

# : IUFOPRA UFO NEWSLETTER :

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Welcome to this first issue of the New Year. Looking back on 2001 it was certainly a year that everyone will never forget. The horrific events of September 11 brought home to us just how fragile and weak we are as human beings and most importantly, how precious life itself is? It affected every single one of us in our own way - who can ever forget the horror that unfolded on our TV screens on that fatal day. As we start a New Year I hope and pray that it will be a year of LOVE, PEACE AND FORGIVENESS for the World and that the terrible hatred which we have seen this past year will subside. My hope is that warring Nations will now live in Peace and Harmony with each other and instead of embracing weapons of war they will embrace Peace and Joy- Peace is fragile at this time but it can make a difference to a broken world.

On a personal note I suffered a bereavement during the summer - I lost my beloved mother on June 27th last and I would very much like to take the opportunity to thank each and everyone of our colleagues and friends who sympathized with me at this very difficult time. My heartfelt gratitude and thanks especially to Paddy our Chief Director and to Kathy, our P.R.O. For their love, support and help to me at this time. It was all so deeply appreciated by me at this time- your support helped me a lot and made my loss a little easier to bear. On Behalf of myself Kathy and Paddy, I wish you all a New Year of Joy and Peace, health and happiness. To a New Beginning and to New Challenges - may we face them with courage? In this issue, we start a new series on HUMANOID CASES FROM AROUND THE WORLD -1993. Our Colleague Albert Rosales in Florida who has recently initiated a data exchange with IUFOPRA compiled this in-depth article. We would very much like to thank Albert for allowing us to reproduce his article here. This issue looks at "UFOLOGY AS MODERN-DAY MAN'S CULTURAL ZONE OF THINKING by Sergey N.Volkov - President of the Logos Association - Russia.

Before I close, please note that our Paranormal Club of Ireland has now changed URL to [http://uk.groups.yahoo.com/local/clubs\\_pre.html](http://uk.groups.yahoo.com/local/clubs_pre.html)

Till next issue, Enjoy.

Anne.

## WHAT ARE THE FLYING TRIANGLES?

Letter writer Nick Spall described what he saw from Cornwall at about 10pm on August 10, 1999. The triangular-shaped formation moved from north to south passed the star Altair.

"With the naked eye the formation appeared as one object", Spall wrote. However, "through binoculars (7X50) the group was resolved into three steady pinpoints travelling together in formation".

A second letter from A.R. Thompson in Surrey echoed the first account.

"On 4th September 1999 I was sitting in my garden enjoying the cool of late evening", he wrote, "when I noticed three satellites apparently moving in a triangular 'formation'... I have never witnessed satellites moving in the same direction and maintaining the same position relative to one another".

He described the lights as about stellar magnitude 4, dim, but easily seen in a dark, clear sky. Thompson reported he first noticed them at about 21:59 as they moved downwards into the constellation of Pegasus.

"The 'triangle' was about 2 degrees by 3 degrees isosceles. They took between one and two minutes to pass through Pegasus, before fading".

Triangles or triplets?

The two Englishmen had not been alone in being perplexed by "flying triangles" in the sky, but when the unearthly answer was eventually found, it promised to also account for many other such reports.

The November/December 1999 issue of Skyviews, edited by Canadian amateur astronomy guru Terence Dickinson, contained this amazing account: "On three consecutive nights during the Starfest star party in August 1996, a formation of 3 unblinking star like objects in a flattened triangular configuration was seen cruising across the star fields by dozens of observers. Veteran stargazers at the meeting had never seen anything like it".

Consultations with amateur satellite-watchers soon identified the sighting as another "NOSS triplet" formation. Computer predictions based on known orbits showed the man-made space objects had indeed been passing overhead at the time of the sightings.

Nevertheless, what kind of explanation was that, really? First, what on earth - or off earth-is "NOSS"?

Three Watching Eyes

This space project is so secret that even its official name remains a topic of debate, so observers dubbed it the "Naval Ocean Surveillance System", or NOSS.

The U.S. currently operates three sets of spy satellites, launched consecutively in 1990, 91, and 96. These satellites orbit pole-to-pole in groups of three at an altitude of 1,100 kilometres, monitoring the position, speed, and direction of all military ships at sea by detecting radio and radar signals and then triangulating the point of origin...

