social organization, its corporate and State politics, its military and policial technologies and the impotence of its science have, nevertheless, raised to the foreground - and these symptoms are not about to go away any time soon.

This and the following communications will therefore completely break with the old scientific tradition of immunizing science to its politics, and even to any politics. That is no longer possible when what is presently at stake is the very knowledge that will permit human beings to contact Space, other worlds inside and outside our own (including intelligent extraterrestrial beings) - yet such contact shall never be possible, or welcome, as long as human beings cannot contact one another or any other life on this planet without fear, paranoia, gratuitous aggression, coercion, malignant intentions and stupid beliefs in God, Mankind, and other such debile fictions. Scientists have too long searched for special circumstances (from the grace of God to the chance passage of a star close to the earth) that would make human beings unique, a singular occurrence of intelligence in a singular occurrence of life caused by special circumstances. That would be too good to be true. In his seminal 1972 "*Modern Aether Science*", Aspden exposes the anthropomorphic views of Eddington, that paragon exponent of Relativity:

"Eddington says that perhaps not one in one hundred million stars can have undergone this experience [the accidental approach of a star by the sun!] and then argues that this makes Earth the privileged place in the universe habited by mankind."

And he quotes Eddington - from the 1929 edition of "The Nature of the Physical World":

"I feel inclined to claim that at the present time our race is supreme; and not one of the profusion of stars in their myriad clusters looks down on scenes comparable to those which are passing beneath the rays of the sun."

Maybe if we only think about those nasty scenes where Power vents the full gamut of its destructive wrath, or rebuilds a world ruled solely by the reproduction of labour, capital and the oedipal image - Eddington could have been right: probably no other star looks down on such spectacles - such dramatic and debasing spectacles. That hardly could make our race supreme - save in the capacity to generate misery under all its forms, the misery of poverty and the poverty of its social wealth, the social economy of lies that presents wealth as but enriched misery. Here is an animal race that cannot look up to the skies without feeling superior to them! A species that knows nothing about how to engineer massfree energy (the Aether or Dark Energy), but is convinced that its achievements on the Moon and Mars, with rockets and robots, entitle it to sit at a special place near God.

Such illustrious members of this species could never have a mind sufficiently open that it

could comprehend nature adequately. Since they are the spokesmen - and spokeswomen - of Science, the representatives of Power in 'official science', their fundamental role is to patch and shore up the prevailing 'official line'. They are the State-police of science and technology.

2. The scientific context of the limitations to scientific understanding

Scientific theory has, to this day, failed to provide a consistent and comprehensive description of the gravitational force or the energy field (*Gravitas*) that gives rise to that force. This failure to understand gravity - and the microphysics of energy that underlie it - has paradoxically insured accepted thought and conventional physical theory ("official science", to borrow the term dear to Deleuze and Guattari) against any serious consideration of what lies 'beyond gravity'. In turn, this has precluded 'official physics' from attaining any technological control of gravity. By the same token, the failure to comprehend gravity has prevented any integration of electromagnetism with other, distinct, energy manifestations - precluding even understanding of the fine energy structure of what is described as 'electromagnetic energy' with reference to its own 'inertial frame'. The task is far from simple, and giving up 'this early' (in the 'history of science') only underlies the failure of conventional physics: it is fundamentally unable to come to grips with the energetic nature of Matter, let alone the energetic reality of a massfree Aether. As Aspden once wrote, this is all the more disconcerting as "our hope for resolving" the problem of gravitation and the possibility of antigravity (*Celeritas*) "have come to rely on our imaginary probes into the [supposed] events when the the universe was first created"...

Once again, it is religion that human, all too human scientists grapple with. Mythical origins of the universe. Stars looking down on the human miracle, and endless gibberish of the same kind.

Sound physical theory is not separable from an adequate philosophy of nature and its micropolitical consequences. The impotence of modern physical theory to account for positive gravity - let alone negative gravity - is exemplary in demonstrating how it subordinates the politics of science (the politics of knowledge, investigation and discovery) to the politics of an internalized morality that is perfectly subservient to systems of Power (*Potestas*). Modern physical theory is not foreign to the Power systems that it serves. Moreover, this moralism of scientificity reduces, at the end of the day, to the props of a cult of Man or Humanity devoid of any mores or ethics, designed for mass-consumption and easily manipulated by technocratic (lay) priesthoods - or, still better, organized *and* relatively controlled by a partially decoded flux of technology (Power is built in, as best it can, or to the extent that the modern cybertechnocracy is capable of 'prefabing' it). At the end of the day, the failure of physics and its dual succumbing - to Uncertainty and to Relativity - along with the later-day scholastic doctrine of quarks, gives the exact measure of what it is that scientists do not wish to know or find out. They fear the anticipated pain when their castles built on air will collapse. And they fear the friendship of knowledge, they fear that it could and should lead to a life of joy outside of, and beyond, the world of Survival.

This context makes our criticism of Relativity, Quantum Mechanics, and ZPE theories in the present series of communications all the more poignant, as we will not only relate the exact major errors of these scientific doctrines with respect to the nexus of the problems of gravity and inertia, but follow this up with simple aetherometric solutions that are both algebraically consistent and consistent with the physical facts. Such solutions constitute, in fact, the simplest conditions for an actual Physics of energy. Hence, in the guise of a recapitulation, the accompanying communications will also present the core of the aetherometric solutions to:

(1) the formulation of G as a function of massfree energy (the massfree Phase Space *and* Phase Time nature of the gravity force), and its relation to the mCBR;

(2) the velocity of propagation of the force of gravity (the effects of the gravitational action and the transmission of disturbances or fluctuations, along with the aetherometric treatment of Bradley's aberration);

(3) the hidden electrodynamic and 'latently thermal' interactions at the heart of the gravitational interaction (massfree lattice interactions).

Underpinning these solutions, we will also present the core of -

(1) the aetherometric theory of the graviton;

(2) the aetherometric theory of antigravitational action, including novel evidence for electroantigravity; and

(3) our novel approach to the application of pair-destruction engines for space-travel (solution to the Wheeler-Ivanenko problem).

COMMUNICATION

Critical overview of lift and exotic flight research in mid-XXth century

"I swear it's nothing the US is doing. I'm in on all special programmes and I'm sure I would know. Our big cosmic-ray research balloons may have caused a few 'saucer' reports, but they don't explain all the sightings."

Adm C. Bolster (to D. Keyhoe, in 1953)

"We're years from anything like the saucer's performance, and if we ever do match them, nobody'd be crazy enough to test the things near cities or along airways. (...) The Soviets couldn't possibly have gotten that far ahead of us in '47 - or even now - no matter how many Nazi scientists they kidnapped. No, either the saucers don't exist - and those reports are hard to brush off - or else they're interplanetary."

Rear Adm. D. Fahrney (to D. Keyhoe, in 1953)

1. Electrogravitic research: T.T. Brown's so-called 'gravitors'

Aside from the work of T. T. Brown, analyzed at length in the previous communication ^[1] and shown there experimentally to be a mix of artifacts with a provisionally identified, core electrogravitic phenomenon - the monopolar lift effect - there is little else that deserves serious mention in this chapter. Ventura-Naudin-type lifters are just curiosities that partake of all the artifacts and defects in understanding that underlie the bipolar Brown-type devices. Bahder and Fazi have shown that neither ballistic ion winds, nor collisional heavy-ion winds, can explain the lift observed in these bipolar devices (at best, collisional winds could only account for 1/3rd the magnitude of the observed lift). The thermodynamic hypothesis which they present is unconvincing, and it does not manage to explain, on their own admission, either the magnitude or the sign (positive) of the observed lift force in the Brown-type lifters ^[3]. Explanations of the so-called Brown-Biefeld effect that have taken recourse to Einstein's General Relativity in order to postulate a strong coupling between electricity and gravitation equally fail for still simpler reasons ^[4] - they treat Lorentz's force law as if it described either a force having the (ridiculously wrong) dimensions of speed, or one 'free' from having any fixed dimensionality at all! These veritable leaps of faith (see ^[1]), lead to the illegitimate apple-and-orange addition of charge to mass, and the lending, somehow, of electrogravitic and magnetogravitic field functions to inertial mass just so that it might be compared (and added or related) to a one-dimensional charge.

Most significantly, the traditional Brown-type devices fail to operate in vacua, suggesting that they require atmospheric ion winds. At the very least, they have some form of dependency upon the existence of an ionic wind, most likely collisional in nature. Brown was keenly aware of this ^[5], and

when he experimented with vacuum devices he sought to create that ion wind (see Section 4 below), even as he claimed that his devices were independent of ion winds (see Fig. 1)! Indeed, Brown's later vacuum-devices did not operate upon the same principles as his traditional atmospheric capacitors - taking recourse, instead, to vacuum arc discharges and field emission (also see Section 4 below) ^[1, 5] to generate the necessary ion fluxes.

The limitations of Brown's so-called 'electrogravitic devices' (inability of the traditional Brown-type device to work in vacua, witting employment of gas propellants and unwitting use of field emission for vacuum devices) make it most unlikely that Loder's main thesis in his AIAA paper ^[6] has any validity whatsoever. The suggestion that the key to Brown-type 'electrogravity' resides in the role which the (also mythical) "zero point energy" (ZPE) plays in stabilizing and shielding electrons from radiating their energy (mass-energy included) and in "reducing atomic mass and inertia", must be viewed as most dubious. Somehow, so goes this suggestion, the secret of electrogravitic craft would reside in the proper understanding of the relationship between electrons and the ZPE. Puthoff believes that he has discovered ^[6] the way that the electron continually radiates without thereby vanishing (this is for laughs!) - supposedly it would simultaneously absorb a compensatory amount of energy from the ZPE. Aside from the fact that the classical Brown-type device is a complex mix.



Fig. 1 - (Top) T. T. Brown with investor and co-inventor A. Bahnson testing his later plasma-emission rotary device in a vacuum chamber; (Side) Brown with large disc canopy employed to demonstrate the earlier Brown-Biefeld effect. For a discussion of plasma devices, see last section of the present paper; and for an experimental discussion of the BB effect see reference 1.



mostly artifactual ^[1], and one that does not work in vacua, this 'discovery' of Puthoff's gives the proper perspective on just how far ZPE theories are from understanding even the electron or its motion, let alone gravity. They confuse the nature of the mass-energy of the electron - how it is sustained by the secondary superimposition of massfree energy - with the nature of its kinetic energy, entirely failing to realize how any accelerated motion of an electron is a response to a local field, a response that seeks to conserve that mass-energy, which is precisely why inertia is a conserved quantity (Aspden has pointed this out countless times); and they further confuse the conditions under which an electron radiates photons - during deceleration *and* while resisting the acquisition of kinetic energy equal to its own mass-energy - to the point that they become unable to distinguish a steady-state acceleration (where what the electron's kinetic energy loses in photons is what it gains from the accelerating field) from an imaginary rundown of the electron mass-energy required by the dogma of constant radiation. Little wonder that they need to discover something, if for no other reason than to feed the staple of technological false hopes fostered by the so-called Disclosure Project.

"(...) The only unit of government currently studying the problem is the Directorate of Intelligence, USAF, which has charged the Air Technical Intelligence Center (ATIC) with the responsibility for investigating the reports of sightings (...) A worldwide reporting system has been instituted and major Air Force bases have been ordered to make interceptions of unidentified flying objects (...) Since 1947, ATIC has received 1500 official reports of sightings (...) Of the 1,500 reports, the Air Force carries 20% as unexplained and of those received from January through July 1952 it carries 28% unexplained (...)"

H.Marshall Chadwell, Assistant Director of Scientific Intelligence

September 24, 1952 memo to Gen. W. Bedell Smith, Director of Central Intelligence (CIA)

2. Research in nonelectric gravity control

In principle, just about anything and everything is research in antigravity - beginning with that which is simply research in gravity... Brown's hypothesis of electrogravity is one amongst many others, some entirely gratuitous: gravity results from the curvature of Spacetime - so the relativists tell us; or gravity is the property of positive mass ("posmass") and antigravity of negative mass ("negmass"), quantum mechanics told us once, though it didn't stick; then their siblings, the quantum electrodynamicists went to say that these were properties of matter and anti-matter; and then there were and are, undoubtedly, all sorts of other maverick ideas and projects (secret and not so secret) financed by the public purse, and driven by similar erroneous and insane notions - that one could employ tachyon engines to antigravitate, or that antigravity is a magnetic field effect, the result of some torsion field, or a geometrodynamic wormhole... You might laugh, but physicists take themselves seriously on this - they have, for so long, made theirs a profession of faith in the unreal and unproven, that they no longer know whether they are kidding the public or themselves.

