TECHNICAL SOLUTIONS AVAILABLE IN THE PRESENT GEOPOLITICAL SITUATION

Sorin DINEA

Henri Coanda NGO, Bucharest, Romania (contact@jet100.com)

DOI: 10.19062/2247-3173.2022.23.25

Abstract: *The paper will show some technical solutions that are available in a present geopolitical situation, which result from the previous experimental researches of many of the Romanian and international researchers, including Henri Coanda. The paper takes into consideration that all the real scale positively tested researches represent available ways which may be reloaded based on the present technology, even though they are 50 years old, 100 years old or more.*

The available real scale positively tested researches that will be shown in the paper, will include a solution for aeronautical sciences, especially thrust&lift propulsion and also a solution for atmospheric health&cleaning. The paper shows that usually we do not need to spend a lot of time&money on researches that were done before, but just to know them and use them in accordance with the present technology and opportunities.[1][2]

Keywords: *Coanda, thrust, effect, pipeline transport, Constantinesco, Sonics, HHO, Brawn*

1. INTRODUCTION

We are passing through a very strange and unique geopolitical situation that will be not described here. The geopolitical equilibrium seems to be rebalanced between Western and Eastern philosophies, cultures, lifestyles and powers. The Humankind should accept that the future way to live and develop should take useful parts both from the West and East together. Therefore, the technology should be now reconsidered in order to be sustainable for the human Society and the Environment, in equal amounts.

The time for rebalance and reconsideration is very short, because there is a high risk of self destruction. Moreover, the geopolitical situation overlaps an intense spiritual transformation of the entire Human race, in order to engage in the right way the evolution for raising the Awareness of each person and evolution group.

Science and technology are created in order to support finding and using the easiest and most rapid way to pass over the present geopolitical situation, from both sides. Therefore, science and morale should sustainably join and cooperate in order to find this way.

There are destructive technologies using explosions but also sustainable technologies using implosion. There are thrust technologies using over pressure but also thrust technologies using vacuum pressure. There are transportation ways using self propulsed devices but also duct containers that have no propulsion unit on them.

It depend on us what technology we shall develop or how the sustainable way is going to change the existing destructive technology into future sustainable technology.

The synthesis paper will present only 4 previous researches that were proven as positive solutions to our society, coming from Henri Coanda, George Constantinescu and some Australian and American public researches.

2. HENRI COANDA HIGH EFFCIENCY THRUST

In the early '90 I was student at *Aerospace Faculty* of *Politehnica University of Bucharest.*Because of my personal affinity with Henri Coanda creations, I was preoccupied with his work. Therefore I discovered that the Henri Coanda flying saucer called "Aerodina Lenticulara", which means "Lens Shape Aerodyne" or "Lens Shape Aircraft", should have been finished in the US in 1969, according with Henri Coanda's claims back in 1967.

2.1 Coanda was right!

So I discovered this story and some drawings of this "Lens Shape Aerodyne" [3] and I ran to one of my university professors, who was teaching Fluid Mechanics, to find out more. During a break on one of his courses I found an opportunity to ask him: *How about "Aerodina Lenticulara"? Why have I not seen before this flying machine actually flying, because I've foundit very interesting and simple as a flying device.*

The answer that came was beyond my expectations: *Well dear, if was it a good flying machine, it has already been built byothers by now.*

It was a shocking answer that put me in a scientific dilemma: *Whom should I believe: my university professor I was learning from, or ...Henri Coanda the international genius!?*

Shortly after the shock I had got, I resumed my individual research on the entire creation of Henri Coanda. After so many years since the above episode, I am able to present you the true conclusion behind the "Lens Shape Aerodyne": Coanda was right!

2.2 The Wing lift and Coanda Effect produce the same thrust

In the present paper we will shortly demonstrate why the "Lens Shape Aerodyne", having no moving parts and VTOL capability, has at least the same lifting efficiency as an aircraft lift based on the moving wings.

First, we will remind you that "Lens Shape Aerodyne" is based on the Coanda Effect phenomenon, meaning the attachment of the jet to an adjacent divergent wall, transforms a free jet into a curved jet. Therefore, many times, the researchers have considered that the Coanda Effect is similar to Bernoulli Effect, but it is not. The Coanda Effect is a two way mixing flows phenomenon, not isentropic, rotational phenomenon that has the inertial (centrifugal) and pressure forces dominant towards the viscous forces. The Coanda effect working device is called "ejector". With the exception of the importance of the viscosity, that is lower too as the previews one, the Bernoulli phenomenon is totally different, as a single flow, isentropic and in line phenomenon, having constriction and expansion of the stream lines inside a "nozzle" that is a variable area channel for a single mass flow.

A complex "ejector" has an up flow part, a "mixer" (Coanda effect curved foil) and a down flow part, a "nozzle" (after the fluids are mixed) as a divergent or convergent part, but a "nozzle" has no ejector as a constitutive part at all.

Second, let us see the lifting wing as a reactive machine based on a fluid transformer phenomenon that transforms <low flow> at <high pressure> of the trust engine into a <large flow> at <low pressure> of the back wing downward atmospheric current. This transformation phenomenon is similar and more understandable if we mean to an electrical transformer that gets <low amps> at <high voltage> into a <large amps> at <low voltage>.