The components of the trio orbit separately under Newton's Laws, and are not technically "in formation". However, their orbits are planned to crisscross during every circuit, being widest apart over ocean areas of greatest interest.

The project's Top Secret name is reportedly "Parcae", the Roman name for the three sombre, all-seeing goddesses who observe human activity and determine justice for individuals. If so, perhaps they call the satellites "Clotho", "Lachesis" and "Atropos" at the top secret Parcae "mission control centre".

The visible secret.

In the case of the two English observers, Ed Cameron, an amateur astronomer in central Texas, found the precise answer - NOSS satellites flying overhead at the time and same direction as in their reports.

Spall had seen what Cameron calls "the NOSS 2-3 trio", and Thompson had been observing "the NOSS 2-2 trio".

Amateur space watchers have known about these objects for a long time. However, there was some debate whether the satellites would be visible to the naked eye. Professor Brian Hunter of Queen's University in Kingston, Ontario has photographed NOSS 2-2 passing through the constellation Lyra in late 1997.

"This pass was seen [with the] naked eye by many in the North-eastern US", he noted when posting the image to the Internet.

Other eyewitness accounts.

Also online, a Kansas amateur astronomer calling himself "Stosh" reported the trios "can be seen easily, and I can attest".

"Stosh" provided details. "While looking for meteors on the morning of the '99 Leonids, my 7 year old daughter picked them out, pointed them to me, and even my old eyes caught them right away", he reported. "I'd say there were at least 4 magnitude."

He added that there were several reports of others seeing them that morning.

In addition, Daniel Deak of Drummondville, Quebec, chimed in, calling naked-eye NOSS sightings "not speculation but...fact".

I saw NOSS 2-2 trio with three other people last April when the Moon was in the sky," he noted. "They were at magnitude 3.5. So very easy to see - in relatively dark skies."

NOSS/Parcae sightings probably do not account for very many of the flood of "triangle UFO" sightings. The lights are dim, are visible only for an hour or so before, and move in straight lines across the sky.

Still, the phenomenon underscores the richness of prosaic visual stimuli out there waiting to mislead naïve observers, and so would-be researchers, should do well to rule NOSS out as an explanation before leaping to conclusions.

Satellites are not just steady points of light-they can flash and can travel "in formation". They can emit clouds of fuel or wastewater or even sport visible thread-like feathers.

CREDITS: PHILLIP SIMON ELLIOTT CO-ORDINATOR FOR IFON UK.

We would like to thank our friend and college Peter Cliffe of IFON UK for allowing us to reproduce the above article, which appeared in ISSUE NO 21 of the IFON UK NEWSLETTER.

#### 1996 Humanoid Cases by Albert Rosales

Worldwide Encounters: Chupacabra mania enveloped parts of South America and the Caribbean. A bizarre cryptic creature, unfortunately named "The Chupacabra" seemed to have been active in different locations in South and Central America. The Connection between UFOs and this strange humanoid was obvious in many encounters. Bizarre animal mutilations were attributed to this humanoid. Another strange creature created havoc and spread panic in India during the summer. Landings of strange objects, encounters with other types of humanoids and bizarre abductions stories were reported from many different locations worldwide. Even a Moth man type creature was reported in the state of Washington. During the fall, the occupied Arab territories in Israel became the scene of bizarre and numerous encounters, without precedence. High Strangeness spread throughout the Holy Land like wildfire. 1996 became a landmark year; it was the biggest humanoid wave since the memorable year of 1989.

1.  
Location. Anapa, Black Sea, Russia  
Date:1996           Time: daytime

B.Borovikov was hunting sharks in the area and on that particular day had descended to a depth of eight meters. He then saw giant beings rising up from below. He described them as milky white, but with humanoid faces, and something like fish tails. The being ahead of its companions noticed Borovikov, and stopped. It had giant bulging eyes. Two others joined him. The first one waved a membrane hand at the diver, and then all of them approached him and stopped a short distance away. Then they turned around and swan away.

HC addition # 3511  
Source: Paul Stonehill

Type:E

2.