In the past half-century, there have been no shortages of grants and proposals covering all possible check lists, for as long as some technological, or better, military advantage could be extracted from the most pilgrim of notions. Modern military mechanisms are not wed to scientific ideologies, as they once were. If one is to accept wormholes that do not violate either causality (!) or relativity (!) because they 'collapse space' and 'permit transitions between points in space' somehow without need to make 'a physical journey between them', that's fine and dandy as long as at the end of the day it appears to present a "tangible" technology, no matter how imaginary, that confers a military advantage - in speed of displacement, in overcoming a natural resistance, in lethal power, in interception or in strategy, etc. With such an eclectic attitude, it is little wonder that modern military mechanisms probably admit as many silly ideas for funding as they reject, if not more. It is like a biased roulette (the casino always wins, even if the money was 'bad') rather than a process guided by 'objective' criteria of any type. And how could it be otherwise? For there is a psychopathology to a society where the best scientists are condemned to walk the path of the most mediocre - to think, or feign to think, along tired old lines and fictions, paying respect to the values of nihilism and serving the same social interests, the same institutional powers, in order to get grants, continue the research, 'be a professional' and 'contribute to society in a meaningful way'.

2.1. The Canadian Project Magnet: geomagnetism and electromagnetic propulsion (1950-1961). For the edification of the reader - and in the hope of encouraging the collective memory and stimulating some critical thought - we should revisit one of those 'black ops' projects that are relevant in the context of the so-called Disclosure Project. Our starting point is a project carried out not in the US but in the grand-duchy of Canada - as were so many others (eg the Arrow fighter, the Arrow car) - and yet to no avail for the betterment of the people and the natives of that duchy: project Magnet, the child of geomagnetic engineer Wilbur B. Smith - and probably the ultimate origin of all the lore about Vannevar Bush and the MJ-12. In hindsight, one can see the parody as the Canadian NRC tried to emulate what it could glean from the American OSDR. Being more bureaucratic than the Americans, the CNRC needed continuity, and Smith gave it to them in spades. Keyhoe dedicated to it a whole chapter in one of his books, only to make no mention of the man or the project or the duchy in his 1973 "Aliens from Space". What happened here?? Another casualty of hare-brained science?

Project Magnet began with the study - by engineers and scientists in the Telecommunications Division, Department of Transport in Ottawa - of a series of puzzling sighting of UFOs over Toronto, North Bay, Ottawa, etc, beginning ca 1950. In 1952 the RCAF, together with the DSR and the CNRC, conducted a 'serious investigation' ^[7], effectively launching Project Magnet. The project focused on the magnetic anomalies (rotating magnet needles, radio interference) observed to be induced in the neighbourhood of UFOs, and Smith's central thesis was that the atmospheric craft employed 'geomagnetic force fields' for dislocation, and were collectively transported by interplanetary ships that "could use nuclear fission, mass conversion of energy, or some other revolutionary source, such as cosmic rays" or electromagnetic fields ^[8]. The fundamental notion of Project Magnet was that magnetic sinks within the Earth's geomagnetic field - and onto which the magnetic flux collapsed - could be produced by some controllable method that permitted extraction of energy by 'a conducting ring' surrounding the craft (in a horizontal attitude), to induce a vertical electric force of repulsion towards the Earth: "Support and propulsion of the ship would then be a combination of this resultant force, the airfoil action of the disc, and the interaction between eddy currents induced in the disc by its rotation and the main fields" ^[9]. These currents were responsible for the corona plasma surrounding the disc and for the heating of the disc - due to rotary action - up to red- and white-hot conditions at high accelerations, or whenever the cooling was inadequate.

Smith's hypothesis explicitly denied any ongoing neutralization of gravity or reduction of inertia. He and the rest of Project Magnet viewed these as possibilities that were ruled out by Einstein's Unified Field Theory (UFT). This is somewhat perplexing, given that Einstein never final-

ized any such unified theory, and that his attempts at such theories had led him once to postulate a cosmological constant that explained the so-called expansion of the universe as an apparent (and nonmagnetic) form of counter-gravity. More to the point, Einstein's General Relativity precludes any such interpretations - of possible technological neutralizations or counteractions of gravitational fields (see the next monograph). It is this that Smith must have meant. Accordingly, and given the high speeds observed in some credible reports, Smith concluded that these atmospheric craft must be automated. His theory was also unable to explain the green or blue luminations of UFOs in some of the most credible sightings, other than by recourse to the conditions for visualization of a corona discharge. But off it went to the races in the old duchy - eating up an amount of capital which the Canadian Government to this day chooses not to disclose.

On one thing, though, Smith might have been correct: as he repeatedly told Keyhoe, the real sightings were not of manmade craft. Neither Russian nor American. That alone explains the real hysteria which possessed the American media and the people in the 1950's, climbing all the way to the corridors of Power. But who knows if the purpose of the actions of bureaucrats like Smith back then was not merely disinformation? After all, Smith concluded his revelations to Keyhoe in a tone that reminds one only too starkly of terrestrial endeavours for military supremacy and political control: "When we do get all the answers", Smith said soberly, "it will be a tremendous thing - and we'd better get them before Russia does. Magnetically powered discs would be terrible weapons" ^[10]. If only they could fly! Pigs too, if they flew would be terrible weapons.

That Keyhoe was taken in by this duchy-soap is nearly unbelievable. Even the tone of the statement - "when we do get all the answers" - is telling. At the time the statement was made, one might have still wondered; after all, Keyhoe's last words on this subject, in the same book, were: "Later in '51, Smith told me they had made laboratory tests with a rotating disc, but by then Project Magnet had been classified" ^[10]. However, Frank Edwards, in 1965, reports a very different story: "Wilbert [no longer Wilbur...] Smith, who headed the project, said at a news conference in Washington [no date given] that he and his colleagues had endeavored to construct a disc-shaped device capable of converting the magnetic field into sufficient energy to lift itself - but had finally abandoned the project as beyond contemporary scientific knowledge" ^[11]. No pictures of UFOs were ever released from Project Magnet, no pictures of the disc being studied and built by the Project. No article from Smith was forthcoming. Was this another one of those undisclosed and suppressed successful black ops, or just a load of hot air? By the perverse logic of the Disclosure Project, the answers have been obtained - though after all this, five decades later, NASA is still letting seven astronauts die aboard a flying, inertial, relative wind 'bomb' in a project which R. Park himself, of the APS (American Physical Society), considered useless and good only, at best, for the popularization of space (he would volunteer to go, as he believes astronauts should not be paid for what they do ^[12]). Park may well be right - it has been and is all about the media, about the show-biz, about the image, about sensationalism and mass-frenzy; and likewise the Disclosure Project's contention that all is known now, and that the US or the global 'black' government has the technology - it just will not let 'us', the public, the commoners, have it. All to reassure us that, one way or the other, governments are in control, and humanity can get at this 'superior knowledge' and continue to reign supreme...

It might be that the US government could have reached just such technology, if it could have been gotten - either by the smarts of American scientists, or by the help of ETs, or by the number of crashed UFOs. But all these are pious and somewhat imbecilic lies, just as Smith's faith was a pious lie. No answers were ever gotten regarding the nature of gravity, its control or the engineering of antigravity. The projects did not succumb because they were successful and went underground. The projects succumbed because the nature of gravity remained opaque to the "best brains of our civilization", Einstein, Feynman, Wheeler, and so on. It is that simple - and it is that which the organs and institutions of Power never knew how to justify before the so-called public eye: the failure of official, striated, oedipalized, fictionalized science, despite the billions spent on it, much of it from the public purse.

Indeed, what to make of Smith's flying magnets? When all is said and done they are no better than the flying electrets or capacitors of Brown! When electromagnetic theory, old and new, Maxwellian, Lorentzian, relativistic or geometrodynamic, does not know the actual magnetic wave function of the mass-energy of the electron, or of the kinetic energy associated with it, or the corresponding functions in massfree energy, the word 'magnetic' has remained simply a misnomer! And gravity is no more electric than it is magnetic. Could any of the authors of such theories have flown an antigravitational device with their hypotheses? It is most doubtful - and that is the simple truth no one cares to admit: they, the scientists, the military, the bureaucrats in government and the intelligence communities, simply do not know how it is done. A flying magnet could only exert its influence, as Smith recognized, in a geomagnetic environment; also as Smith recognized, it would confer only, at best, an inertial motion. Five decades later - where is the prototype of a magnetic spinning disc? It did not even have the honour of meeting a scrap order, like the Arrow Fighter once did. By all accounts, no such disc was ever designed, let alone built. Eventually Project Magnet became Project Second Story, 1952-1954, and limited itself to the detection and recording of sightings. As late as 1961, Smith was the 'official source' of the notion that chunks from a UFO had been retrieved which contained iron and a magnesium orthosilicate, and that the material had been loaned to him, but would return to the CIA. We're sure the Americans were thankful to him for this.

The strange aspect of the story is that it seems hard to doubt Smith's 'good intentions', suggesting that the asset was rather his *naiveté*. Fed by the intrigues of Dr. R Sarbacher, Smith became the source for the notion that antigravity is an Above-Top-Secret project in the USA, with rated classification higher than the H-bomb, and that V. Bush was the director of a small group of scientists (the MJ-12 blueprint...) in charge of studying and controlling the phenomenon ^[13]. It is Smith's eager-beaver spirit that is deplorable - he thinks that giving an image of competence and know-how is enough to keep the public and the media straight on course, without anxiety and doubts. Eventually, all will be forgotten and forgiven. That is what is so fascinating - how easily the Canadians bend any scientific effort into a massage - after all, wasn't it a famous Canadian who let an error of a printing machine teach him that the point of the message was to massage the public?

2.2. Oberth's teaser: autonomous generation of G-fields

By the time he gets to 1955, Keyhoe no longer mentions Smith and the Canadians. Instead, he switches his focus onto Oberth's G-field hypothesis. Hermann Oberth, co-designer of the V-2 rockets and consultant to the US research in gravity at Redstone Arsenal ^[14] had put forth the notion that neutralization of gravity was possible if a craft could create its own gravitational field that held on to its atmosphere and functioned as a cushion preventing friction, turbulence and sonic booms. Given the paucity of original material published by Oberth - and the untold number of false attributions that abound in the Internet - we will stick to Keyhoe's presentation. After all, Oberth's G-field hypothesis could no more source the birth of an antigravitational technology than he himself could create any new physico-mathematical version of a UFT...

However, Oberth did entertain some very interesting hypotheses and considered many aspects of the gravitational problem with what we would call an aetherometric intuition. His central thesis is rather agreeable: he discards the notion of electromagnetic propulsion for the simple reason that it would never be capable of sustaining anything but inertial motion, and thus unable to cancel the observed apparent increase in the inertia of the accelerated object. Instead, as he told Keyhoe: "saucers probably created their own gravitational fields, which would allow them to hover motionless above the earth, accelerate at tremendous speeds, and make violent turns that would cause ordinary aircraft to disintegrate" [15]. G-fields would prevent the occupants from undergoing the crushing forces associated with inertial displacement and relative wind devices. But G-fields are deployed neither electrically or magnetically - even if they have specific electric and geomagnetic signatures, structures and geometries. Oberth was well aware that gravitational fields would produce such electric and magnetic field effects, and his hypothesis regarding glow colours was capable of accounting for the entire rainbow spectrum. It also had the advantage of regarding the relation between the colours as a function, not of heat and friction for a relative wind machine - as in the Smith hypothesis - but solely of speed of rotation, or of rotation and translation. Because the craft would generate its own Gfield, none of its structure would be directly exposed to heat - removing the entire rationale behind Smith's hypothesis for light generation. Yet, all of the credibly reported electrical and glow effects could be explained by the gravitationally-held atmospheric cushion. If the craft were capable of developing its own gravitational field (as per the Plantier Postulate, see below), then it would equally be able to hold onto its own atmosphere (at densities proportional to the intensity of its local gravitational field) and, by doing so, would generate its own plasmasphere, much as the Earth does at the

boundaries of its atmosphere, without any need for further electrification or charge injection.

We have no doubts that Oberth was on the right trail, on the path that anticipates Aetherometry. For indeed the gravitational field is constituted by a very different energetic reality than the photoinertial field formed by mass-energy, the associated kinetic energy of inertial displacement and photon byproducts. Technological control of the gravitational field, however, depended upon one of three possibilities: either existing scientific methodologies would be adequate to come up with an understanding of how to do it, and prove to be capable of engineering such a technology; or there would be an empirical breakthrough capable of permitting a clear selection of the theories, models and technologies to be pursued; or, somehow, the 'right' technology would fall in one's own military lap, and 'one' would be able to 'copy it', reverse engineer it. Thus, quite sagaciously, Keyhoe wrote: "At the start, some researchers warned the USAF not to expect an early breakthrough [in gravity research] - getting the answers might take years. To reduce the odds, the AF increased its attempts to capture UFOs" ^[16]. And here began the comedy hour that has led to a myriad fabrications and horrors, from the contactee visitations and invitations for a galactic cruise, to the abductions of Bud Hopkins and Whitley Strieber, and the folklore of the Disclosure Project. For the fact is that since the Spring of 1948, the USAF had orders to intercept and shoot down UFOs, or incapacitate them whenever possible - with the funereal consequences we now know, beginning with Capt. Mantell's crash in 1948. Eventually, it became clear just how pointless and dangerous the military task of shooting down a UFO was (see ahead), but the order to intercept was never rescinded ^[17].