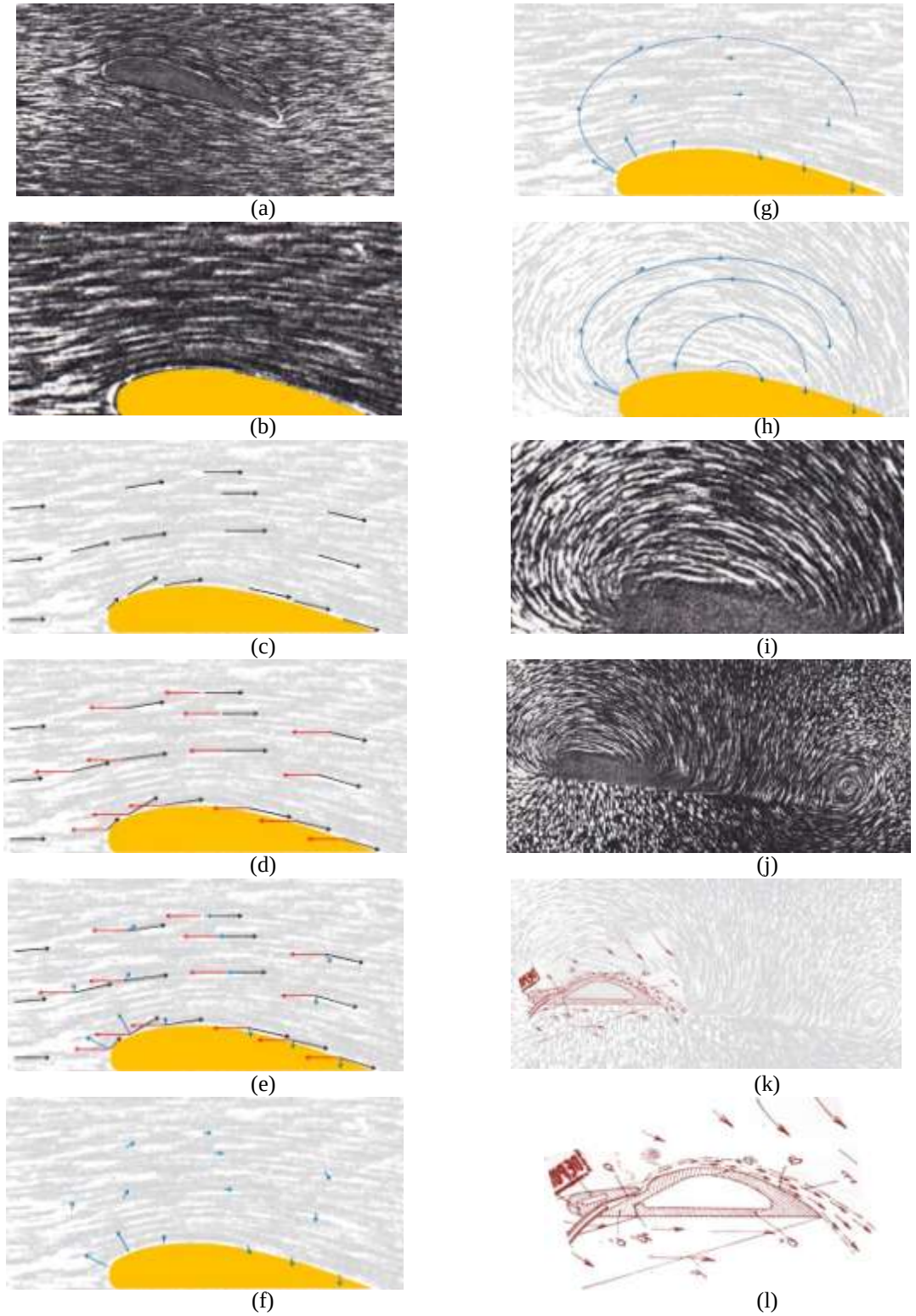


FIG.1 The way to transform the conventional Lift Effect streamlines into the Canada Effect streamlines, by changing the referential of the movement: (a) Streamlines over the wing airfoil shape(camera on wing), (b) Nearest the airfoil shape, (c) Some velocities of the airflow, (d) Changing the referential (reducing the airfoil velocity), (e) Combining the velocities (blue=resultant), (f) New velocity (camera fixed on the air referential, (g) Recreating the streamlines, (h) The new streamlines over upside wing, (i) Airflow smoke visualization (camera fixed on air), (j) Moving airfoil in front of the fixed cameraphoto, (k) Path lines similarity of Coanda effect and lift wing), (l) Coanda patent extract of the Coanda effect circular wing.

2.3 Coanda Effect Circular wing design

Based on the above visualization we may consider that, even if it is totally different when it is generated, the Coanda effect has the same effect on the thrust as does the Bernoulli lift on a wing, as long as the stream lines of the environmental air are maintained the same.

Because of the fact that the lift produced by a running wing represents a phenomenon that creates an action=disturbance over the free atmosphere, the atmosphere's response will be by reaction=lift over the wing, therefore we may consider that any other device that produces the same action=disturbance over the free atmosphere will naturally receive the same response as the lift.

The wings need to move in order to produce the lift over the wing, but the Coanda thruster is capable of producing the same lift without any wings movements. Therefore, the Coanda thruster has no left-right wings as we know from birds, insects and airplanes, but just a circular well- designed and controlled wing, as it is shown below based on a mirrored section from the Coanda patents [4].

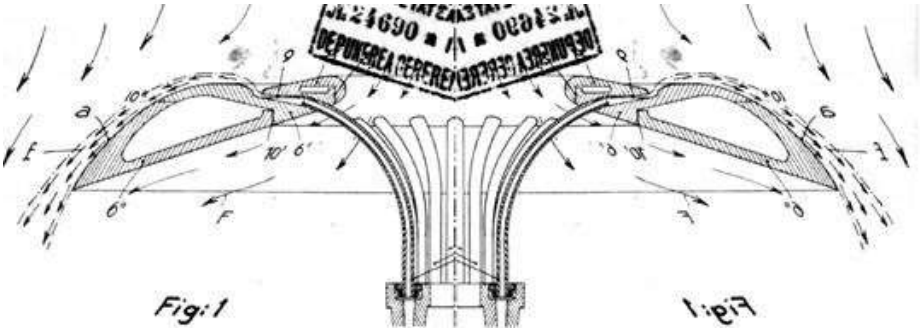


FIG.2 Coanda Effect circular wing

According to the Coanda archives [5], the first successful test of the thruster was back in 1934, and it looks as follows:

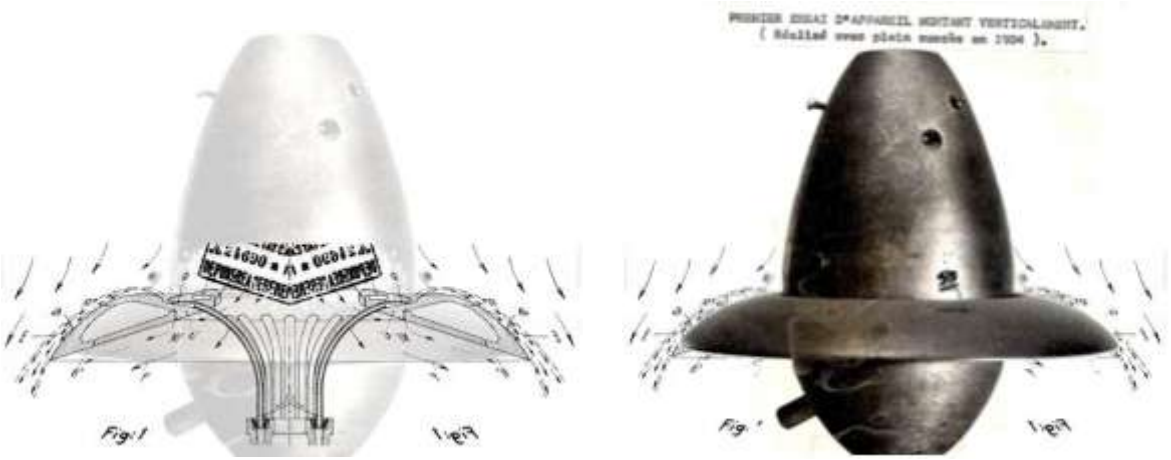
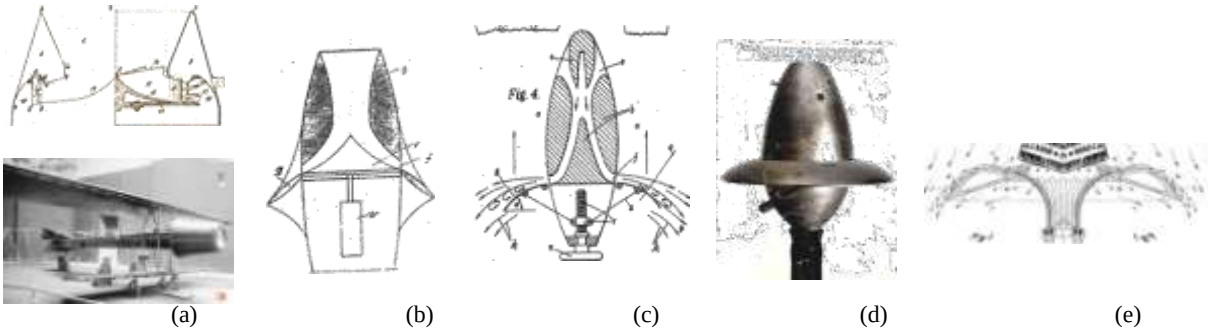


FIG.3 The Coanda Effect thruster successfully tested in 1932

It becomes clear that Henri Coanda favorite application were the air thruster and lifting devices. Moreover, it is correct to think that the Coanda Thruster was born inside the first jet aircraft of the world which was tested back in December 1910, even most of the historians think that Henri Coanda abandoned the idea of the jet thrust, because he didn't recover and reload the first jet aircraft "Coanda 1910" in another version.