Location. Near Bananeiras, Brazil  
Date:1996 Time: evening

A local farmer saw on top of a large high rock a large bowl-shaped craft. Inside the object, he saw three short men-like figures that seemed to be moving around, at times walking in and out of the object. After a few minutes, the witness left.

HC addition # 3656  
Souce: CPB UFO

Type

3.

Location. Near Tijucas Brazil  
Date: 1996 Time: 1900

Driving late at night on Route BR-101 near a local bridge, Maria Marlene Carvalho, 27, saw a light in the distance and felt the car suddenly being pulled towards it. The vehicle began to shake, and she lost total control of as the car slowed to a crawl. Marlene suddenly found herself on a wooded hill surrounded by trees. A tall dark skinned humanoid figure suddenly appeared in front of her. In a deep grave voice, the creature introduced itself as "Dakon". The tall humanoid had large green glowing eyes. She seemed to black out and her next recollection was of walking into a police station near the capital. Police later searched the area but were unable to find anything.

HC addendum  
Source:Diario Catarinese

Type:G

4.

Location. Cubuy, Puerto Rico  
Date:1996 Time: night

A man named Argelio, reported that during almost a whole month, at night, he would hear a loud motor-engine like the sound of a car revving up. Then he would see an object surrounded with lights land on a nearby field. Three short humanoids, with large heads and huge shiny eyes would exit the object and walk over to an abandoned hangar where he slept. The little beings would then open the door, go inside, and stare at him. At times, he would hide but they would still find him. Once he boarded up the hangar but the little men could still stare at him the cracks and openings. The witness refused to divulge any further information for fear of ridicule.

HC addition # 3551  
Source: Orlando Pla, Lucy Guzman, Edwin Fontanez UFOPR,

Type:B

5.

Location. Spokane, Washington  
Date:1996 Time:2330

A lone witness spotted a gigantic winged creature flying over the area. The winged creature descended and ascended at a leisurely pace. She watched it, stunned as it flew quickly away towards Canada.

HC addition # 3311  
Source: Contacto #2, 10-98

Type: E

6.

Location. Miami, Florida

Date:1996 Time: midnight

The witness was sitting on her couch when she became aware of a small rectangle of light that came in through the closed window, rotating as it moved towards her, edgewise. As she looked into the rectangle, she knew that she was somehow looking into another universe. Suddenly from out of the rectangle sprang a being dressed in a bronze or amber suit, wearing a tight helmet. Although she was unable to recall any facial features, she did remember the being's eyes, which were huge and looked directly into hers as it bent over her. She was terrified and unable to move. When she became conscious of her surroundings again it 0530A.

HC addition # 3519

Source: Miami Skyscan

Type: E

7.

Location. Near Tarbrax Scotland

Date:1996 Time: night

Two men driving on the remote A70 road were traveling near the village and observed near a bend on the road a large silver disc-shaped object hovering above them on the road ahead. As they slowed down, they became dizzy and eventually seemed to pass by and under the object. They fell into some kind of a trance state. When they arrived at their destination, they noticed they had lost almost two hours of time. They only had vague memories of being taken on board the object by unidentified humanoids, experimented on and then returned to their vehicle.

HC addition #3883

Source: UFO Scotland

Type: G

8.

Location. Miami, Florida

Date: early 1996 Time: late night

A young boy reported being visited always late at night by several gray short humanoids with large heads and huge black eyes. The beings apparently inserted some type of implant. Bloody noses and other physical ailments followed the encounters. X-rays indicated some type of anomalous mass in the brain area. No other information.

HC addition # 2452

Source: Hank Worbetz

Type: E

9.

Location. Zacapa, Guatemala

Date: January 1996 Time: 0100A

Twice, cattleman Vincente Sosa reported seeing a strange bipedal hairy creature with a very long tail. One time it stood in front of the witness staring at him with large glowing red eyes. It was apparently winged. Others saw a flying creature shiny black in colour with bat-like wings and sky blue eyes. Shots were fired at the creature without apparent effect. A wave of animal mutilations was occurring in the area at the same time.

HC addition # 2566

Source: Jorge Martin Evidencia OVNI # 12

Type: E

10.