As for research in gravity, there is little doubt that it created a growing field of military and scientific activity throughout the 1950's - with companies such as Indiana Steel Products getting research contracts with the USAF on magnetic materials as early as 1953 ^[18], companies like Inland Steel, Sperry-Rand, AT&T, GE, Lear Instruments, Hughes Aircraft and US Steel being fully involved by 1958, and with 46 military-sponsored projects in gravity being in place by 1965 ^[19]. In an interview with the NY Herald-Tribune, on Feb. 10, 1955, William P. Lear put forth the notion that UFOs were extraterrestrial craft capable of gravity-control and he suggested that American military-scientific research was close to "mastering this secret, which he called the "missing link" in the revised Einstein theory" ^[20]. In three articles of the same newspaper, from November of the same year (Nov. 20, 21 and 27), a veritable list of who's who - companies, industrialists, inventors and scientists involved in gravity research is made public: from Gordon Gray to Clarence Birdseye, to Agnew Bahnson; from the MIT to the Institute for Advanced Studies in Princeton; from Convair to Bell Aircraft Corp, to the Glenn L. Martin Co. of Baltimore; from Freeman Dyson to John Wheeler to Lawrence D. Bell, who boldly stated: "The United States aircraft industry already is working with nuclear fuels and equipment to cancel out gravity instead of fighting it." The issue of November 21, 1955, states: "Space ships capable of accelerating in a few seconds to speeds many thousands of miles per hour and making sudden changes of course at these speeds without subjecting their passengers to the so-called 'G-forces' caused by gravity's pull also are envisioned. These concepts are part of a new program to solve the secret of gravity and universal gravitation already in progress in many top scientific laboratories and long-established industrial firms of the nation". One can see the spectacular rationale for the Disclosure Project and all the hysterics of 'cosmic conspiracies': first, one must believe in propaganda, in the 'advertising of the future', rather than see the good face that is being put on, the implicit acknowledging of impotence and lack of sufficient knowledge to crack gravity; then, once one is sold on that, one must indeed ask, what happened to all these wonders?, and thus conclude they are all secluded somewhere by a 'black' government (they really could not have failed...); lastly, one must be relatively imbecilic when it comes to understanding the advertising cycles (fads) of marketing, including therefore, and above all, one must ignore that it was all good for business, especially the business of investing in the development of 'advanced' aerial weaponry. And, of course, it all sounded good and was amply justified by the 'cold war'.

2.3. The Plantier Postulate

Mostly discarded by the US military-scientific establishment, the so-called Plantier Postulate comes closer still than Oberth's generalistic insights to the aetherometric treatment of gravity. Plantier, a young lieutenant of the FAF (Forces Aériennes Françaises) suggested in 1953, in the FAF periodical ^[21], that it might be possible to create an autonomous gravitational forcefield in a craft by employing an as yet unknown energy field ("an ubiquitous natural or artificial cosmic energy") which he presumed to be present throughout space and to be composed of "highly charged cosmic ray particles". He also recognized the limitations of his Postulate: "The existence [of such high energy particles] presupposes an energy of fabulous magnitude: gigantic cyclotrons would be necessary to impart such energy to particles. Nothing has been found in space that can explain such mysterious bundles of power" ^[22]. In fact, Plantier readily admits that no such craft could be built with the existing knowledge of physics. Plantier compared his hypothetical craft to Crooke's radiometer - whose rotor turns because its panes absorb energy on one side and reflect it on the other - suggesting that the craft was designed to absorb the unknown cosmic radiation at one end and liberate it at the other ^[23]. 'Liberation of the field' would be at the very focus of the control exerted by the craft over its propulsion, speed and attitude: "the liberated cosmic corpuscles would radiate through the craft in the direction of propulsion, in the form of a 'cospusculo-undulatory' (particle-wave) fluid moving at a velocity close to that of light. One would thus have a sort of continuous jet traversing the craft. This jet emitted by the craft would follow it in its movements, propelling it, and supporting it when it was stationary, somewhat in the fashion of a ping-pong ball supported by a jet of water" (see Fig. 2^[24]). Except that the jet of 'water' came from within the craft. Plantier was clearly thinking about a fundamental field function that acted upon all the molecular constituents of the craft (and its occupants as well): as he wrote to Aimé Michel - one needed "a force which one can vary and direct at will to every atomic nucleus of a machine and its contents" ^[25]. In several instances, he refers to a differ-



Fig. 2 - The "cosmic field force" in a flying saucer according to the Plantier Postulate. An "electrically neutral cosmic energy" field was made to traverse the craft like a jet that could be oriented at will, provide traction or made to counterbalance the local gravitational field when hovering.

ence in potential "of this energy in space" being caused by the craft itself: the craft would accentuate the potential, by "pinching in" the lines of force of this cosmic energy field at the 'front' and releasing them at the 'back', at a speed "near that of light". Then he ventures a particularly aetherometric notion - that perhaps the reason why no such "cosmic energy field" has been detected is that it is "electrically and magnetically neutral", and so we lack the proper instrumentation to detect it. Physics has admitted elusive neutral entities whose existence has remained, on and off, dubious to say the least - for example, the confabulated neutrinos. But we do not think that this is what Plantier had in mind. Rather, as we shall see in a later monograph - where we extensively comment on the mathematical basis of the Plantier Postulate and the physics of massfree energy that it was sorely missing - the cosmic field that is electrically neutral (de facto or phenomenologically neutral) is a composite field of mass-free energy that encompasses a nonelectric energy component and a radiative, electric ambipolar field that is phenomenologically neutral. But electric neutrality does not imply magnetic neutrality; precisely, all charges, monopolar or ambipolar, present characteristic magnetic fields ^[26] that permit their differential detection. Without the comprehensive knowledge of cosmic massfree energy (including an understanding of how the Aether lattice generates the microwave and radio Cosmic Background Radiations(s)), Plantier could only speculate about "cosmic ray particles" that might serve as condensates of 10¹⁶ eV.

Another aspect of the Plantier Postulate that is of particular interest to us concerns a feature that effectively separates the problem of 'relative wind machines' from the problem of craft capable, in principle, of creating and modifying their own gravitational field. Whereas the problem of the former resides in the retention of a dead air mass in the boundary layer that 'superheats' the structure so that the objective is to remove it by sucking the air in the leading edge of the moving craft - the problem of a gravitational machine is the very opposite: how to retain in the neighbourhood of the craft an atmosphere that cushions it and dissipates heating more efficiently. Oberth had already understood that. Plantier suggested, in this context, that his Postulate required no sonic boom, as the "force centered on the craft would also act on the surrounding air; the air molecules would be dragged along at speeds proportional to their proximity to the craft" ^[27], with no relative supersonic speed accruing between the successively-layered molecular strata of an atmosphere exposed to that force field, and with no impact, therefore, against locally motionless air. As Michel pointed out, these features also avoided overheating on the part of the craft, and permitted fast maneuvers - with the occupants being shielded from the inertial effects by the action of the gravitational field of the craft ^[28], and shielded from turbulence and overheating by the craft's atmosphere and its "hyper-thickened boundary layer".

The Plantier Postulate conceptualizes the gravitational field as a constant parameter that does not vanish during weight cancellation. This has a deep connection to the aetherometric speculation that gravitational and antigravitational interactions may have different frames of reference - frames that are synchronous and superimposed, indeed, but remain distinct in their energy interactions and couplings, in their seating of respective energy fluxes. In this vein, the Plantier Postulate requires that, for hovering, the vertical component of the "cosmic radiation force-field" must be equal to the opposing gravitational field, so that effective cancellation of gravity occurs. Plantier touches here on one of the great conundrums of modern Physics - the reason why even a viable theory of gravity would not necessarily grasp the phenomena (yes, plural again) of antigravity in an adequate manner. Hovering is a balancing of two oppositely directed fields that may be operating on two separate frames of reference that are *de facto* and energetically superimposed and synchronized by nature itself. There is what Plantier says: "Even if the possibility of such a [force-]field is granted, the laws of classical mechanics require a system of reference for the field to react upon, and classical physics gives us no inkling of such a reference system" ^[29]. The entire problem of the secondary superimposition that generates the structure of Matter and confers inertia and weight upon it, is encapsulated by this statement of Plantier's.

Finally, on another note of aetherometric resonance, Plantier explains the changes in luminosity of the craft (including any "fire plume" trailing behind them) as a function of its speed and the amount of heat-friction caused by the pressure in the surrounding medium. In fact, he suggests that the observations of "fireballs of color", with their gamut of variation (in time or with motion), are due to a Zeemanizing of the craft's atmosphere by the interaction of thermal friction at the hyperthickened boundary layer with an underlying, changing magnetic field (he suggests that the base frequency of the Zeemanizing oscillation is the frequency of yellow light). In aetherometric terms, this is tantamount to an implicit assumption of the existence of an ambipolar field that is immanent to the craft - a field that *is* phenomenologically neutral in electric terms, but not "magnetically neutral". Ionization and high humidity content of the craft's atmosphere would be responsible for the milky (or white vaporous) appearance of certain "luminous balls", and thus betray their capacity to generate atmospheric clouds around or above them.

There is little doubt of the brilliancy of Plantier's cogitation. He succeeded, more than a half century ago, in explaining the silent operation, the thermal resistance, the changes in shape, the plasma lumination, the maneuverability and sudden turns, of the craft in those few but credible sightings that deserved investigation and withstood scrutiny. But as he himself repeatedly said - obviously no forcefields with the required properties were then known. And the truth is that, even if Plantier had been cognizant of the work of W. Reich, he would still have found nothing in it of use to his Postulate - unless, perhaps, Reich would have been willing to divulge the secrets of his OR Motor. Aimé Michel commented on Plantier's hypothesis: "it is almost certain that if the famous cosmic energy were actually to be revealed, we would eventually succeed in liberating it and in creating the motor postulated by the force-field of [Plantier's] hypothesis ". That was in 1956, the same year that Reich was imprisoned and his books burned.

Much was, of course, missing in the Plantier Postulate. Not just the discovery of that necessary ingredient of cosmic radiation as a massfree form of energy - which both Tesla and Reich had already begun to uncover, but Plantier knew nothing about - but also the realization that the field being 'knotted through' the craft and employed for its propulsion across space, most likely also had to form a vortex around the craft and thus possess a rotary component oriented orthogonally to the general direction of motion. This would be necessary for achieving gyroscopic stabilization and sustaining the energy flux formed by the superimposition of *the two vortices*, at the input to, and output from, the craft. Lastly, Plantier failed to realize that the cosmic energy that he so much sought, was to be found, not on the side of yet more massive cosmic-ray particles, but on the side of the massless - by the synchronization of the rotary and translatory motions of the craft with the varying, local and nonlocal, waves of the massfree energy that "pervades all space", in both ambipolar and nonelectric (or latent) forms. In a later monograph ^[30], we shall return in detail to these mathematical and physical aspects of the Plantier Postulate, to provide an aetherometric treatment and solution to the Plantier field hypothesis - in light of the material introduced in the next monographs.

As with all good things, their excesses are not necessarily their best virtues - and thus Plantier also provided an explanation for the reports of thunderous roars caused by the disintegration of the vehicle, if its power system failed and it happened to also collide with motionless air ^[31]. This was

construed as another virtue of the theory since it appeared to fit with the mythical terrestrial crashes of these interplanetary or extragalactic craft...

2.4. Consequences of the Keyhoe/Brown confrontation in NICAP

In Oct. 1956, Brown and Keyhoe created the Flying Saucer Discussion Group - intended to investigate at once UFOs and the possibility of space flight ^[32] - and incorporated it in that same month as NICAP (National Investigations Committee on Aerial Phenomena). From the beginning, Keyhoe's task was to bring in 'the heavy weights' that would make the effort 'respectable', in particular military personnel of certain standing, known integrity and actual knowledge of intelligence on Aerial Phenomena, such as Rear Adm. Delmer S. Fahrney, former head of the US Navy's guided missile program. Brown was at the crossroads of his efforts to interest the Navy and the Pentagon in his propulsion method, and was largely in charge of bringing in peer scientists that would confirm and support his electrogravitic research. He had hoped that such recognition could translate into investment in his research - to fulfill the other part of NICAP's mandate, the investigation of the concrete possibilities of space flight.

But who did Brown bring in to NICAP? Two CIA agents - a Russian emigré, Nicolas de Rochefort, employed at VoA and a member of the CIA's Psychological Warfare Staff, and a Portuguese emigré, Bernardo J. Carvalho of Fairway Corp., apparently a CIA front-company ^[33]. After no more than three months, Keyhoe and Brown came to a final confrontation when Brown tried to become Chairman of the Board in addition to being Director. Keyhoe accused Brown of financial mismanagement, "referred to Brown's dubious antigravity propulsion theories" ^[34] and then put an ultimatum to the Board - if Brown became Chair, Fahrney would resign. The board capitulated, forced Brown's resignation, elected Fahrney as Chair, and appointed Keyhoe as NICAP Director.