2.4 Developing the 1910 jet aircraft thruster

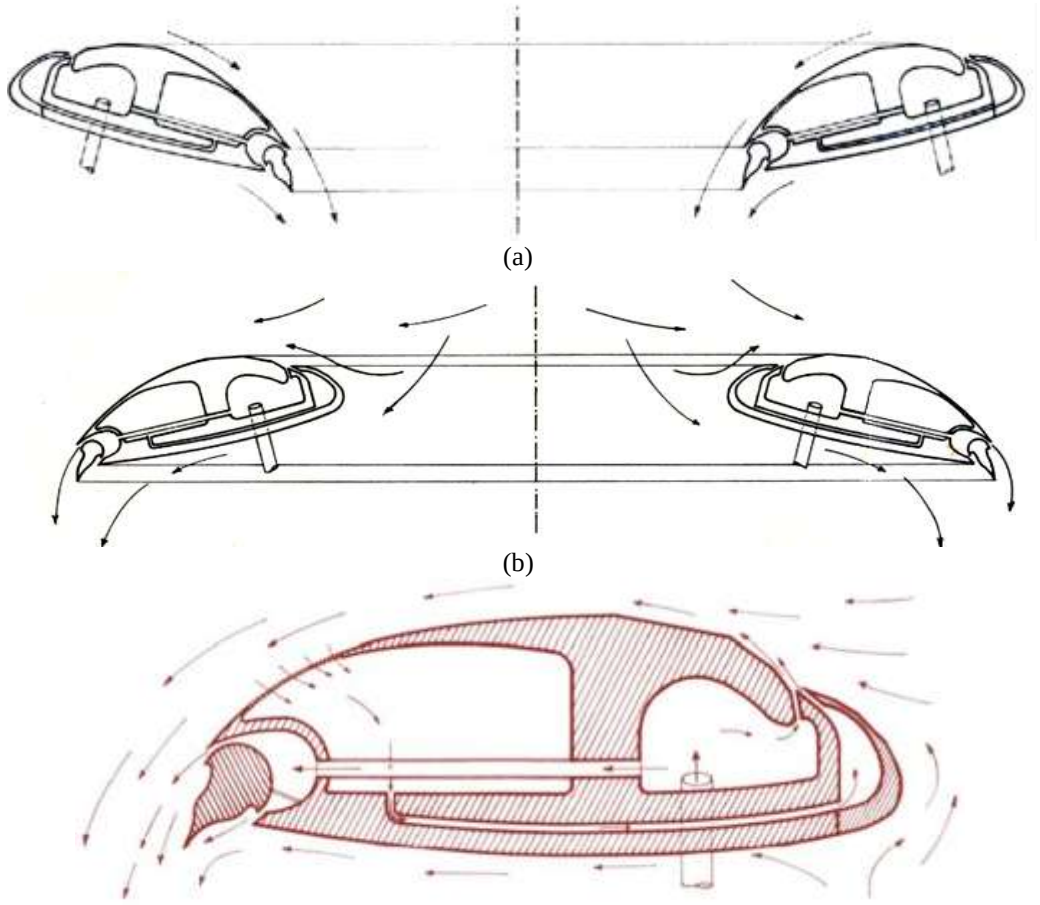
We have found out that Henri Coanda continued and developed the first jet thrust idea in 1910, generating new thrusters with more and more efficiency, as soon as he understood the Coanda effect phenomenon, 20 years later.



(a) (b) (c) (d) (e)

FIG.4 Coanda Effect thruster step design: (a) 1910| FR416541first addition no 13502, (b) 1932| patent FR762688, (c) 1934| patent GB431646, (d) 1934| test device, (e) 1935| patent FR796843

Also , we have more reasons to consider that until 1934 Henri Coanda completed the design and the solution for having high efficiency thruster based on the Coanda effect and circular wing. The two ways of producing lift for the Coanda lens shape aircraft were as follows:



(a)

(b)

(c)

FIG.5 High efficiency thruster based on Coanda effect and circular wing: (a) Coanda internal ejector designed by Henri Coanda for high lift efficiency (flow towards interior), (b) Coanda external ejector designed by Henri Coanda for high lift efficiency (flow towards exterior), (c) Section over circular wing lifting device

After 1934 he focused on the production of the primary jet that was feeding the thruster in order to create a fully functional thruster without any mechanical moving parts (rotors and pistons). Done it!

3. HENRI COANDA PIPE LINE TRAIN

We may consider the Henri Coanda idea to eliminate the power and propulsion devices from atransport line as a revolutionary one. This task allows him to imagine and to test a pipe line transport having a container as a vehicle without any engine on it. The system is very simple if you have available the Coanda ejectors, because any movement is done by using depression and over pressure on the external walls of the container itself, as follows:

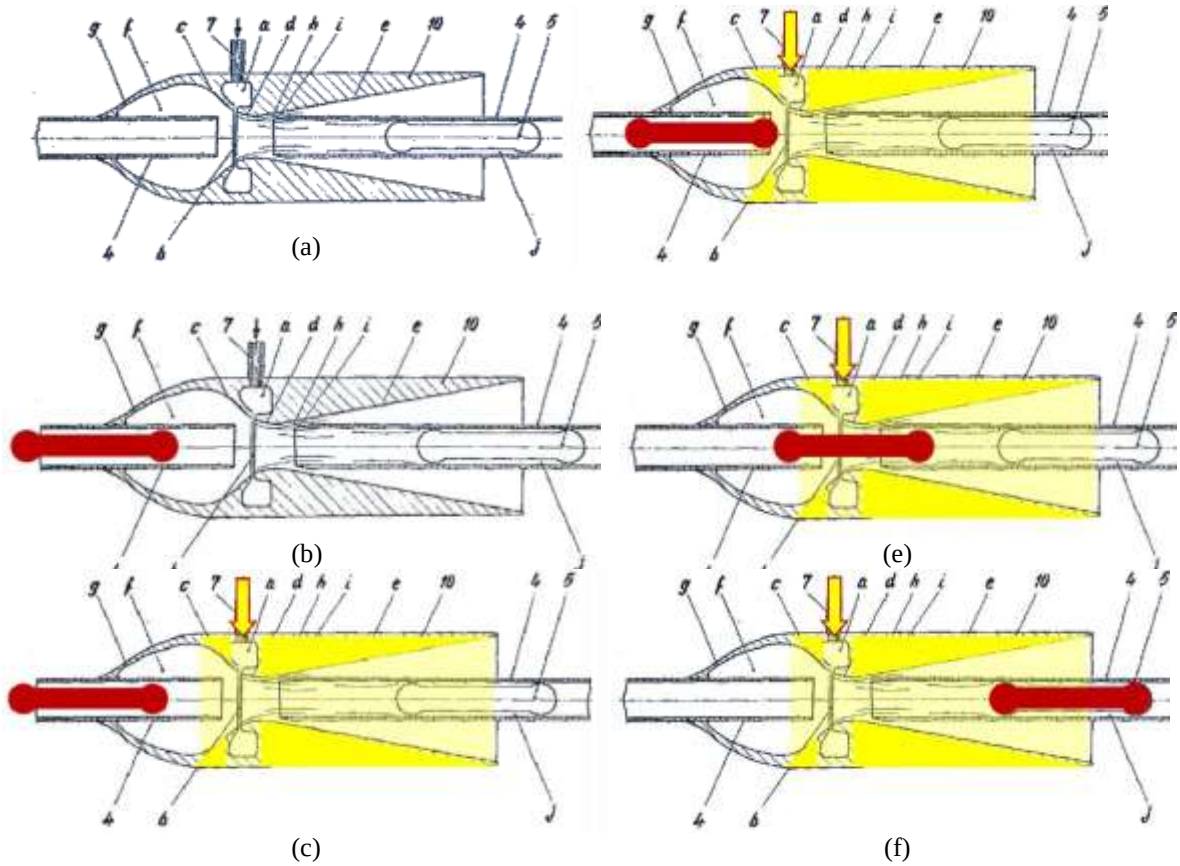


FIG.6. Coanda pipeline container transport: (a) base design according with the patent RO55357/1970, (b) the container, (c) ejector is powered on, (d) the container is sucked into the running ejector, (e) the container is moving fast throw ejector, (f) the container is pushed back outside the ejector

The impact of the Henri Coanda solutions on the Romanian research headquarters was very strong once Henri Coanda decided to return to Romania, back in 1967. The tube (pipeline) transport system was one of the mains projects that was developed by the Romanian authorities and continued after Henri Coanda passed away, back in 1972.

The main applications were industrial, carrying different raw materials.

Russia, Japan and Romania were the first three countries to successfully apply the solutions ofthe tube transport on a large scale for industrial applications, back in the 80s.

An interesting application related to the tourism was the transparent duct transport in order to have tourist tours in the mountains and under the lakes or Black Sea, too.

Recovering Henri Coanda's idea for duct transport, it becomes realistic to think that "we need to get off the roads all the heavy trucks that are dangerous for the other vehicles" as Henri Coandabelieved.

(a) (b)

FIG.7 Coanda pipeline transport experiments: (a) 1970 Transport tube experiment done personally by Henri Coanda at INCREST facility in Bucharest, Romania, (b) 1980 Pipeline human transport at experimental base at Maneciu Ungureni, Prahova county, Romania [6]

4. GOGU CONSTANTINESCU SONIC CANNON

Geoge (Gogu) Constantinescu (1881-1964) is one of the greatest inventors in the world. Not only because he invented many devices based on the true fact of the compressibility of liquids,but also because he created a new theory: the *Theory of Sonics*.

Sonics is the way to transport energy using liquid internal vibrations based on liquids compressibility, elasticity and friction. The liquids only vibrate but not flow. It is not about hydraulics, but Sonics, using sound waves.

Geoge Constantinescu was a very good theorist, inventor, designer, experimental engineer and also a very good entrepreneur for his inventions. He was a Brilliant Mind inside a single person.

Based on his theory, he created sonic devices that were able to synchronize the shooting of theairplane gun between the aircraft's own propeller blades. During the WWI, the British Government asked him to produce 50000 sonic devices for the British aircraft [7], giving to the allied troops the power of the aircraft fire which turned them into war winners.

We do not intend to present the entire creation of Gogu Constantinescu, because it is very complex and it should be presented in a different paper. We will present here only the Sonic Cannon.

4.1 The Water compressibility experiment

Base on the fact that the sonic effect is totally different from the hydraulic effect over liquids, it was necessary for Gogu Constantinescu to present separately the sonic effect, in order to show the differences.

The Presentation of the sonic effect was necessary because when he wanted to fill a patent in the US at the Patent Office he was refused because of the fact that "liquids are incompressible". It was necessary the pledge of a Royal Society member for confirming the existence and working of a sonic machine that had been previously built in London.

A demonstrative experiment of the compressibility of a fluid was welcome to be done. The following images are extracted from a video back in the 1920s [8]. First, he prepared the device:

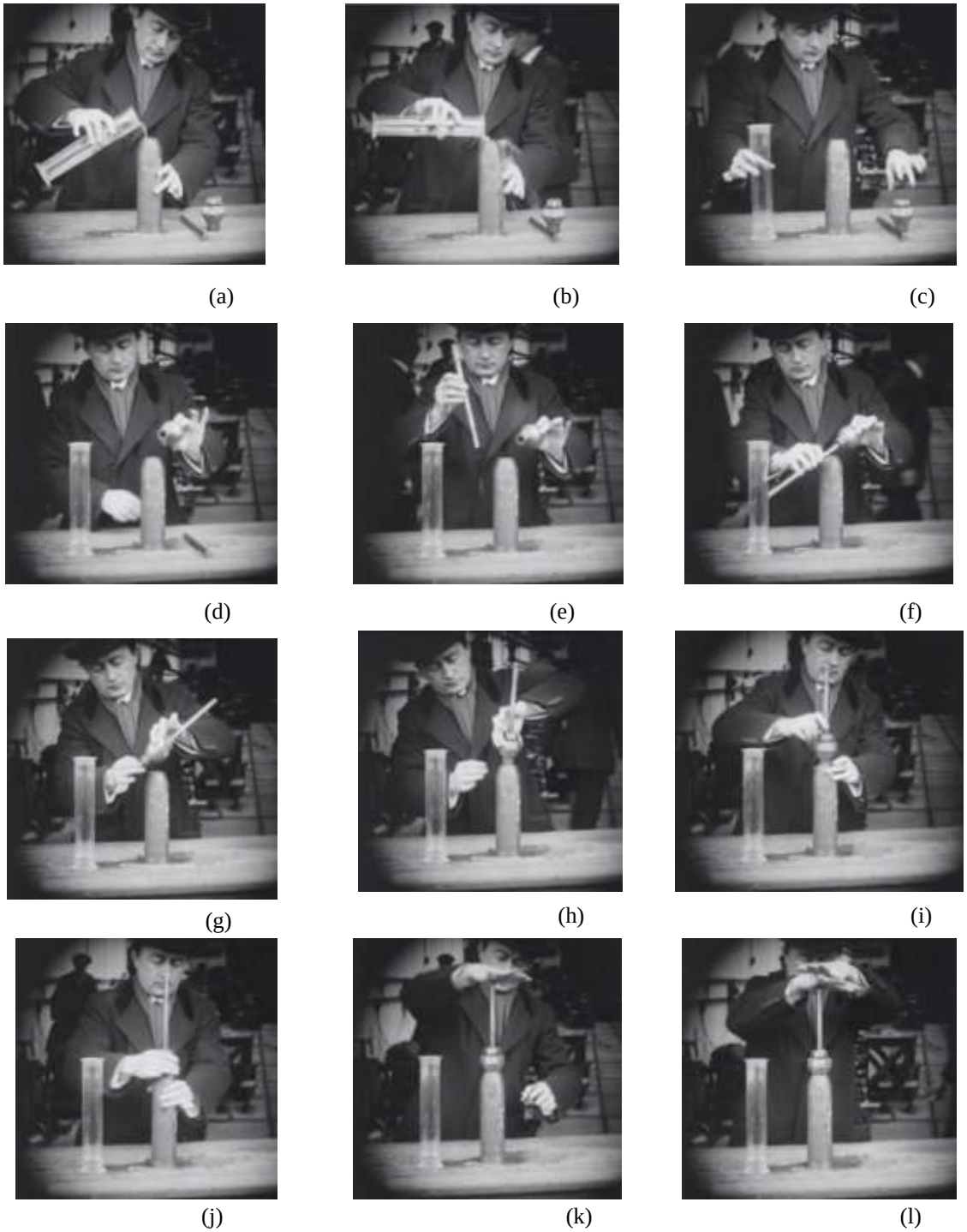
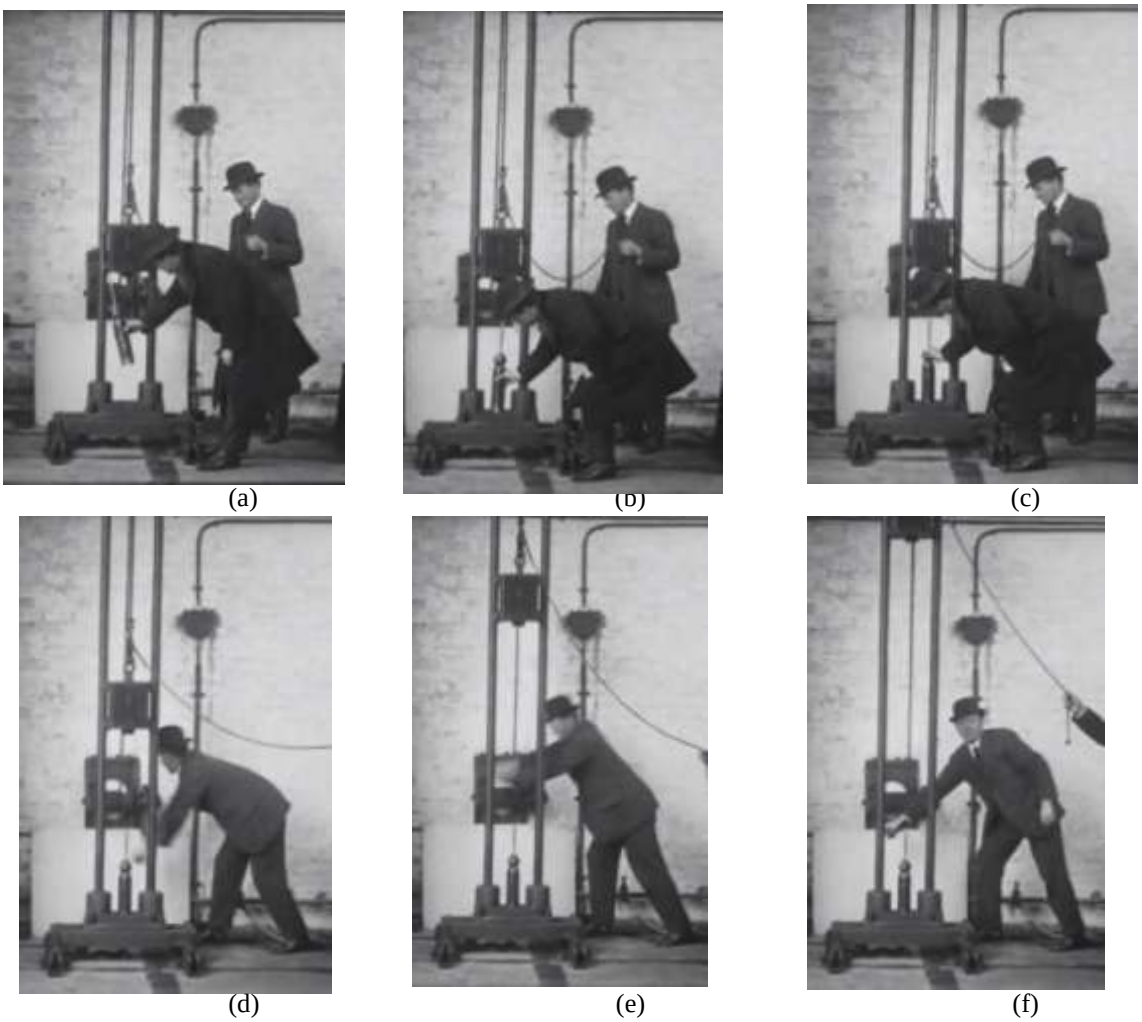


FIG.8 Gogu Constantinescu is preparing the water compressibility experiment: (a) filling a reservoirwith water, (b) until water overflows, (c) takes the upper side of the device, (d) showing that it has a circular hole, (e) taking a cylindrical rod piston, (f) mounting the rod inside, (g) up to the end of the rod, (h) mounting the 3 pieces device, (i) in a vertical position, (j) screwing the assembly, (k) the rod is rigid when it is pushed with one hand, (l) and pushing it with two hands also

Secondly, he mounted the testing 3 pieces devices (main body +piston rod +upper screwedpart) into a fixed position on the experimental stand.

After the rise of the test weight up to 2,5m high, that has an estimated mass of 100kg, it wasfree fall of the weight over the piston.

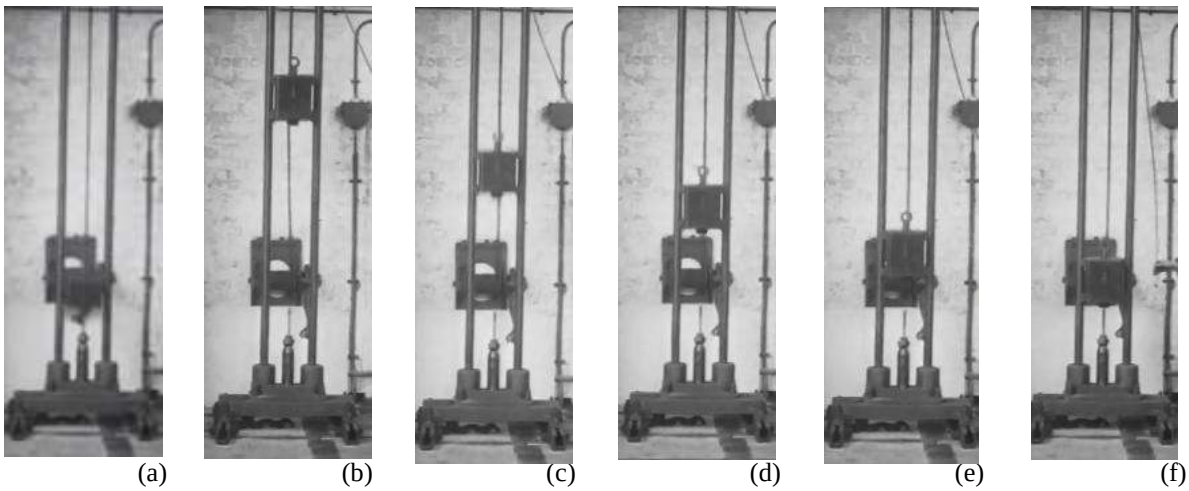
The piston is compressing the water and the elasticity of the compressed water is pushing back the mass and rising it again. Several down-up oscillations are done until the oscillation is stopped.