Location. Near Bishop California

Date: January 1996 Time: night

On two occasions a group of men driving a pick-up truck on an isolated road near their ranch, spotted a small green coloured humanoid figure that had the ability to float in mid-air, and hover over the entire roadway in front of the approaching vehicle. The driver of the vehicle attempted to chase the entity, but it was unable to come near it, as the small figure flew away at incredible speed.

HC addition # 2240

Source: Rick Grootveldt, Skip Richards

Type:E

11.

Location. Monte Carmelo, Vieques Island Puerto Rico

Date: January 1996

Time: 0400A

Several youngsters returning home in a residential area observed a huge bright light quickly approaching in their direction. To the five witnesses it looked as if the "sky had just opened". As the object descended, they could see that it was a domed disc-shaped craft encased in a reddish foggy glow. It was emitting bright flashes of light and a high frequency humming sound. The craft also had a dome on its bottom and in the centre area multi-coloured lights rotated. Suddenly the craft divided itself in two and one section remained and tilted to one side and flew off towards the west. Before it left, it hovered 300 feet away from the house of two adult witnesses, Carmelo Felix and his wife Maria, that were able to see the upper transparent cupola and inside of it they could see multi-coloured flashes of light, plus what appeared to be the constant movement of a shadowy figure.

HC addendum

Source:Jorge Martin, Vieques Poligono del tercer Tipo

Type:A

12.

Location. Campo Rico, Puerto Rico

Date: January 4 1996

Time:1900

Madeline Tolentino was driving with her 2-year-old son in her Isuzu Trooper, with the windows rolled down. They were on Route 185 near a horse track called El Commandante when she suddenly smelled something pungent, like sulphur, which irritated her throat. She kept driving and suddenly saw a creature with red eyes emitting a red light or beam from its eyes. It ran across the road in front of the car and disappeared. Very frightened she returned home to tell her husband who came to the area but only smelled the strong odour and did not see the creature.

HC addition #2807

Source: Chat Deetken

Type:E

13.

Location. Canovanas, Puerto Rico

Date: January 8 1996

Time: night

Around the same time that a pair of sheep had been killed on a nearby farm, Jose Febo encountered a bizarre creature resting on a tamarind tree. It reportedly had pointed ears, a strange profile, and a shaven head. When it noticed Febo, it jumped off the tree and ran "like a gazelle".

HC addition # 3283

Source: Scott Corrales, Chupacabras, and other Mysteries

Type E.

14.

Location. Jardim Andere, Varginha, Brazil

Date: January 20 1996

Time:0800A

Hildo Lucio Galindo opened his bathroom window to see a creature with oily dark brown skin crouched in a nearby alleyway. It had very small hands with three extremely long fingers, ran away when Hildo cried out. The creature had no hair or clothing and was about 4-5feet tall. Later several calls came into the local fire department about some "wild animal" on the loose in the northern area of the park. When the fire department arrived, they found the military already on the scene. According to other witness, some children had thrown stones at a strange creature that emitted a soft buzzing sound like a bee. This creature was apparently captured and transported away by an army truck. Around the same time, local residents heard three shots and saw soldiers come out of the woods carrying two campaign sacks. One motionless, the other moving.

Sources revealed that the soldiers had shot the creature in the chest and it had died instantly. Others saw army trucks near the woods and others saw two F-5 aircraft moving at a low altitude over the area. It was reported that eight creatures were captured at the time. One dead, two injured, and five unhurt and living. Earlier that same day, around 0130A two farm workers in the same general area had spotted a group of agitated animals running away from a location, upon closer investigation they saw a grey metallic submarine shaped craft that appeared to be trembling like a curtain and emitting smoke or fog as it descended to at least 5 metres above the ground. Military witnesses later admitted that it had crashed.

HC addition # 2795

Source: Ubirajara Franco Rodrigues

Type:H

15

Location. Varginha, Brazil

Date: January 20 1996

Time: 1300

Three girls were walking past a plot of land when they spotted a bizarre looking creature, described as man-like but only about 80cm tall. It had brown skin, bulging red eyes, bulging veins, enormous feet, and three protruding lumps on its head. The girls panicked and ran away from the area to find additional witnesses. Soon units of the local fire department arrived and apparently took the creature into custody. Apparently, a similar creature had been captured earlier. The creature emitted a strange buzzing like sound. Others saw strange cigar-shaped objects flying low over a field. Later the military apparently took the creature to the nearby city of Campinas.