Within a few months, Keyhoe had appointed a board of governors that looked like a rostrum of military, scientific and media figures, prominent amongst which were Vice-Admiral R. H. Hillenkoetter (first Director of the CIA), Major Dewey Fournet (the original Pentagon liaison for Project Bluebook during Ruppelt's tenure), Rear Admiral H.B. Knowles, Gen. P.A. del Valle (USMC), journalist Frank Edwards, C.H. Maney (professor of Physics at Defiance College, Ohio) and Wilbert B. Smith. In the inaugural address, Rear Adm. Fahrney "stated that neither the Soviet Union nor the United States could duplicate UFO's observed speeds and accelerations and that the flying objects seemed to be intelligently controlled" ^[35] - in the words of the Admiral: "because of the way they change position in formations and override each other" ^[35].

When, by the early 1960's, it appeared that Keyhoe might have a chance to obtain Congressional hearings, Hillenkoetter - unhappy with NICAP's constant criticism of the USAF considered the work of NICAP done, and suddenly resigned, effectively contributing to the refusal by Congress to consider NICAP's evidence. After this failure, Keyhoe's effectiveness as Director of NICAP was steadily undermined both from outside and inside NICAP. The outside attack cam unexpectedly from a supposed ally, Coral Lorenzen's APRO, which in 1962 made a veritable marketing run for the members common to both organizations, denouncing NICAP's mission as simply that of a lobby group, decrying its pressure on the USAF as useless unfair attacks, and finally mocking Keyhoe's refusal to give credence to what were then just called the contactee cases.

Lorenzen had no appreciation for either Keyhoe's strategy or his no-nonsense approach; nor, for that matter, for Keyhoe's misplaced faith in W. Smith and the tall unsubstantiated tales the latter fed him. Indeed, Smith, just like Brown, never delivered on even the basic physics of his notion of (electro)magnetic-powered antigravity. Only too late did Keyhoe realize that Lorenzen embodied the obsessive sensationalism of the popular media, and that APRO was poised to exploit people's fears and credulity with the contactee theme. Moreover, even though he had prevented contactees from joining NICAP, in 1961 he came to discover "to his horror that his secretary had secretly issued Adamski and other contactees membership cards because she was convinced of their truthfulness". This kind of betrayal - which Keyhoe was heroic about - arose from within NICAP itself, constantly and systematically, make many of his efforts pointless and ineffectual. Eventually, in December 1969, it led to Keyhoe being ousted as Director, but not before NICAP caved in and accepted some of the contactee evidence. Keyhoe would later remember how this so-called evidence of Coral Lorenzen and APRO was seized upon by the famous - or infamous - Condon Report as an excuse to discard the hard evidence he had fought most of his life to obtain: "Why hadn't Condon or any project members ignored these wild stories and concentrated on the hundreds of sane, factual reports by responsible observers?" [36].

With the the residual public interest in UFOs focusing on contactee sensationalism, the final ousting of Keyhoe as a Director appears, from the record, to have been one more masterfully conducted operation by the CIA's Psychological Warfare Staff. Keyhoe never knew that USAF Col. Joseph Bryan III - previously Special Assistant to the Secretary of the AF, and whom Keyhoe had reluctantly (fearing Bryan to be an infiltrator) admitted to the NICAP Board in 1959, only to have Bryan lead the effort to oust him as NICAP Director and become the Board's Chair in 1969 - was the original founder and former chief (1947-1953) of the CIA's Psychological Warfare Staff, a fact that was not revealed until 1977 ^[37-38]. More than a decade had passed since the confrontation with Brown, only to make a full circle and deliver NICAP back to the Psychological Warfare Staff.

For us, it is hard not to see the later abductee theme of the 1980's and 1990's as anything but a still more hysterical evolution of the debasement campaign which any serious investigation of UFOs has suffered, beginning with the paranoia of invasion from outer space and moving on to the Lorenzen theme of contactees. The whole affair smacked of a disinformation ploy geared to bring disrepute to Keyhoe's efforts. Keyhoe made an important psychological mistake ^[39] - he believed that sooner or later the intelligence behind genuine UFOs would make itself and its designs known - and this mistake was exploited by his enemies to represent the contactee theme precisely as an already existing validation of this belief. With great reluctance, Keyhoe was slowly pushed in this direction - by the limits of his abilities, the failures of Brown and Wilbert Smith to offer anti-gravitational technology on a platter, and ultimately by his miscomprehension of how the post-WWII US State functioned. Keyhoe assumed that the Air Force and its civilian liaison structures would be responsible for the ultimate assessment of UFO incidents and their release to the public - and failed to realize how other intelligence priorities and agencies over-ruled the AF. His gullibility, in this respect, was no different from that of an entire epoch, which listed - and persists to this day in listing ^[40] - the Zamora case in Socorro, New Mexico, as an example of an extraterrestrial saucer landing, replete with humanoids and encounters of the second kind by a reliable witness. Whereas the Socorro case smacks, instead, of a forced landing by a deep cover, man-made VTOL jet-propelled craft, in all likelihood American in origin. To our knowledge, however, no competent UFO investigator has claimed precisely what is so obvious in the Socorro case - neither Keyhoe, nor Michel, nor Jacobs. K. Randle, who heaped so much scorn on Keyhoe's investigative methods, himself swallowed whole the folkish interpretation of the Socorro case. Jacobs writes about the impact of this matter on Keyhoe's efforts at NICAP: "the case had an impact on NICAP. Prior to this, NICAP had scrupulously avoided any occupant cases because they smacked of contacteeism. But because of [Sheriff] Zamora's reliability and credibility, and because the Air Force listed this case as unidentified, NICAP began slowly to reevaluate its position. As a result, NICAP moved closer to APRO's stance regarding occupant cases and the sighting served to 'liberalize' the organization" ^[41], as if ridding it from Keyhoe's direction was a step forward! In hindsight, it is now plain to see how 'UFO believers' were conned out of any real chances to find out how much of the so-called UFO phenomenon (a subliminal singular) was formed by sightings and crashes of only-too-terrestrial craft.

We agree with the analysis put forth by others (such as Richard Hall or Stanton Friedman) suggesting that NICAP was ultimately CIA-controlled by covert agents. We see only too many reasons to do so. To mention but a few: in 1958, the AF admitted that "Strategic Air Command bombers more than once had been launched against Russia when defense radar tracked mysterious objects in seeming formation which have never been identified" ^[42]; by denying US involvement in the 'production' of UFO phenomena, deep cover was provided for the then current development of stealth suction aircraft and any and every research project on gravity and antigravity that might hopefully yield usable results ^[43]; concentration of the contactee idiocies deviated the public attention from the responsibility of the AF to eventually provide the public with effective answers, with radar and communications data, or to report real evidence; and, above all, it preempted any perceived public necessity for a scientific analysis and explanation of the fundamental mixture of various phenomena - sheer fiction and fabrication included - under the UFO rubric. After the public paranoia and

fear, public indifference and the folk sensationalism of cottage industries came to reign, and that is still the current situation, even as public interest wanes.

Finally, we should add that these events also show how Keyhoe was misled and betrayed, not only by those who posed as his allies, inside and outside of NICAP, but also by his hopes that the technology behind what he believed were extraterrestrial antigravitational craft would be researched, understood, proven and known. Neither Brown nor Smith ever provided him with a shred of real evidence or real scientific understanding - and this, at the end of the day, reduced the value of NICAP solely to the disinformation value it had for the CIA. Keyhoe stoically resisted most attempts at derailing his view of NICAP's objectives and procedures; hence he had to be forcefully removed in the end. With that *fait divers*, the field of UFOlogy became a farce of contactees, abductees and crashed discs. Disinformation had triumphed, and a veritable air of psychosis enveloped the entire effort. Ever since, there has not been any other serious and systematic investigation of unknown Aerial Phenomena. "When the war ended (...) the British experts were able to integrate their own experiments on the boundary layer with the heavy contributions of German investigations. (...) Taking the Feuerball as the main model, they gave a perfectly symmetrical form to the 'suction' aircraft, making it circular and wrapping the wing around the suction pump like a ring. Enlarged and flattened, the pump was transformed into a single rotor turbojet engine; thus it could also, indirectly, perform the functions of a jet engine. (...) With the entire top surface of the aircraft made aeropermeable, or porous, they extended the suction to include the mass of air above the boundary layer with the aim of putting a large volume of air to work and thereby also improving the efficiency of the engine"

R. Vesco, "Intercept UFO", p. 209

3. Suction aircraft

3.1 Overall assessment of the technology

But there is a very good and simple reason for many (if not the majority) of the credible reports of UFO sightings and UFO crashes and ensuing secrecy, plus official bumbling: there are and were indeed very secret flight technologies developed mostly by the US, Russia, and England - some from the basics laid out by Nazi research in the fields of rocketry, turbine and jet-propulsion, vertical take-off and landing (VTOL) craft, etc, and others from the development, above all, of plasma electrodynamics in the post-WWII period. In the present section, we are concerned with the development of VTOL craft, and in particular those employing suction turbines and perforated skins. In the next section we will consider still more sophisticated technologies that, in general, are classified together under the rubric of electric propulsion (EP).

One could begin by citing the ONR project to build the Hiller Flying Platform (see Fig. 3), or even the Redstone Arsenal Lawrence Bell platform, as early examples of VTOL machines. But, much earlier on - by the late 1930's - the principle of suction aircraft was already of great interest to the most advanced British flight research ^[44]. Evidence of similar research supposedly conducted in Darmstadt and Goettingen under Hans Miethe, Rudolf Schriever, and someone named Habermohl ^[45], led to the uncovering of the existence of the Nazi V-7 and its 14th February 1945 flight over Prague. Reportedly, the disc-shaped V-7 reached a height of nearly 13 km in 3 minutes, going above the troposphere, and a speed of over 2,000 km/hr (above Mach 1, at 1260 km/hr) ^[46]. Writes Jungk: "It is believed that after the war Habermohl fell into the hands of the Russians. Miethe developed at a later date similar 'flying saucers' at A.V. Roe and Company for the United States." The reported values (speed and altitude) cast severe doubt on the veracity of the V-7 flight reports (Jungk states that the speed was doubled in subsequent tests), specially in light of the failure of the AVRO car (see below) and Miethe's supposed involvement in it.

Here, too, there is much mythology surrounding the facts - and much of it caused by the intense competition between the US, Britain and the Soviets to gain a decisive advantage on the



Fig. 3 - Post WWII 'skunkworks': the Hiller flying combat platform being tested by both the U.S. Army and Navy (ONR, Office of Naval Research). The Hiller platform was an early example of a V.T.O.L. craft. It was largely impracticable because of the large power consumption that did not permit it to stay up for more than a few minutes. It also swayed uncontrollably in the presence of atmospheric wind.

design of successful suction aircraft. These craft did not control or engineer gravity for lift and flight; rather, they simply defied gravity by 'brute force'. However, they appeared for a while to have the potential for tremendous advantages - of stealth, speed and, in principle, maneuverability - that could be exploited militarily. The principle behind them is essentially that of the hovercraft eventually invented by Christopher Cockerell in 1959 (see Fig. 4 ^[47]) - this being, in essence, the only practical technology that resulted from all the 'supersecret' research into turbine-suction aircraft. Britain also had the advantage with respect to the application of this technology to very low altitude flight. But the high hopes that were pinned on this 'supersecret research' for something much better than an hovercraft, all throughout the 1950's and 1960's, never materialized. Semi-civilian attempts like the Möller car(s) (see Fig. 5), though accompanied by explicit promises (now more than two decades old) to achieve high altitude flight at speeds on the order of 400 mph, haven't fared any better. Even if these craft did not have a tendency to flip at altitude - once the air cushion is no longer capable of pushing against a surface - their operation would still require tremendous power consumption. Moreover, the technology could never serve for interplanetary travel, let alone galactic or intergalactic travel. In spite of the contention, early on in the modern history of 'UFO sightings', that credi-



Fig. 4 - C. Cockerell's SRN1 hovercraft crossing the Channel on July 25th, 1959. Apparently Cockerell is lying on the bow to act as ballast against lift off.



Fig. 5 - The Paul Möller cars:

•(left) civilian prototype XM4 developed in the sixties and intended to replace the automobile (Imagine accidents due to power failure or pile-ups of such hovercars?)

•(right) the vertical-lift Skycar that never lifted more than a few feet, but was intended to fly at altitudes of more than 1,000 feet and 400 mph.



Fig. 6 - The very slow 'Skimmer', V-162, one of Charles Zimmerman's flying pancakes from the mid-forties.

ble UFO sightings and radar identifications were, essentially, observations of such suction-turbine vehicles (Vesco, for instance, argued along these lines), it is most doubtful that this technology could have found a practical application even for propelling atmospheric craft.