(a) (b) (c)

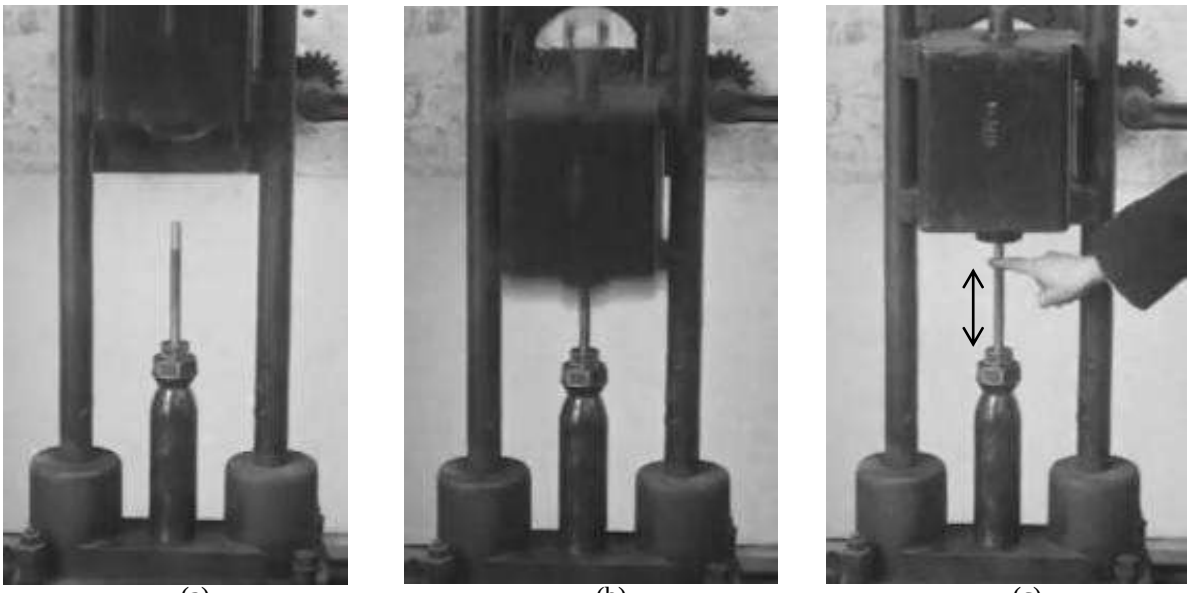
(d) (e) (f)

FIG.9 The Gogu Constantinescu water compressibility experiment: (a) Bringing the test device on the experimental stand, (b) Putting in the right position, (c) Fixing it in the position, (d) Rising the weight manually, (e) Rising the weight at 2m high, (f) Rising the weight at 2,5m high



(a) (b) (c) (d) (e) (f)

FIG.10 The Gogu Constantinescu water compressibility experiment. A detailed view of moving thepiston, which means that the water inside was compressed: (a) Fall on piston, (b) First retreat, (c) Second retreat, (d) Third retreat, (e) Fourth retreat, (f) Fifth retreat



(a) (b) (c)

FIG.11 The Gogu Constantinescu water compressibility experiment. A detailed view of moving the piston, which means that the water inside was compressed: (a) Piston free, (b) Piston is compressing water, (b) Limit of the moving piston, from finger to the bottom showed after the experiment was done

Gogu Constantinescu claims that the pressure inside the main body of the test device (that is confirmed to be a former body of a shell adapted to the experiment) is up to 2000bar. At 2000bar, water seems to be compressed up to 90% of the initial volume.

Physics lets us know to consider that the 2000bar is easy to be produced by the free falling of a 100kg mass from 2m high over a piston-rod considered to have a section of about 1cm2. Similar with what Constantinescu shows us in the above described experiment, we may consider:

$$p[Pa] = \frac{F\,[N\,]}{A[m^2]} = \frac{100\ kg\ 200\ \frac{m}{s^2}}{1\ cm^2} = \frac{20000\ N}{0{,}0001\ m^2} = 200000000 Pa = 2000\ bar \quad (1)$$

When the 100 kg falling mass movement is stopped by the compressed water piston rod, we might consider that the acceleration is about 20 times that of the Earth acceleration (g = 9.8 m/s2). Intuitively, this is possible when the time falling is about 20 times longer than the time of the rod movement when compressing water (the touch between the falling mass and the rod until stopped).

4.2 The sonic cannon

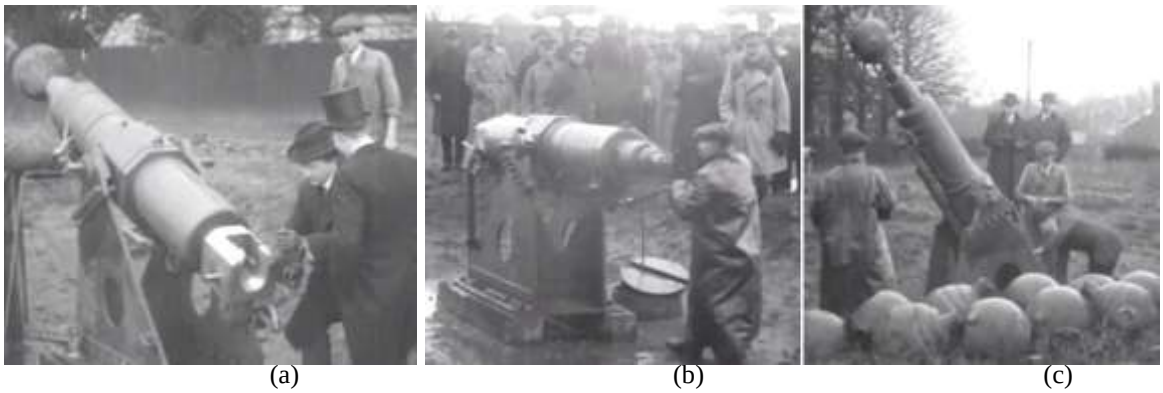
Based on the above experiment, Gogu Constantinescu has imagined a device that creates a rapid expansion of compressed water that was previously prepared by themanual force of an operator.

First, it was a small demonstrator cannon that deployed a grenade of about 1kg at 150m, usingonly ½ liter compressed oil at 1000bar.

Second, another demonstrator cannon deployed a shell/projectile of about 8kg at 500m, using3 liters of compressed oil at 2000bar.

Third, the real sonic cannon (pictures below [8]) deployed a shell/projectile of about 100kg at 1500m, using compressed oil, probably at 2000-2500bar, without any fire and explosion and without any noise.

The construction of the cannon was very serious and robust, on a 1:1 scale, as a working device that demonstrated the new capability for real application.



(a) (b) (c)

FIG.12. Gogu Constantinescu sonic cannon public test (a) First, Gogu Constantinescu is presented andhe is preparing the cannon for a real public demonstration, (b) A companion arms the sonic cannon, (c) The sonic cannon was finally prepared for the real test

Just after the sonic cannon was prepared, the test was completed by deploying the spherical shell (projectile).

(a) (b)

FIG.13 Gogu Constantinescu's sonic cannon public test (a) Just before the deployment, (b) Just after the deployment

This unbelievable efficiency of the device is based on the fact that during compression, liquids are not generating as high temperature as gases do. The temperature generated by the liquids for a 2500bar compression is less than 1degree and the volume is 10% lower than the uncompressed liquid. Therefore, almost the entire energy is recovered during the deployment through elasticity.