HC addition # 2373

Source: Brazilian UFO Report #6

Type: D

16

Location. Chandler, Arizona

Date: January 28 1996

Time: late night

A woman reported a visitation by unidentified "aliens" into her bedroom, which apparently examined her. The next morning she awoke with bizarre scars and other anomalies on her body. No other information.

HC addition # 2342

Source: NUFORC

Type:E

17.

Location. Near Romatambo Peru

Date: January 31 1996

Time: 0800A

At a remote mountain village, several Quechua Indian shepherds tending their flocks watched six objects flying over the area. According to witness, Silvia Bedoya, 40, the objects apparently emerged from nearby Lake Coccocha. The objects formed what seemed a protective circle around a larger mother-ship type object. The flight of the objects illuminated the whole valley in an eerie deep purple type of light. The "mother ship" landed upriver from the village. Soon two occupants emerged from the object. These were described as 3 feet, 3 inches tall, with large over sized heads, long spindly arms and short bandy legs. They wore gunmetal grey helmets and matching one-piece coveralls. The humanoids took out transparent containers and, ignoring the shepherds, collected many samples, like soil, grass, mountain weeds, and water from the nearby river. Soon the humanoids entered the large object and all the objects shot away into space at high speed.

HC addition # 2472

Source: UFO Roundup Vol. 1 #15

Type B

TO BE CONTINUED IN THE NEXT ISSUE.

New Gemini Observatory Begins Operations

One of the world's most powerful telescopes has begun operations on the summit of a remote Chilean mountain. The Gemini South, which is an identical twin to the Gemini North in Hawaii, uses an 8-metre mirror to gather images with the 10x the power of the Hubble Telescope. This new Gemini observatory also uses an adaptive optics system to compensate for the distortions of the Earth's atmosphere to produce images as sharp as if they were taken from space.

Original Source: Gemini News Release

Other Coverage: BBC News - Cosmiverse -SPACE.com

Similar Stories: Observatories

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#### UFO SIGHTING OVER DUBLIN ON NEW YEAR'S EVE.

Our first UFO sighting report arrived to us on Tuesday January 8.

The witness is a young woman from West Dublin. The witness reported to us that at approximately 11.55h she was in a conservatory at the back of her house in Lucan Co Dublin, facing south. It was a clear night and she was looking upwards at what she can only describe as a round, amber/orange object heading across the sky in a northerly direction...She went outside to have a better look, there was no sound, and it was definitely not in any usual flight path... It was moving at a steady speed, some distance away she could not be sure as it was too far away to see any detail. It was extraordinary and the like of which she had never seen before in her life. It was nothing like a plane in the night sky, no flashing lights, just a soft amber glow.

Investigation has begun into this sighting and we are waiting for the witness to return our sighting form. Any further details and updates will be published in future issues of the newsletter on completion of this case.

#### UFOlogy as Modern Man's Cultural Zone of Thinking By Sergey N. Volkov.

The problems of understanding ethic norms of good and evil find their place in modern non-orthodox scientific trends dealing with the study's of man's ulterior psychic abilities, the phenomenon of contacts with unfamiliar sources of information, the investigations of psycho-kinetic phenomena, etc. These subjects include bionergic information science, etiology, UFOlogy, and some others. UFOlogy might be considered the most rational in terms of critical estimation of anomalies taking place in the world of phenomena.

Now it is necessary to state if this trend is scientific and striving for synthesizing knowledge and faith, i.e. combining science and religion. It is important from the point of view that the problem of good and evil become the centre of attention due to specialty given it, have transformed ancient and medieval views into modern ones. It is not worthwhile drawing any parallels between medieval demonology and modern UFOlogy. The question under study has been touched on repeatedly by representatives of near scientific disciplines (parapsychologists, extrasensoryists), and religious ministers, and paranormal phenomena researchers themselves, including UFOlogists. It is important to state which place in anomalous phenomena is determined to be the evil aspect, and to find the place for it in the universal system with the help of probable scientific approach.