Military engineers became aware of the difficulties involved in controlling such aircraft. Even though the saucer shape is best for take-off and stable hovering, such craft shapes presented poor aerodynamic performance in forward motion (backlift problem, amongst others), and if tilted to the vertical they have a net tendency to crash head on to the ground; tremendous suction was required to achieve any high elevation, and even this would hardly depass some 100 meters of height; since the turbine had to essentially push against the resistance of the air trapped between its exhaust and the ground, the higher the elevation the more difficult it was to control the craft's attitude and the more unstable it became; turbine high rotary speeds caused violent turbulence and mechanical failure, and any high speed of displacement would result in dangerous sonic booms that the craft could not withstand. Parallel instabilities were encountered, as early as 1942, during the Navy's development of craft with low-aspect ratio circular wings, such as C. Zimmerman's Flying Pancake or its later version, the Skimmer (see Fig. 6).

To obviate these problems research focused on a variety of stratagems. To decrease air-resistance, the craft was electrified with both electrostatic and electromagnetic means (this is the real origin of the 'leading edge' technology of the B-2); strong and very light weight metals had to be developed both for the turbine parts and the craft structure and skin; the craft structure was conceived as an integral part of the turbine itself, and designed to achieve gyroscopic stabilization by its high speed of (counter)rotation; given the high probability of crashing that it presented, developments in robotics were needed to test the craft with teleguidance, to avoid the pointless sacrifice of pilots ^[48], and large flight areas were required to retrieve the experimental craft without 'undue' obtrusion by the public or media; to improve stability and thrust, perforated skins were employed to disperse the air exhaust; and to further decrease the aerodynamic resistance of the craft, modifications were made to the boundary layer at the leading edge of the craft, where trapped air stands still and friction-caused heat catastrophically accumulates and increases. This last problem was apparently addressed by two mechanical and one electric solutions ^[49]: skin perforation could be used to blow compressed air in the dead air zone and push out the boundary layer; or "the dead air could be sucked into the wing itself through tiny holes and slots" and then expelled by some distribution system; finally, as already mentioned, there was the electrical solution first suggested by Oberth in 1954 ^[50] - the use of "hightension electric charges in order to push the air out of their paths" and cancel the leading-edge boundary layer.

3.2. The Canadian AVRO Project

In the post-WII period, the British interest in propulsion methods and drag reduction by suction of the boundary layer, together with development of delta wings, were largely concentrated in the Hawker Siddeley Group, especially through its two A.V. Roe branches, in Manchester and AVRO-Canada in Toronto (ex-Victory Aircraft Ltd). Vesco suggests that it was the gyroscopic stabilization of the cabin "by a rotating organ of large dimensions" ^[51] which eventually permitted development of discoidal suction aircraft. But in fact, as shown in the recent F-35 - and its distant predecessor, the AVRO car - the cabin is actually what became offset from the central turbine. Vesco dates the beginning of the Canadian program to B.S. Shenstone's team at AVRO-Canada, in 1946 ^[52], with the turbine research being conducted by the Turbo-Research group of Leaviside, under the Gas Turbine Division of Malton, and the tests carried out at the supersonic wind-tunnel in Downsview. All the seeds of jet propulsion that would yield, one decade later, the infamous AVRO jet-fighter, came from these institutions in their intense post-WWII work. This was the time when the National Research Council in Ottawa was all-powerful in the Dominion. On Feb. 11, 1953, the Toronto Star announced "in a banner headline" that flying saucers were being produced in Malton ^[53]. On April 21, a report in the same newspaper read: "Field Marshall Montgomery (...) became one of a handful of people ever to see Avro's mock-up of 'flying saucer', reputed to be capable of flying 1500 miles per hour. A guide who accompanied Montgomery quoted him as describing it as 'fantastic' ". A follow-up story three days later added that the "gyroscopic fighter" billed as weapon of the future, would be composed of metal, wood and plastics ^[54]. By the end of the 1953, after a reported \$200 million tab, the AVRO-car (see Fig. 7) became the AVRO Omega and the technology was transferred to the US. In March 1954, the leading architect of what had now become "a



Fig. 7 - The Canadian AVRO project of a turbine-powered flying disc: initial flight tests of the VZ-9V AVRO car in the fifties at A.V. Row in Malton, Toronto, Canada. The craft performed erratically like a poor hovercraft (skirt missing).



Fig. 8 - The American fate of the Canadian AVRO car:

•(top left) The AV-7055, a 1959 U.S. version of the AVRO car looking spunky to counteract the UFO paranoia. It had never flown, and it would never fly.

•(top right and bottom) The end of so much wasted research and epochal disinformation: a carcass of the first AVRO car rotting in storage at the Smithsonian National Air and Space Museum.

US-Canadian joint defense" project was identified as J.C. M. Frost (then working at A.V. Row in Malton, and previously at De Havilland in England; note the different spelling, not 'Roe' but 'Row'), previously the designer of The Flying Manta, which resembled a disc but was unable to take off vertically ^[55], even if it was claimed to be capable of achieving speeds of 1,430 mph (likely extrapolated from wind tunnel experiments).

What follows next is par for the course of technology - as the military competition and need for security and secrecy intensifies, the claims oscillate between the most promising and the totally useless as part of a disinformation net, leaving the field open for all to pitch in their most outlandish opinions. It began with Interavia, then went on to the Canadian Defense Ministry which suddenly announced, on Dec. 3, 1954, that the AVRO-car barely flew and so could serve no useful purpose. But nearly another year goes by, and US. Air force Secretary Donald Quarles releases a statement (Oct. 25) that reads: "We are now entering a period of aviation technology in which aircraft of unusual configuration and flight characteristics will begin to appear (...) The Air Force will fly the first jetpowered vertical-rising airplane in a matter of days. We have another project under contract with AVRO Ltd., of Canada, which could result in disc-shaped aircraft somewhat similar to the popular concept of a flying saucer. (...) Vertical-rising aircraft capable of transition to supersonic horizontal flight will be a new phenomenon in our skies, and under certain conditions could give the illusion of the so-called flying saucer (...) I think we must recognize that other countries also have the capability of developing vertical-rising aircraft, perhaps of unconventional shapes. However, we are satisfied at this time that none of the sightings of so-called 'flying saucers' reported in this country were in fact aircraft of foreign origin" [56].

This was one of those rare moments of candor that only American society is capable of - a little real bit of reality here and there; but it never stayed in the public memory, and certainly not in the mind of the media, mainstream or ufological - even if on that occasion the same Donald Quarles further added that "this aircraft will then be mass-produced and used for the common defense of the subarctic area of the continent" ^[56]. Candor, evidently, did not preclude error - it would take the US military-industrial establishment until 2001, ie another half-century, to actually develop this technology, no longer in the form of saucers, but in the form of the last piloted jet-fighters. It is curious that the number of observations of saucer-shaped craft have decreased in that same half-century.

And Quarles' statement is also an intelligent one - aiming at implicitly acknowledging that there had been sightings of genuinely unidentified craft, and at establishing a relationship of superficial similarity between the new wave of revolutionary human aircraft and these others genuine instances of other Aerial Phenomena. One senses that the overall tone was designed to be positive: these Aerial Phenomena are not denied, but we are assured they are not of foreign origin; and we are further assured that, whatever they are, we also have a comparable technology. But now, suppose that the Americans (and Canadians) effectively had a comparable technology: would the US Administration reveal that it resided under contract with a foreign company?? This is where the statement takes on the aspect of either quiet desperation or outright disinformation. So, candor also did not preclude lying, since, at its very best, the AVRO car never performed any flight even mildly resembling the objects in credible sightings...

Moreover, Quarles' conclusion that the craft in the reported sightings were not of foreign terrestrial origin appears to clash with what is known about the contemporary intelligence on those sightings and their relation to the AVRO car. Indeed, just 6 days prior (October 19, 1955) to Quarles' statement, W. E. Lexow, Chief of the Applied Sciences Division (ASD) of the Office of Scientific Intelligence (OSI) at the CIA, wrote - apropos of reported sightings - in an internal memo: "The objects reportedly sighted by [deleted] are described to be similar to Project "Y" which is in the research stage at Avro Aircraft Ltd, Canada, under contract to the US Air Force (...) The present study calls for a circular wing of 30 ft diameter and about 1.1 ft thick. Its performance is as follows: Speed M [Mach] - 3 (...). Project "Y" is being directed by John Frost. Mr. Frost is reputed to have obtained his original idea for the flying machine from a group of Germans just after World War II. The Soviets may also have obtained information from this German group. (...) It does, however, seem inconsistent that the Soviets, if they have such an object in service, would continue their large development and production programs on conventional type aircraft. Since our first information on Project "Y" in early 1953, ASD has been on alert for information which might indicate that the Soviets were working on a such a project. Prior to the sighting by [deleted] no such information has been available." [57]

The Lexow CIA memo clearly leans towards the suggestion that the objects are of Soviet origin, while making the same comparison as Quarles between the "sighted objects" and the AVRO car technology. Was this, then, part of an internal caper, one designed to convince the US government and its intelligence systems that "we had the technology" and "it might have now fallen in enemies' hands"? And if it was inconsistent for the Soviets to go on making conventional craft, why couldn't that also be said of the US, now that it had the AVRO car, the technology that was supposedly comparable to that reported in the credible sightings? It is clear that what is common to Quarles' statement for public consumption and Lexow's statement for internal consumption is the notion that "we have the technology", and "as an example, look at the Avro". It was, we suggest, a response to the panic being felt inside and outside the US military and governmental circles. And it justified projects like Project "Y". Lastly, it might just be that Miethe sold to the Canadians and Americans the same proverbial pig-in-a-poke that Habermohl supposedly will have sold to the Soviets, since no such technology has been identified in Russia after the collapse of the Soviet empire. Perhaps all that was left was to hide having been goaded, which might explain as self-consolation Frost's claim that he had been cheated by Cockerel of the credit for inventing the hovercraft.

But if the Americans and Canadians were so sold on the AVRO car concept, the Soviets seized

that opportunity to contribute more disinformation of their own. On October 1st, 1957, nearly two years later, the Russian Prof. S. Zohnstein was reported as saying that "flying saucers exist, and the Soviet Union has them!" ^[58]. Later, on February 18, 1964, UPI Moscow would claim that the Soviets had successfully tested a new type of flying disc that rode over a cushion of air. Apparently the Soviets thought that it was to their advantage to claim ownership of at least part of the unknown aerial phenomena.

We will probably never know what exactly went wrong with the AVRO-car, or Project "Y". The engineering was too complicated (amongst other aspects, it had 180 adjustable perimeter nozzles), the materials too unexplored, the principle of integral skin suction never developed enough to be applied, the turbine too inefficient, the structure too heavy and, finally, the best location for the pilot ended up being off-center, effectively precluding any notion of a gyroscopic stabilization by rotating upper and lower plates of a disc. What Frost and the Canadians had produced was just an hovercraft, barely to go over 6 feet of altitude and speeds of 60 to 300 mph (if even that is believable) ^[59]. As it lacked the hovercraft skirt, it did a lot of sliding about on the air cushion, including sudden precessing, which made it nearly impossible to hover or remain stable at low speeds. But its failure was, at the same time, providential for a change in policy that would permit acquisition of deep cover for most of these projects (in the same way that 'unidentified saucers' could hide behind manmade craft, so now could man-made craft hide behind the 'saucers'), since so much more had yet to be done to even compare to the rated performance of unknown craft in the terrestrial atmosphere...

With the electoral victory of the new Canadian government led by the supremely ignorant Diffenbaker, the failure of the AVRO-car became one more excuse to scrap the entirety of the CF-105 AVRO Arrow and its power plant, the Iroquois turbojet, firing nearly 10,000 highly-skilled Canadian specialists, an act of national infamy.

The first sign of difficulties came in a press conference of Gen. Frank Britton (April 14, 1959) that acknowledged the craft had not yet flown ^[60]. By August 1960, the USAF presented a new version of the AVRO-car, as the AV-7055 (**see Fig. 8**), with an official report that stated: "Tests with the full-scale model have been made (...) at the Ames Research Center, belonging to NASA, but they were not completely successful. It became clear, however, that the various problems inherent in a circular aircraft of this type are not insurmountable" ^[60]. Finally, in December 1961, the US Department of Defense pulled the plug on the entire project claiming that its concept had failed, largely due to the low aspect ratio of circular wings that makes them subject to sudden tipping ^[61].

Vesco asked in 1968: "[Was] (...) the whole matter of the Avro disc, merely part of a smokescreen that was handled very expertly? If the British had any interest in confusing the issue (and they did!), they succeeded marvelously. Even today the truth about the UFOs seems to have fallen into a bottomless well, and the most daring conjectures and the most foolish nonsense are all one as far as most people are concerned" ^[62]. Three decades later, it has become simply a matter for Hollywood - from farce to industry. Yet, the smokescreen worked effectively both to protect the development of VTOL aircraft, and to prevent any real, serious investigation of the genuine UFO phenomenon.