It is obvious that by omitting the compressibility of liquids, some of the very special applications might have not been discovered at all, or might have been lost by ignorance if tested before, therefore we do believe that the sonic capability might be reloaded as defense devices in many sizes and shapes, including being part of a complex device that hunts and shoots down hypersonic missiles.

5. HHO FOR PISTON ENGINE

The water electrolysis phenomenon was discovered about 200 years ago. Splitting the water molecule into Hydrogen (H2) and Oxygen (O2) using electricity turned out to be very challengingnot only from an energetic perspective, but also from a medical one. This should not be surprising as long as life on Earth is based on hydrogen and oxygen. Electricity is not the only way to split the water molecule, but it is a sustainable one.

5.1 An Australian Brown's Gas

One of these devices is the HHO generator for piston engines, also known as the Brown's Gas after the Australian inventor Research Professor Yull Brown who discovered, tested and described it as follows: *"Brown's Gas is a stoichiometric mixture of hydrogen and oxygen in the exact ratio of two parts hydrogen to one part oxygen"* [9]

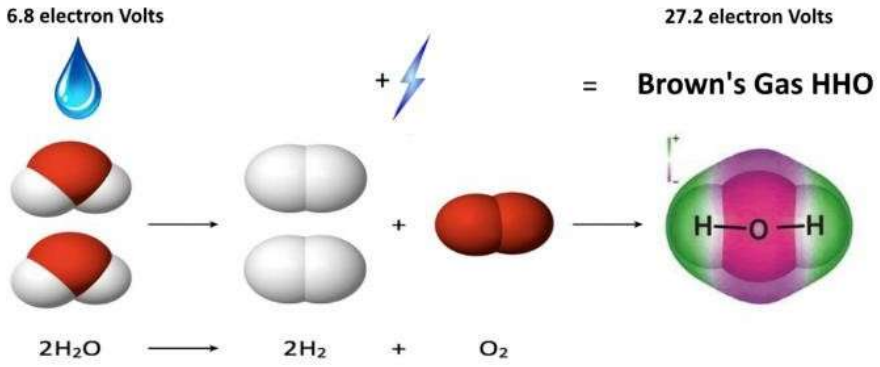


FIG.14 Brown's Gas HHO molecular reaction

The name HHO comes from the fact that the Brown gas is exactly two parts Hydrogen and one part Oxygen. HHO may also be found as YBG (Yull Brown Gas).

The most interesting and important capability of the HHO gas is that it IMPLODES not EXPLODES.

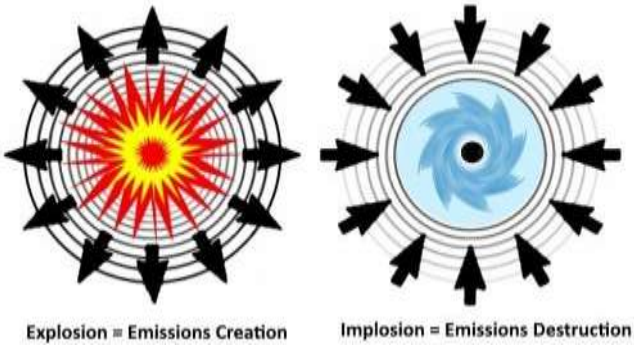


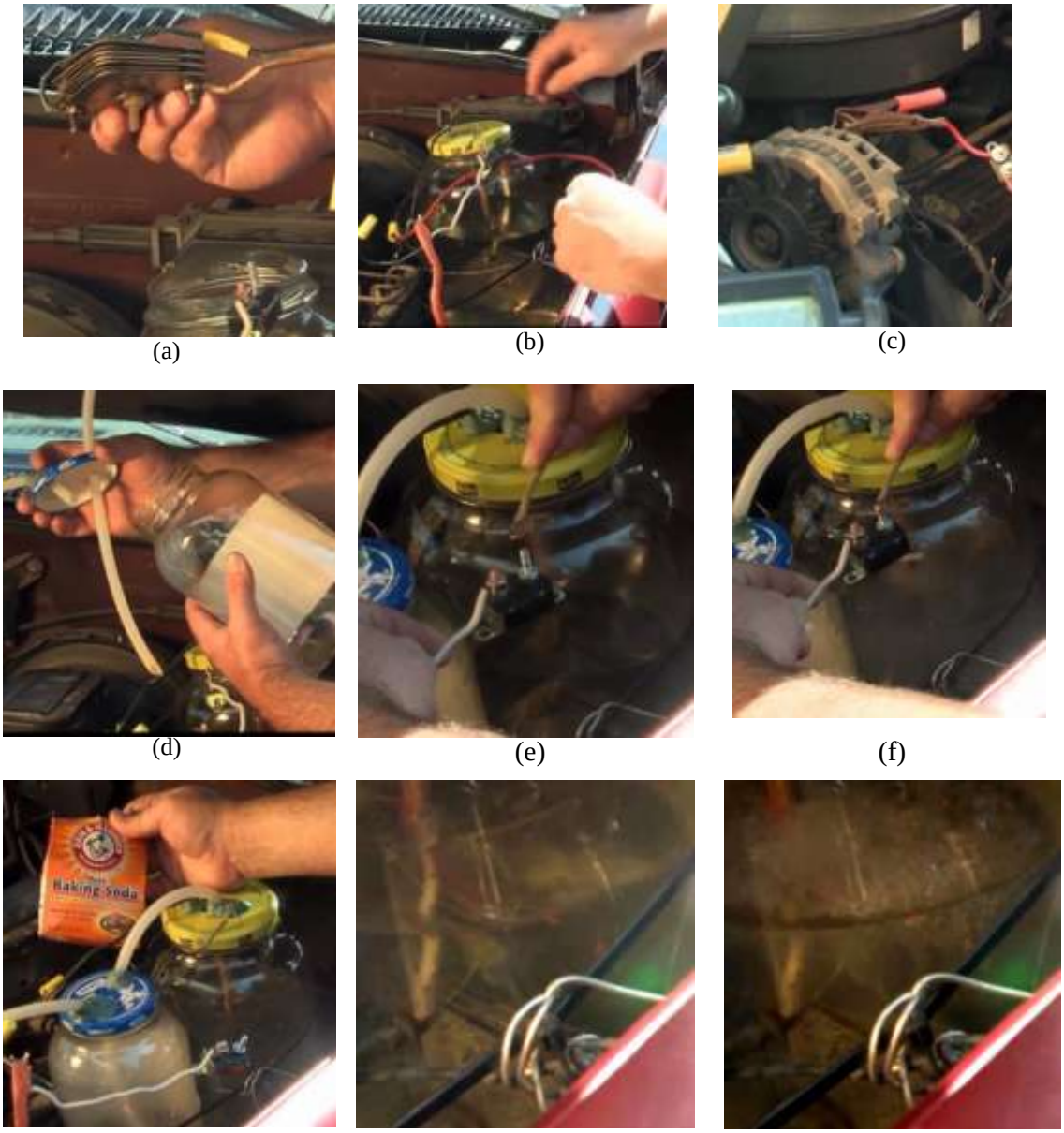
FIG.15 Usual exothermal explosion reaction vs Implosion of the Brown's Gas HHO exothermal reaction

There are also many unusual properties that we do not need to talk about in this paper but the use of the HHO gas wherever it exists burners, in industry, engines, turbines or others.