The point of view of V.Azhazha is as follows; "Ufology is a scientific trend studying the genesis and the influence on the Earth's biothechnosphere and other areas of the Universe, and of the unfamiliar forms of conscious life manifesting themselves in UFO and anthropomorphosis and other phenomena connected with them". [1,p.515] At the same time, the author admits, "it is difficult today to uphold the thesis that the UFO problem is a scientific one. Moreover, it's more correct to believe that it is still a non-scientific problem, to be more precise, it hasn't been given status of a



scientific one yet...." [1, 510-511]. In connection with this, it would be probably more correct today to refer to UFOlogy as the Weltanschauung, cultural zone of thinking of a modern-day man. All methods of scientific approaches of natural science used by studying different anomalous phenomena, are based upon various metallurgies, among which there are also clearly stated materialistic ones (technogenic, biological, aspect of UFOlogy), and philosophical sceptics (criticism from the point of scientific opinions), and personal - existential (psychological psycho-therapeutic, paramedical analyses of what is going on). That is why this wide spectrum of opposite - polar view of anomalies researchers drives UFOlogy to the category of systemizing, humane disciplines, to which ethics, culture, some questions of jurisprudence and the like are closer. Probably, the place for UFOlogy in the system of scientific specializations is caused by the present moment when the very subject of UFO research is not available. The objects themselves are not available for laboratory tests. At present, UFOlogists in most cases deal with the analysis of post contact phenomena with these objects. That is why man comes into the centre of attention. To understand his place in social life after the UFO contacts have occurred, are a socio-cultural and psychological problem referring to the human branch of knowledge.

Humankind comes across many anomalous phenomena. They manifest themselves in rotational (i.e. with return) kidnapping by unidentified objects recollected later in the conscious by methods of retro-hypnosis, occasional Contactees' being under the trauma of neural-psychic and other diseases also caused by anomalous forms of some phenomena, and simply psycho-physical of people called sorcerers, shamans, witch-doctors and the like, on the everyday level of social conscience. Can one agree with the fact that humankind was programmed to suffer from such evil in life by nature? Is man to realize this ethics norm in the light of not only social but also abnormal (drawing parallel with religion, one might say, mystic) manifestation?

It is logical to suppose that evil (also like good) is a priori, i.e. primary knowledge obtained before and respective of human life experience. However, along with this, one should also take into account human conscience, which allows absorbing in it the information about mystic evil and its forms. Therefore, there appears an opportunity to refer this moral moment to a posteriori, i.e. knowledge gained from experience. UFOlogy gives an opportunity of estimating mystified evil through the present-day scientific understanding of anomalous phenomena. What does UFOlogy give in this case? Probably, competent interpretation of mystic disposition by people. No doubt, it is closer to ethics and this process contributes to forming the original cultural layer of social conscience, to which only mystics might have been referred to before. As a result, there arises not only the criticizing of evil but also of trying to understand its sense, its place in the balanced system parallel with good, and a socio-cultural role, which it is sure to play.

Hence, one should refer UFOlogy to the cultural basis of a new ripening scientific paradigm. UFOlogy is not a neo-mystic teaching, as some modern thinkers consider it to be. UFOlogy is not based on faith but it is the first stage of new knowledge. This knowledge tries to interpret some mystic conception, but it does not pretend to create its own teaching with specific dogma. UFOlogy combines a great number of scientific approaches in the analysis of anomalous phenomena. As stated above, they are physical, biological, and psychological disciplines. Therefore, it would be more rational to consider UFOlogy a cultural zone of human thinking.

One should bear in mind that UFOlogy, denying the moment of synthesizing science and mysticism on the one hand, and on the other hand unconsciously performs the same function. Some scientists speak on this topic today, admitting that this process is a necessity. V.Volchenco stresses "one needs a new general scientific paradigm, excluding the opposition of the ideal to the spiritual- material, assuming real union of science and religion. But assuming such a union one must admit to non- discrepancy of the hypotheses of "fine world" and God- Creator for scientific thinking" [4, p.1]. U. Kulakov also stresses "man's aim is to perceive the Creator's intention - His plan, His project and to collaborate with Him in improving the World in accordance with His general intention. Completeness of Being is possible only in the unity with the source

to Being". [9, p.151] Ufology has already realized the union of the ideal and the material.