3.3. The real skunkworks

We do not doubt that the US military-industrial-scientific complex holds plenty of black aircraft in complete or near-complete secret. But it is apparent from even a cursory study of the recent process, documented by Nova, of the selection of Lockheed's X-35 SVTOL stealth jet-fighter as the next and maybe last step in this kind of military technology, that the Skunkworks have concentrated on developing aircraft that incorporated just about all of the elements which the problem of suction aircraft brought to the forefront. The new supersonic Lockheed F-35 and its Boeing competitor are both excellent examples of this: they are capable of vertical take-off and landing, capable of prolonged hovering (the F-35 without incurring hot-air ingestion), have 360° rotation capability under hovering, tremendous agility for tight turns, sudden accelerations and drops, have minimal stealth signatures, are built with radar-absorbing skins, have delta wings, and the F-35 employs - for hovering (up to 1000 feet) or vertical motion - a central suction turbine having a fundamental analogy with the AVRO car. Both projects took 4 years to complete, in a competition between Boeing and Lockheed to be awarded a most valuable contract by the JCS. Secrecy was not only enforced and maintained by the environment of the Skunkworks and the Phantomworks (Boeing), but also a condition for the operation of the two competitor teams and subject to constant monitoring by the JCS. It is not only ridiculous to suggest that all these efforts undertaken under conditions of the highest security were mere goings-through-the-motions, when at stake was the achievement of relative wind jet-powered aircraft capable of feats almost analogous (mark our 'almost') to those of credibly reported UFOs in the earth's atmosphere. A whole line of these machines - some of the better known being the U2, Blackbird, B-2, F-117A - has literally poured out of these supersecret flight technology incubators micromanaged by the US military. None of them are interplanetary craft - but very sophisticated relative wind machines confined to atmospheric media. And it took six decades to bring them here from what they were when the US establishment inherited the Nazi innovations that go to the core of all these technologies: the radar-absorbing flying wings of the Horten brothers, the delta-wing jets of W. Lippisch, the VTOL suction turbine of Habermohl and Schriever's V-7, the leading edge ionization methods of Oberth, to name a few.

"What makes the history of electric propulsion (EP) a bit unlike that of most aerospace technologies is that despite its recent, albeit belated, acceptance by the spacecraft community, it still has not been used for the application originally foreseen in the dreams of the earliest forefathers, namely, the systematic exploration of the planets. (...) The first problem is EP's decade-long role as the technological 'prince in waiting' of spacecraft propulsion. (...) The second and far more hindering problem that stood, and remains in the way of EP-enabled human exploration of the planets is the frustrating lack of high levels of electric power in space." E. Y. Choueiri, Director of Princeton University's Electric Propulsion and Plasma Dynamics Laboratory, 2004

4. Plasmajet craft

The Choueiri quote above ^[63] underlines the hopes that were once pinned on the development of electric plasma propulsion, and candidly exposes the main problem of such propulsion for space applications - the apparent lack of electric power in space, which condemns electric propulsion craft to carrying onboard means for energy storage. This major obstacle is precisely what is addressed by technologies capable of extracting energy (thermal or electric) from the 'vacuum state' - either (1) by thermally ^[64] or electrically ^[65-66] exploiting field-emitted pulsed plasma or vacuum-arc discharges, or (2) by capture and conversion of massfree energy in latent thermal or electric-ambipolar forms ^[67], or still, (3) by tapping room-temperature hydrogen fusion reactions ^[68]. However, accepted or official Physics has proscribed the existence of machines capable of releasing energy in excess of breakeven (since the proscription on perpetual-motion machines applies indistinctly whether these machines are of the first or second degree, ie generate motion or energy 'ex nihilo', a physical impossibility, or instead require an injection of energy, or a passive supply of the same, to work), save perhaps for the thermonuclear fusion reactors which are still elusive after half-a-century of research and mega-expenditures. Owing to this dogged blindness, electric propulsion (EP) remains a technology that only makes practical sense, in principle and at best, for small power applications - the EP power input, and thus the thrust, being limited by the nature of the power source and the mass of the propellant.

Despite these obstacles, Choueiri's thesis may well, in the main, be correct - that electric plasma propulsion has been the 'prince in waiting' that failed to deliver what it had promised - but on the proviso that this is seen as referring to civilian applications, or the public program for civil or commercial aeronautics (from NACA to NASA). Where we contend Choueiri's thesis fails is in the realm of military applications, specifically experimental ones tested under atmospheric conditions. Where's the evidence for this, one might ask? Well, the evidence is that core of unsolved UFO sightings dating back to the mid-forties that can be explained by known terrestrial technologies!

But, more to the point, we should consider the markers. In the early history of the concept of electrical propulsion for space travel - up until the end of WWII - the central idea is the electrostatic repulsion exerted upon the charged particles of a propellant stream that collisionally transmits momentum to neutral molecules. The core technology are thrusters powered by an electric wind:

• In December 1920, R. H. Goddard is granted US patent #1,363,037 for the first electrostatic thruster which already incorporates a propellant gas that was forced through a narrow opening in the cathode.

• In 1929, H. Oberth, the 'father of rocketry and astronautics' - now recognized, in Choueiri's words, as the 'midwife of electrical propulsion' - publishes a book "*Wege zur Raumschiffahrt*" ^[69] with a chapter devoted to electric propulsion in space.

• In 1940, A.T. Finkelstein publishes his ion source ^[70].

In this period, as Choueiri points out, the exceptional breakthrough comes from the 1929-33 Soviet work directed by V.P. Glushko at the Gas-Dynamics Laboratory (GDL-OKB) in Leningrad. Glushko invents the first electrothermal thruster based upon the anomalous current phenomenon of exploding wires ^[63].

Whereas WWII had the effect of making electrical propulsion, with the minute thrusts that it could deliver, irrelevant to the military interest and pursuits of the Allies, the evidence from fighter pilots and B-29 crews in both the European and Pacific theatres of operation - respectively, near Germany and Japan - concerning encounters with what was variously termed glowing balls, fireballs (*Feuerball*), night fighters and 'Foo-fighters' suggested that Germany and possibly Japan already possessed 'electric propulsion craft'. On July 6th, 1947, in the middle of a national UFO flap and one day before the so-called Roswell crash, the Washington Star wrote:

"During the latter part of World War II, fighter pilots were convinced that Hitler had a new secret weapon. Yanks dubbed these devices 'foo fighters' or 'Kraut fireballs'. One of the Air Force Intelligence men now assigned to check on the saucer scare was an officer who investigated statements of military airmen that circular foo fighters were seen over Europe and also on the bombing route to Japan. It was reported that Intelligence officers have never obtained satisfactory explanations of reports of flying silver balls and discs over Nazi-occupied Europe in the the winter of 1944-45. Later, crews of B-29's on bombing runs to Japan reported seeing somewhat similar objects. In Europe, some foo fighters danced just off the allied fighters' wingtips and played tag with them in power dives. Others appeared in precise formations and on one occasion a whole bomber crew saw about fifteen following at a distance, their strange glow flashing on and off. One foo fighter, says a war correspondent of the United Press, chased Lt. Meiers of Chicago some twenty miles down the Rhine Valley, at 300 m.p.h. Intelligence officers believed at that time that the balls might be radar-controlled objects sent up to foul ignition systems or baffle Allied radar networks."

Based on poor documentation of the various efforts made by the Nazi establishment in developing vertical take-off jet-turbine powered and rocket-turbine powered, and even plasmajet-powered 'rockets' (eg the *Triebflügel*), Vesco - chief amongst others - concluded to the German origin of these craft. He pointed to the radio-controlled radar-jamming *Feuerball* built at Wiener Neustadt at the *Flugfunk* *Forschungsanstaltof Oberpfaffenhoffen*, and later at Schwarzwald and *Zeppelin Werke*, as the cause of these observations ^[71]. Transfer of a substantial portion of this technology to the USSR would go a long way to explain the Russian advance - with respect to Britain and the US - in the development of electrodynamic thrusters that first ionize the propellant, even if H. Radd (who coined the term 'ion rocket' ^[72]) is credited with having been the first to have thought of this step as necessary.

However, it is equally possible - if not more likely - that the Russians just acquired those capabilities on their own. Whereas in the West the problem of electrical propulsion was focused on the need to generate sufficient electric power to accelerate the propellant by electrostatic means and the solutions were obliged to contemplate coupling an atomic pile to the plasmajet ^[73-76], the Russians proceeded with development of electrodynamic plasma thrusters, both for space applications and as an adjunct to turbine powered aircraft. This effort was concentrated at the GDL, firmly directed by Glushko (1946-74), and it explored ion-current field emission and electrodeless high-frequency methods to electrify the propellant. The products of electrically exploded wires were nozzled in their gas-phase thermal expansion to derive thrust. Effectively, this was an electrothermal thruster. Eventually, it was this effort initiated by Glushko that led to the first plasma thruster in space (*Zond-2*), in 1964, and to the first Hall-effect thruster employed in space - and thus to Soviet superiority in this respect.

Could there have been, as early as the 1940's, Soviet craft propelled by ion-thrusters? Could the Nazis have also embarked on the exploration of EP technology, and could their devices, as well as Soviet ones, be responsible for many of the credible UFO sightings - including the 'Foo fighter' reports?

Later investigation by the French journalist H. Durrant ^[77] came up with several reports produced, as early as March of 1942, by a Nazi intelligence organization (*Sonderbüro #13*) in charge of analyzing observations of unknown aircraft on German or German-occupied skies, ground-tracked to speeds of up to 3,000 km/h. Whereas all observations could be explained by the Nazi's own development of chemical rocketry, whose knowledge required higher clearance than available to Special Bureau #13, Durrant mentions a most peculiar event that was included in the Bureau's records: there was great surprise when a spherical craft was caught on camera following a rocket launch at Kummersdorf on February 12, 1944, which was attended by Goebbels and Himmler. The suggestion, at face value, is that fast spherical fuselage craft and spherical lights were not Nazi technological developments, and more likely were Russian in origin.

Either way, if one further adds the early reports from 1946 of V2-type rockets and unknown fast aircraft ('ghost rockets') sighted over Finland, Sweden and Norway - which today can be clearly identified with early progress made by the Russians in chemical rocketry - one can only conclude that, due to their own efforts or to the Nazi legacy, or both, the Russians viewed rocketry as their highest priority, likely since 1941. There is, therefore, a high likelihood that at the end of the 1940's the Allies

woke up to the double realization that, one way or the other, (1) the Russians were also ahead in 'electrical rocketry' and 'suction jet-turbine aircraft', not just chemical rocketry, and (2) it would take another decade before the Allies could catch up with them. It is curious that this is precisely the time period of the classical UFO age, between the alleged crash at Roswell (1947), the beginning in earnest of electrodynamic thruster development (1948) and the unveiling of the AVRO disc as a failure (1960). From what little is still known of this Russian technology today, and from what western technology has been able to develop, electrodynamic thrusters remain impractical for ground take-off and atmospheric flight. But if combined with turbine-powered craft to generate sufficient lift, these technologies could have had early embodiments in experimental military craft - and likely the pioneers here were the Russians. In fact, we suggest that an essential core of the credible unexplained UFO sightings is likely caused by observation of such experimental military craft powered in part by plasmajet engines, or designed to test them for thrust. NASA establishes its first research program in electrical propulsion in 1960 (at the Lewis Center and the Jet Propulsion Laboratories), but, as usual, we must look much earlier - by a good decade at least - for the first military research programs in electrical propulsion.

4.1. The development of electric plasmajet engines

It would be two decades after Oberth's 1929 book before electric thrusters - or, more properly, ion-engines - would become an experimental reality. Perhaps the most important early papers on ion-engines are those of L. Spitzer Jr. in the early 1950's, along with those covering research work being done in Lewis-type DC and AC engines. Conventionally, the first ion-engine to become 'operational' was Rocketdyne Corp.'s in 1958. But, once again, a comparative history yet to be written, would identify the fact that development of ion-engines - both electrostatic and electrodynamic (see below) was far more advanced in the Soviet Union than in Europe or even the US.

In the sense the term is employed here, electric thrusters are propulsion engines that electrically accelerate a plasma (generated by injection of a propellant gas) by a variety of means and direct it (usually with some means of compression or compaction that forms a plasma beam) so as to deliver thrust to a vehicle. For purposes of electric thrust, what one wants is not a flux or plasma of electrons, but one of ions - or, more properly, heavy ions (eg xenon). Electrons are not useful for inertial propulsion or thrust-delivery because of their very small mass and thus the small reaction momentum that their flux may impart. Even though 'plasma' should, in a purist or technical sense, mean the same as a wind or a flux of ions, be they charged positive or negative, in these engines it is actually mostly constituted by neutral molecules of the propellant gas that are collisionally accelerated. Hence, 'plasma' operationally designates a quasi-neutral gas. The core idea is to take advantage, as much as possible, of the high mass-to-charge ratio of the heavy (when compared to electron plasmas) positive ions. See below, under the arcjet rubric, our short analysis of this question, and of hydrogen as the best practical choice of propellant. Electric thrusters typically outperform chemical rockets, whether the latter are powered with liquid or solid propellants. Electric thrusters have higher specific impulse values ^[78](which reduces the required propellant or reaction mass but increases the sustaining power), and thus give a higher exhaust nozzle velocity (30 km/sec versus 5 km/sec maximum, for chemical rockets) - but their thrust is lower than that achieved by chemical rockets.