5.2 An American car experiment

Being educated in a free world, most of the creative civil Americans have discovered and tested in they own garages, laboratories or homes many interesting useful devices aimed at having an easier life.

We will let you know how the HHO is used by one of the Americans whose YouTube video ishas had 4M views since 2011[10]. We find it attractive to present it in this paper, because he tested the home made HHO generator which works on his car for 20000 miles.



(a) (b) (c)

(d) (e) (f)

(g) (h) (i)

FIG.16 An American car test | You Tube Metalpress TV (a) The stainless steel water electrolyser, (b) The water bottle + electrolyser, (c) Power at the alternator (25Amp), (d) Safety bottle, (e) 0 A, No HHO production, (f) 25A, HHO production, (g) Add 1-2g of Baking soda, (h) Before HHO production, (i) DuringHHO production

(a) (b)

FIG.17. An American car test | You Tube Metalpress TV (a) The pictures of the tested car, (b) Water coming out from the exhaust

The HHO generator is powered by the car alternator at 25A, and the HHO gas is conducted to the input of the air in the engine, right after the air filter. All the connections are well done inorder to avoid any leaks. The second bottle is done in order to create a hydrogen gas protection.

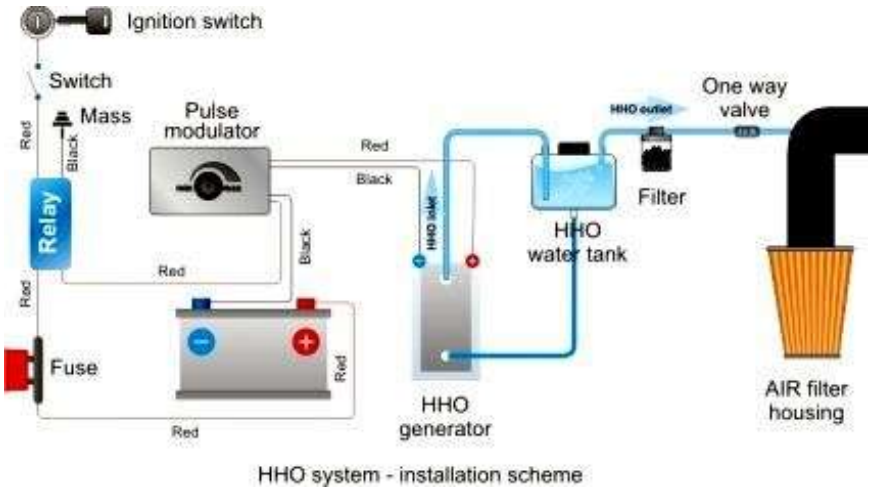


FIG.18 A scheme of the car HHO generator[11]:

We really appreciate the effort of doing the video and the fact that he shared it with everybody. The final of the video is relevant: *"[…] We hope that you will take advantage of it. Thanks for watching"*. We, the watchers, need to thank this American, so: Thank you!

Common HHO devices used for the piston engine generate 75% less harmful gas emission and reduce the engine fuel consumption by 20-30%. The commercial cost is up to 3-700Euro/car.

We found the HHO gas being a very powerful alternative to the actual polluting fuels. Therefore, we strongly believe that the transition from the actual piston engine cars to the future hydrogen cars is represented by the HHO devices.

6. CONCLUSION

Human society's behavior has proven to be very destructive for the Society itself. The old philosophy used to dominate other peoples or nations has not been evolved for 3000 years but the way to put into practice that old philosophy is changing when related to the existing technology. Therefore, the main goal of the Human Society's evolution is not simply to develop highly advanced technology, but to develop highly advanced technology guided by highly advanced moral and individual, group and nation awareness. It is obvious that awareness should be developed based on high spirituality, not high materiality. We are first spiritual beings, and secondly material.

The highly advanced Coanda Effect vacuum thrust, the circular wing, the Coanda pipeline transport, the implosion water engine, the water compressibility gun, cannon or missiles, the HHO generators for cars, truck, ships or trains represent some of the available technologies that have been intentionally avoided for many decades in order to maintaineconomic, political and military control over the nations.

The Human society's industry turns out to be very destructive for the Environment starting150 years ago. Now, suddenly Humankind has discovered, or has been helped to discover, that it is hurting itself with its own self destructive philosophy of life and society and with its way of living, including existing technology and industry.

Therefore, in the last years the political trend is to find solutions to reduce de CO2 emissions and more. For transportation the main alternative future solution till now has been considered to be the electric battery engines for cars, trucks, trains, ships, airplanes etc

We, and many others, consider that Hydrogen represents the alternative fuel that we need. Hydrogen fuel represents not only the liquid hydrogen that needs special ways to be used, but also the compressed hydrogen as a gas, because it represents the easiest way to produce, store and use hydrogen. HHO may become an alternative that should be taken into consideration.

We recommend to all the local public administrations of the polluted towns and cities financially sustain the production and adaptation of the HHO devices for all the cars that run inside their cities. It seems to be the cheapest and most effective technical solution that is available in order to reduce town's pollution.

We also recommend the military defense industry to start to use water compressibility as part of the systems which will shoot down hypersonic missiles for self protection.

We recommend start using the transport systems having no propulsion systems inside but outside the main transportation duct or pipeline.

All the technologies that were shown in the present paper are sustainable, with no polluting effect on the Environment (gas, noise, explosions), low cost, already successfully tested in experiments, unusually related to the actual technology that we already know and accept.

Let's use them all!

REFERENCES

[1] ***The paper was presented at the 23 rd edition of the International Conference AFASES, 2022 at Aeronautical and Atmospheric Sciences Conference, program position no 10, Friday 27 May 2022, h16.00, ROOM F-E3.11;
[2] ***The paper called "The current Henri Coanda" was never presented because it was supposed to be presented as Keynote Speakers, but it was later announced to be on the section Aeronautical and Atmospheric Sciences Conference, program position no 11;
[3] I. Iachovachi, I. Cojocaru, Henri Coanda, *Editura Stiintifica si Enciclopedica*, Bucharest 1983;
[4] Henri Coanda, patents no: FR796843/1935, RO24690/1936, GB466959/1936, CH210708/1936, US2108652/1936;
[5] ***National Romanian Aviation Museum-MapN Coanda collection, Henri Coanda NGO archive
[6] ***photo INCREST, via personal archive of Mircea Dan IONESCU engineer (left side);
[7] G. Constantinescu, M.Marinescu, Teoria Sonicitatii, *Editura Academiei RSR* , Bucharest 1985;
[8] ***British Pathe, Constantinesco Sonic Factory 1920-1925 https://www.britishpathe.com/video/constantinesco-sonic-factory/query/sonics;
[9] ***Professor Yull Brown affirmation and images about HHO gas (Brown's Gas) comes from https://yullbrownsgas.com;
[10] ***Metalpress TV, Vacuum Pressure Hydrogen fuel cell defeats high gas prices using hydrogen from H2O. https://youtu.be/wxfo-w0ptEo | 4M views, Apr 06 2011;
[11] ***Image comes from http://www.unionkaric.rs/en/hho_system.html.