If one considers other trends of non-orthodox scientific thinking, one should be the socio-cultural aspect in comparison with ufology. For instance, etiology as a scientific trend about phenomena of energy-information exchange, to M. Belgorodsky's mind, is based on "two fundamental statements". The first one may be formulated as follows: in the room taken by the planet Earth and in space, there are invisible worlds and beings of different physical essence that may be perceived by people under the etiologic effects.... The second statement is connected with the building of theodicy: the historic process in our planet is directed not only by the sun of human units' volition's - it is influenced by of different worlds..." [2, p.102-103]. In A.Dubrov and V.Pushkin's opinion parapsychology is a conceptual system "opposing natural science", an object of this specific conceptual system, which differs in essence from objects of other sciences... Mechanism of unusual phenomena.... cannot be perceived and revealed with the help of those objective methods which are usually used in traditional natural-scientific research." [5,p.7] All this testifies to the fact that the primary problem in the trends given in the mechanisms of contacts with Different Sphere of Intellect, studying it and understanding it. As for post-contacted phenomena and their influence on man's social life, it is a secondary problem. In addition, in some cases it is simply ignored.

Ufology itself is aimed at "revealing conformities to natural laws and formulating the laws of ufology's influence on the development of the biotechnosphere, and, in particular, on the stability of society's' development". [1, p.515]. Ufology is seen to be a medium from where information goes, but the source of this information is unfamiliar. From a mysticism point of view, it may be the beyond the world concepts of which are devised by UFOlogists on a scientific basis.

Hence, ufology can pretend to have a status of the cultural basis by the formation of a newly arising general-scientific paradigm today.

One fact of great interest in the scientific field is, that in ufological practice the process of investigating different concepts and systems through met logic manifests it.

The process mentioned is at the junction of human and natural scientific knowledge (in this case mathematics). However, the investigations into anomalous phenomena itself, is mostly represented by a manifestation of indeterminism, i.e. a denial of causality in general. Some ufologists are of the following opinions: UFO apparitions are the result of some natural cataclysm, social disaster, and the like, which haven't happened yet. In other words, the cause follows the effect as if it warned humankind of the coming menace. Such an approach is based upon intuition, it allows us to speak about the failure in casual relationships and is irrational.

Due to their specific features, young people studying anomalous phenomena today can find them thinking of the truth as such conclusions and concentrate solely on mysticism.

Ufology is also given the basis for the growth of Laplassovky determinism when all particles in the Universe at a given moment are considered to be determined absolute, in one way, its state at any past or future moment. Consequently, there arises fatalism, and determinism joins the faith in divine predetermination.

As for met logic, it should be noted that ufologists are especially interested in contacts of different kinds. It is pointless to give in this work a description of each type of contact, but many people known as Contac tees should give emphasis to the phenomenon of telepath tic reception of information from an unfamiliar source. Met logic manifests itself as a scientific trend in symbols, interpretation, understanding the sense of esoteric symbolism and developing the language of communication with the Unfamiliar.

Forms of Intellect exist from the point of view of ufology. Met logic has "a semantic branch" which tries to define logically the sense of symbolic forms going from the unfamiliar source of information on the telepathic level. There is no doubt that a certain progress in comparison with ancient and medieval ideas of esoteric symbols is observed here. While certain symbols of mysticism and dogmatism are stated here, like the concepts of good and evil, they become the firm essence for all adepts of this or that teaching, the modern approach defines the sense of esotericism for each contact individually. Methods of met logic are guided by primary intuitional disposition and by secondary logical conclusion.

Jacques Valle identifies the concepts of met logic in ufological practice with the concepts of "absurd". He considers that contact situations..."often include deep poetic and at the same time paradoxical peculiarities of religious sayings ("What will the sound be like of one-handed applause?")

Mystic word combinations by Kabbala such as, for example, "black flame". If you try to express certain truth lying beyond the limits of the semantic level achieved by the language of your audience you should make contradictions evident for common perception." [3.p.169] Thus, ufology contributes to changing dogmatic views of mystically thinking people o symbols, signs, geometrical figures which have esoteric sense. Putting this understanding on scientific railways, ufology "gains" additional points in favour of being considered a promising science.