It is traditionally considered that there are four main classes of electric plasma thrusters - (1) electrostatic, (2) electrothermal, (3) electrodynamic (sometimes called electromagnetic - wrongly, in our view ^[79], and so we disagree with the classification that others have provided, for example see ^[63]) and (4) photon (or electromagnetic). Traditionally, also, arcjet thrusters are placed along resistojet and RF-heated engines, but in our view, they should be classed under electrodynamic engines. Our present concern is the first three categories, and - in particular - electrodynamic thrusters (we will discuss "electromagnetic" pair-annihilation drives in the next two monographs of this series).

Let us begin by considering the classical 'ion-engine', the electrostatic class. In essence the propellant is ionized by a variety of methods (including bombardment, inductively-fed RF-energy, microwave heating, cyclotron resonance, liquid point emission, etc) and subject to 'an electrostatic potential difference' that accelerates the jet of positive (heavy) ions and, at some point near the outlet, neutralizes them (achieved with thermionic electron emission from control grids), and neutralizes as well the charge on the spacecraft (important detail). We note that in aetherometric terms, ions in electrostatic ion-engines acquire kinetic energy from an electrical field generated by a standing ambipolar field that is half-wave rectified. NASA's Deep Space 1 probe employs an electrostatic ion-engine, and Hughes Co. developed such an engine, using xenon as propellant, for control of geostationary satellites.

In the second class - formed by electrothermal thrusters - the objective is to heat the propellant gas either by thermionic (filament) emission (the resistojet), or by subjecting it to 'microwave radiation', or still by passing it through a current arc (arcjet). This last engine subclass, however, involves field-emission (typically thermionic but most often induced under cold-cathode conditions), and it may also deploy anomalous cathode reaction forces within the plasma, near the cathode, that could either 'super-heat' the plasma or be exploited to cause anomalous ion accelerations. Feeding most of the propellant to the plasma of the arc discharge is an integral difficulty, as it raises the necessity of pinching the discharge and re-initiating the arc. So, in a very real sense, the DC constant arcjet engine is the precursor of the electrodynamic class and an integral and fundamental member of it.

In general, the problem of arcjet engines is the low inertial mass of the electron plasma and its high ion mobility. A propellant gas suitable to collisionally capture the energy of the electron plasma and produce an ion flame or a plasma jet must be injected. This introduces two main difficulties. The first is caused by the nature of the collisional processes involved, which may entail substantial energy losses via unwanted photon radiation (typically, line radiation). Lecture #30 of the Fusion Technology Institute ^[80] reads: "Quantum mechanics enters the world of plasma thrusters because line radiation - the light emitted when electrons move down energy levels in an atom - can be a significant energy loss for a plasma". In aetherometric terms, this simply means that the plasma fails to be continuously accelerated, and prematurely decelerates, so that engine design is not optimal as energy is lost in photon production.

The second difficulty is that, whereas injection of high molecular weight propellants should optimize electron-momentum transfer - and, from the viewpoint of anomalous cathode reaction forces, should equally optimize these by raising the ratio between the masses of the different charge-carriers - maximizing the effective exhaust velocity demands, instead, the lowest possible molecular weight. Hydrogen is therefore the most indicated arc-propellant, with ammonia a close second. By the early sixties, atmospheric radiation-cooled fractional megawatt arcjet engines with a 1-month life-time were being tested with hydrogen and proving capable of delivering more than 2,000 specific impulses per second ^[81] (corresponding to effective exhaust velocities of 19.6 km/sec).

Magnetoplasmadynamic (MPD) thrusters, which are typical electrodynamic thrusters, employ electrode geometries essentially identical to those of arcjets and are driven by an arc discharge. In fact, the need for a 'radially inward force' that would constrict the plasma directly led to the superimposition, in the MPD thruster, of an 'azimuthal magnetic field' over the (longitudinal) arc discharge. Electrons emitted from the cathode are caught by the radial magnetic field and remain trapped in a so-called "azimuthal drift motion". The propellant is fed to the reaction chamber and bombarded by the electrons, and the resultant heavy ions caught in it are accelerated by the axial electric field. Applied-field MPD thrusters experimentally developed at NASA Glenn Research Center since the mid-1960's and currently proposed for deep space missions have reached the megawatt class. They are typically driven by large capacitor banks - which poses mass, storage and transport problems of its own. Self-field MPDs are a form of feedback-current-fed MPDs (analogous, in some senses, to setting up an autogenously pulsed plasma discharge) that employ the current returning to the cathode to generate the azimuthal magnetic field. In other words, the arc current directly interacts with the self-induced magnetic field. As in arcjets, erosion at the emission-regenerating sites is also a major problem in MPD thrusters.

Another approach to plasma constriction is that of pulsing the plasma or interrupting the channel, which is the basis of pulsed-plasma thrusters. This is, in effect, a field-emission gas-fed interrupted vacuum arc-discharge (IVAD), that may involve emission of solid propellants used as cathode coatings. A further elaboration of the principle employs electromagnets to create a travelling field wave that ignites the arc and sweeps the channel (the so-called helicon thruster where the high-current arc is sustained even though the current loops get larger). We should note the deep analogy of this engine-technology to our own work with IVADs and autogenously pulsed abnormal glow discharges under the select conditions when they present anomalous plasma acceleration.

One last subclass of electrodynamic thrusters should be mentioned, the Hall-effect thrusters that exploit perpendicular electric and magnetic drifts to accelerate the heavy ions (again, typically xenon) and have them strike the cathode to generate a Lorentz current-magnetodynamic force that produces thrust. Research in the Soviet Union pioneered this technology, with early applications for attitude control of orbiting stations. At NASA, development of Hall-effect thrusters has been a long-standing project that has made possible, at the end of the 1990's, achievement of kilowatt range Hall-effect thrusters with specific impulse of 2450 per second (corresponding to an exhaust velocity of 24 km/sec) and thrust in the newton range (0.5 to 1 N). The recent European Space Agency's satellite Smart 1 also employed Hall-effect thrusters. High erosion of the ceramic discharge chambers at the exit of the plasma jet is still a major problem with these engines.

With the exception of some of the electrodynamic thrusters (arcjet and in particular MPD, pulsed plasma thrusters and the helicon) none of the other methods of electric propulsion are likely to have had experimental military application for purposes of atmospheric flight. Even now, electric thrusters are mostly used for low-power applications (up to the 10kW range) in Earth-orbiting missions. Hence, the focus of our interest as to the most suitable candidates, as early as the mid-to-late fifties, for experimental application to atmospheric flight, is bound to narrow down to the class of electrodynamic plasma engines - rather than to the more popular electrostatic ion-drives of science-fiction. Could successful supersecret research into electrodynamic EP technologies be the main source of credible sightings during the 1940's or 1950's? It seems that, at least during the 1940's, this would appear to be out of the question. As for the fifties, it would seem that, *unless these thrusters were coupled to other means of propulsion and flight* (much as the jet or rocket engines were coupled to gliders or helix-planes as auxiliary thrusters), they could not have powered any craft, either in the atmosphere (where EP is mostly useless to this day) or in vacua. As reference, the reader should keep in mind that by the late fifties, the thrust efficiency of corona-discharge propulsion systems was on the order of 1% of input power, and 30-40% for arcjet thrusters.

4.2. A well-kept secret? (Brown's later experiments, the B-2 and arcjet engines)

In project Winterhaven, T. T. Brown in essence proposed an ion-engine, much like an arcjet thruster. It ejected an electron gas flame (blue glow), and channeled the positive ions to the leading edge of the saucer-craft. The connection of this arrangement to the original observation of thrust in a Crookes radiometer ^[82] indicates that what Brown was working with was in essence an ion-engine having arcjet characteristics and thus belonging to the electrodynamic class.

The results have been the subject of much lore and embellishment. In 1953 a journalist published a sensational article in Interavia referring to Brown's work ^[83A]. He wrote:

"Disc airfoils 2 feet in diameter and incorporating a variation of the simple two-plate electrical condenser charged with 50 kilovolts and a total continuous energy input of 50 watts have achieved a speed of 17 feet per second in

a circular air course 20 feet in diameter. More lately these discs have been increased in diameter to 3 feet and run in a 50foot diameter air course under a charge of 150 kilovolts with results so impressive as to be highly classified."

Under a photo of one of Brown's discs, the author wrote:

"The higher the charge, the more marked will be the electrogravitic field. With a charge of several hundred kilovolts the condenser would reach speeds of several hundred miles per hour."

This appears to say that if such an experiment were carried out, speeds of hundreds of miles per hour would probably be reached, based on theoretical projections. It does not say that such speeds were actually measured. R. Schaffranke quoted several passages from the Interavia article in his book Ether-Technology ^[83B], but omitted the speculative statement about speeds of hundreds of miles per hour being attainable.

In a project proposal entitled "Project Winterhaven – For Joint Services R&D Contract", written in October 1952 and revised in January 1953, Brown wrote ^[83C]:

"Captive disc airfoils 2 feet in diameter, operating at 50 kV have been found to develop a speed of approximately 17 feet per second in full atmospheric pressure. The speed appears to be at least proportional to the voltage applied and probably to some as-yet unknown exponent of the voltage. Based on rough extrapolations from performance charts of laboratory models, the estimated speed of larger non-captive flying discs operating at 5000 kV may be 1150 miles per hour even with atmospheric resistance. It seems not unreasonable to believe that, with voltages and equipment now available, speeds in excess of 1800 miles per hour may be reached by proportionately larger discs operating at the same voltage in the upper atmosphere."

This, too, indicates that as of 1953 only speeds of 12 mph had been achieved. This is minuscule given that by 1956 the era of the pioneers in electrical thrust was over ^[63] and ion-engines capable of "effective exhaust velocities" on the order of 5,000 meters per second (500 impulses per second), or 11,250 mph, had been attained. A 1956 report entitled Electrogravitics Systems stated that a saucer-shaped interceptor capable of around 2,000 mph (Mach 3), as proposed by Brown, would require "ten or more years of intensive development" ^[83D].

Now note the "creative" way in which Paul LaViolette handles the material contained in the Interavia article ^[83E]:

"As early as 1952, an Air Force major general witnessed a demonstration in which Brown flew a pair of 18 inch disc airfoils suspended from opposite ends of a rotatable arm. When electrified with 50,000 volts, they circuited at a speed



Fig. 9 - Picture of a credible UFO sighting, shot on March 23, 1974, near Albosc, in Var, France (source: "Lumiéres dans la nuit" magazine). The craft is clearly not of extraterrestrial origin; rather, the symmetric exhaust beam pairs and the plasma polarized leading edge (at top) indicate an arcjet, with hydrogen exhaust and leading edge neon plasma. The body of the craft is electrified, and suggestive of the yellow-orange glow of active nitrogen at 4-15 mm Hg.

of 12 miles per hour. About a year later, he flew a set of 3 foot diameter saucers for Air Force officials and representatives from a number of major aircraft companies. When energized with 150,000 volts, the discs sped around the 50 foot diameter course so fast that the subject was immediately classified. Interavia magazine later reported that the discs would attain speeds of several hundred miles per hour when charged with several hundred thousand volts."

LaViolette is clearly stating that speeds of hundreds of miles per hour were actually attained by the 3 foot airfoils. He backtracks somewhat in a later book, saying that the author of the article "may have been referring to the performance of a smaller scale test model (5 inch diameter) that had a body made of solid aluminum" ^[83F] – a claim for which he provides no evidence. Furthermore, we have yet to see any proof that Brown's work in vacuum chambers and electrodyamic thrusters was, in fact, classified ^[84].

LaViolette's statement about speeds of hundreds of miles per hour being attained by Brown's

discs is now part of electrogravitic folklore. For instance, Loder, in his 2002 AIAA paper ^[6], regurgitates this (dis)information:

"Energized with 150 kV and emitting ions from their leading edge, [the 3 ft discs] attained speeds of several hundred miles per hour. The subject was thereafter classified."

Yet, Brown, in his letters to R. Schaffranke (aka Rho-Sigma), had only reported 17 to 30 feet per second, ie no more than some 20 mph ^[5], which is a miniscule speed given that by 1956 the era of the pioneers in electrical thrust was over ^[63] and ion-engines capable of "effective exhaust velocities" on the order of 5,000 meters per second (500 specific impulses per second), or 11,250 mph, had been attained. If the work that Brown performed in vacuum chambers and electrodynamic thrusters was actually classified (we have seen no proof of this), speed clearly was not the reason.

There is little doubt that as of 1956, small-sized US (Lawrence Bell, Douglas & Hiller, Lockheed, Lear Inc, etc) and British (Aviation Studies Int. Ltd, Gravity Rand Ltd) military-establishment companies were pursuing research into what they thought was electrogravitation, with the Pentagon as the major client. But the greater effort in researching and developing EP focused rather on the electrodynamic thrusters. Research into the viability of such engines for space-propulsion was a constant theme throughout the 1950's and 1960's, and has continued to the present day. Arcjet technology was already, by then, a long way beyond atmospheric Brown-type devices, or his claim of an electrogravitic thrust. Despite this fact, it is readily apparent to us that some of the strictly bona fide observations (see Fig. 9) that have been classified as credible 'UFO sightings' were of experimental atmospheric craft that employ arcjet thrusters. Hence all the small leaps of faith that, in the chapter of EP, go from 'Brown's gravitors' to his 'vacuum saucers', from arcjets to experimental man-made craft employing the latter, and finally land in the mythical realm of 'UFO sightings' from outer space buttressed by multitudes of contactees. We must comment that it is in this need to believe that one sees the failure of the scientific spirit at its starkest - and also, and most importantly, the obliteration of the UFO phenomena as being worthy of scientific study. It is with the help of these unquestioned beliefs made up of all these small leaps of faith that the identifications required to produce marketable, self-aggrandizing images of civilian and military 'achievement' are generated. And without these confusions, these amalgamations, these uncritical identifications, these small slips - there just would not be any justification for the kind of 'exotic research' that corporate, academic and military institutions conduct, or the kind of crap that alternative and ufological magazines peddle, no matter how much integrity they ingest.

Because of the similarity and coincidence between the problems of the boundary layer encountered in suction aircraft, and of the positively electrified leading-edge encountered in Brown's post-1955 projects, it is possible to think about their integration: one could use a suction-turbine to draw in air (at atmospheric pressures) carrying positive charges, from the leading edge of the craft, couple this with an internal feed of an arc propellant (likely hydrogen) and jointly drive the turbine output with an arcjet's exit plasma flame. Or one could try to do what LaViolette claimed the B-2 does: reduce the forward boundary layer with a positive corona, and expel a negative ion plasma through the craft's turbines: "the flow rate of [the B-2's] scooped air exceeds many times the exhaust flow rate from its jet turbines" ^[85].

We are convinced that the craft shown in Fig. 9 is structured as an arcjet engine would be, with a defined leading edge occupied by what is most likely a perforated skin outlet for neon gas, and an exiting hydrogen plasma jet permitting the craft to hover. But sensitive as this technology might be and has been, there is no valid argument that permits one to jump from electric control of the boundary layer (eg employing Brown's later method) to the creation of a craft generating and controlling its own G-field. Here, then, is the leap of faith made by LaViolette: "With a positively charged wing leading edge and a negatively charged exhaust stream, the B-2 would function essentially as an electrogravitic aircraft" ^[86]. We have now seen how premature is this jump - yet, there is little doubt that a positively-charged leading edge diminishes the air resistance, or that charging a plasma-jet exhaust with an arc-propellant increases its impelling force ^[87]. But neither of these can alter the fact that any craft employing these technologies is still propelled inertially, as a relative wind machine is - by mechanical thrust - and that it still requires atmospheric pressures for its propulsion, and is thus subject to all the contingencies of air turbulence. Indeed, as we will see in the accompanying communications, control of gravity is a far more complex matter than a mere deployment of cathode reaction forces in arcjet or plasmajet thrusters, or the bipolarization of a craft structure.

Nevertheless, we remain convinced that atmospheric plasmajet-driven craft, most likely hybrids, have been a technological reality for some time, probably since the late 1960's. Far more than over any other technology so far examined, the curtain of military and intelligence secrecy has long fallen over these developments, and one cannot exclude the possibility that a great number of genuine UFO sightings made in the last 4 decades were simply errors of identification of such very terrestrial craft. The ultimate source of these EP technologies was really Tanberg's original demonstration of anomalous cathode reaction forces employing a pendulum apparatus having a rigid cathode on a mobile arm that deflected away from the anode upon initiation of the arc ^[88]. We have experimented with pendular cathodes that exhibit exactly the same response when subject to the aPAGD regime conditions ^[89]. And Aspden has proposed an electrodynamic model and associated Law ^[90-91] that explains how these cathode reaction forces arise in arc-discharge tubes ^[92], arc-water explosions ^[93], exploding wires ^[91], as well as in the aPAGD regime ^[94].

We have good cause to think that such anomalous reaction forces might also be at work in, at the very least, the more advanced experiments conducted by Brown. He aimed to improve his vacuum apparatus by creating a rotary device driven by charged gas jets, precisely to try to mimic the anomalous ion effect; and since these jets were to eject the charged gas particles beyond the rear cathode of each element, their action would be precisely analogous to that of canal rays passing through a perforated cathode - the structure of a basic ion-thruster. This was apparently the height of Brown's achievement, under the rubric of project Winterhaven (this was also the object of a 1953 proposal Brown made to the Pentagon, supposedly for a Mach 3 craft). Our suggestion, once again, is that we should not confuse the electrodynamic interactions of anomalous cathode reaction forces with the physical expression of electrogravitic or antigravitic forces, such as we propose underlie the action of the monopolar lift effect that was the object of the preceding study ^[1].

If we now consider all the other types of craft developed by the US government alone, including those of NASA for planetary exploration or travel, or the various flying platforms, helicopters and coleopters, and all manner of rockets, missiles and satellites, it is pretty obvious that there is no need to explain Above-Top-Secret classifications the way that T. Good, R. Oechsler and now the Disclosure Project (S. Greer's "mission of salvation" on Earth) want us to, as measures to protect 'black' antigravitational technologies that the US government already has, controls and employs. This is nothing but pure hype that is at best gratuitous, ego-propping, 'feel-good' rhetoric designed to sell sensationalist and poorly-researched books, or at worst disinformation aimed at discouraging genuine research on gravity and antigravity outside of official frameworks. For it abolishes all historical and engineering perspectives on the development of technology, on its military impetus and selectionprocess and the pivotal role played by scientific research - all to put the 'believer' in a state of paranoia, fear and righteous hysteria, by instilling the conviction that a greater degree of awareness and cognition has been attained, and that a conspiracy exists to deny 'the people' access to that total and complete knowledge. All that has been attained through such belief-systems are delusions of grandeur - for the simple fact of the matter is that present science does not understand gravity nor antigravity (which it denies exists), let alone possess technology that might be capable of controlling either one! These supersecret craft, whether stealth jet fighters, flying wing bombers, rockets or space vehicles or even EP craft or hybrids of same - are not capable of the feats reported in a minority of UFO sightings that are credible but remain unexplained: they present neither the 90° turns, nor the sudden immobilizations, nor the variations of luminosity across the entire rainbow that covers the craft and changes with speed of displacement or rotation, nor the silent operation, nor the reported atmospheric speeds of motion. Yet the superficial analogy, to the untrained eye, in only too many instances is evident: delta and flying wing silhouettes often present a saucer-like aspect, are now able to hover and move vertically, can be electrified to present corona lumination, may employ plasma jet streams that can easily be mistaken for the 'atmospheric plasma luminosity' of 'gravitational craft', when lit will appear to be like the Lubbock lights, and can easily drop in and out of radar detection. However, to mistake these relative wind machines - even those equipped with EP thrusters - for 'gravitationalfield powered craft' is a crude error of the kind that is rampant in ufology, where noncredible reports are mixed with credible ones, credible ones are not sorted out, and the smashing majority of the credible reports describe precisely these man-made relative wind craft, not genuine G-field craft.

This confusionism befits a market that is always looking out for the image that is projected, and yet can only project the corniest of images. There is a "poor of spirit" continuity between the publicity and propaganda techniques of major media outlets (CNN, ABC, NY Times, Time magazine, etc) and those of a thousand ufological "grouplets". Adamanski was crude, but a commercial visionary when it comes down to such "marketing of the imaginary". Today these 'free agents' no longer sit outside Mount Palomar observatory with their hot-dog stand. They attend and organize "space development" conferences, claim special access to intelligence officers (even identify them), and plant the suggestion that the world is under the yoke of oil because US military policy has perpetuated, for its own purposes of world domination, the secrecy of "black technology" paid with taxpayers money. By failing to declassify these black technologies fast enough for civil society to be able to derive immediate benefit - so the hot-dog argumentation goes - the US is responsible for all the evils of the world, including the rise of islamic fascism. These mediatic 'free agents' continuously sell us the notion that declassification is just around the corner - the ET's will land, the government will disclose, a secret contact will come forward, and so on. It is with revulsion that one beholds this kind of delirium propagating across society; not just because of the lie being sold, nor the run-away paranoias of self-aggrandizement (viz "this reminds me of a story a retired CIA agent told me, about Project X and a certain inventor; the process was flawed but...", and so on); no, the real harm is the quietism it induces with respect to research in basic science. Just let Big Daddy spill his beans - and tell us he already has it all on a platter, and that it was given to him, well, by whatever mythical personage lived back then, Moray, Tesla, Reich, Einstein, Neumann, and so on. There is news to sell here. Forget about science.

So the inevitable question arises - what is the cause for such lack of scientific interest and methodology in UFO 'studies', 'books', 'reports'? Why is it so widespread? Why are the fields of alternative energy and ufology so filled with mysticism, lies, disinformation? Is it because so many have a need to believe in something, and they do not care how or in what, as long as they somehow satisfy that need? Is this gullibility - so buttressed by a latency of death and an ignorance of nature and science - what others exploit to make money and gain notoriety by selling tall tales? Is it because scientists shy away from making any critical evaluations of the UFO phenomenon, that it has been judged not to deserve serious study and has been relegated to myth, superstition and paranoia? Whom does such disinformation benefit? Why are there gigantic disclosure projects that fail to disclose a mouse, and so many 'anti'-conspiracies of "conspirationalists"? Only those benefit who propagate the charade and provide outlets to the notion that something is being done against "the conspiracy of all conspiracies" - 'to deny that extraterrestrials exist, to deny the unholy alliance with ETs that abduct human beings in their sleep, and to deny the existence of supersecret techniques of con-

trol (of mind, of gravity, of Space and Time) passed on by these same ETs to the US government or some World Government'.

It is high time to demolish what Vesco called "the grotesque edifice of idiocies and mental blocks fabricated by ufologists", the *sine qua non* of their cottage and film industries. They reflect a debile mind totally unprepared for the real challenges posed by space and by that minority of credible UFO sightings which pertained to craft that were not man-made. REFERENCES

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48.

20. Keyhoe (1955), op. cit., p. 258. It is curious to note that these sensationalistic speculations about what a relativistic UFT had to offer for the control of antigravity arose shortly before Einstein died in 1955 (April), and became a media event immediately thereafter, even though Einstein's general theory specifically forbade such notions or speculations. Today, no member of the scientific establishment would be caught making that claim, either with respect to Einstein's UFT or any academically sanctioned variants. Fads come and go - it's all about the marketing of fears and hype, and Official Science is no exception to the rule, as for instance the so-called issue of Global Warming so well demonstrates.

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23. A curiosity of the radiometer is that the absorption is deemed to be solely an absorption of electromagnetic energy - not sensible heat, but blackbody heat; yet, the present authors have per-

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38. Good (1988) op. cit., pp.347-349.

39. See his declaration: ""I believe that the AF statements [leading to the closing down of Project Saucer], contradictory as they appear, are part of an intricate program to prepare America - and the world - for the the secret of the discs", quoted in Michel, op. cit., p. 80.

40. SEAS is another organization that makes this common mistake.

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50. Oberth, H (1954) "Flying saucers come from a distant world", The American Weekly, October 24.

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research to develop suction-powered saucers, but he might have been right when he suggested that the multiple sightings of formations appearing as early as Arnold's reported sighting could have been of teleguided 'miniature' craft (Vesco (1971) op. cit., p. 244-245). The real challenge resided, not in designing small-scale prototypes, but in scaling them - likewise, with respect to finer flight and handling control, the problem lay with the development of video transmission, practically inexistent at the time of Arnold's sighting (1947).

52. Vesco (1971) op. cit., p. 249.

53. Idem, p. 252.

54. The confusion of the AVRO disc or AVRO-car with the AVRO CF-105 Arrow jet fighter began early, by June 1953, with the bulletin of the Swiss review Interavia. This might well have been a caper within a caper, but it is hard to see which is which, since the CF-105, which outperformed any other plane at the time, was scrapped by the Dieffenbaker government - an arbitrary decision that to this day can only be explained by an American design to eliminate successful competition. The CF-105 flew past Mach 2 over Toronto, in 1958.

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