Met logic to some extent can also be considered logic of esotericism. Being irrational in its essence, esotericism tries all the same to represent sequentially most of its statements. If in this sense one is guided by theological culture which doesn't contradict ufological culture, to V.Rozin's mind, "logic turned out to be a method of contemplating God, ethics marked the way of its perceiving..."[7,p.6] And while logic and ethics turned out to be the components of a united system where ufology plays the leading role, perceiving such moral Absolutes as good and evil become quite acceptable in the light of ufology.

However, touching upon the question of ethics, it is impossible to do without philosophy of culture. In this case, we deal with the process of now understanding esoteric culture. The culture itself in this context has always existed. V.Rozin characterized it quite well when he said, "At the beginning of our century esoteric culture was divided in directions. The first one - to the idea of superman, the second - to the idea of transforming the life itself, finding esoteric abilities in a usual person and in reality. The dilemma of that division is either complete, leaving every day life and culture, leaving man, or transforming "here and now" reality of man. [7,p.17] Thus, ufology forms the thinking culture of new scientific and non-scientific knowledge today.

At this stage of its development, modern ufology is likely to be capable of creating the basis for re-adaptation of mystical thinking individuals (first of all young people) in real social conditions. The demands for studying the occult sciences, mystic trends, putting into practice transcendental methods for hypnotizing and the like among the population still exists. If one takes into account that only specialists - psychologists and psychotherapists - can be engaged in such procedures and not being afraid of serious consequences, there arises a social demand for competent control of self-taught mystics' activities especially if they are young people. Ufological primary education is quite capable of forming critical attitudes to the existing natural phenomena even if their form does not correspond properly to mystified phenomena. Understanding anomalous phenomena of nature in the light of ufology is represented as a rational process, which contributes to a sober world outlook.

Today the problem is that not only ufology but also different occult-mystic communities pretending to explain anomalies. One example of this is the Keepers' Order Club working in Moscow which along with studying anomalous phenomena of nature, proposes to improve the qualification of occult science specialists, to give any magic help and so on. To clearly understand the stated mystified approach to what is going on in nature contributes to such social adaptation of man when in most cases he becomes a lost member of society.

At this stage of its development, ufology also contributes to a new understanding of metaphysics. It is enough to define the latter as "what follow physics" and many of the questions of ufology become clear. For instance, why this specialization is rich in hypotheses today. There exists a lack of empirical material, hence, philosophical metaphysics attaches to the process of interpreting. However, if in antiquity, Aristotle investigated organs of sense sources, and medieval scholastics considered it a scientific basis capable of "defending" Christian dogmata's, ufology is not inclined to see something divine in metaphysics. Metaphysics in understanding anomalous phenomena contributes rather to stating philosophical dualism and pretends to play a role of cataclysm in the process of the above-mentioned synthesis of orthodox science and mysticism. It should be noted that it is just mysticism rather than simply religion, as it is mysticism that is a wider concept including both religious dogmata's, personality's esotericism, and even philosophical irrationality. Because of this, one may come to the prior conclusion that metaphysics is transforming. This process is also emphasized in the works of some modern philosophers. For instance, in V. Kemerov's opinion, "the shift of metaphysics fixes the opportunity of existing different metaphysics, the opportunity of finding metaphysical types, not only new fields of metaphysics, but also changing its "apparatus", its organics being found: in this way it becomes to a less extent, "sightseeing" and to a greater extent understanding, interpreting, indirect explanation using when necessary scientific research and its results ". [8, p.67]

One of the aspects of philosophical understanding ufological contacts is the existential one. The existential nature is known to be non-objective. Man does not simply realize his essence but draws his existence to the level of "open possibility". Man understands that he is free in his choice, first in the spiritual one. Ufological contacts give an opportunity to draw a certain comparison of who he is and what THEY are (according to ufological concepts Different Forms of Conscious life are meant). "The existential in general and postulated existential types deal with the sphere of fundamental human freedom". [12,p.3] One often hears sayings, such as: "Mankind is weak in comparison with extraterrestrial Intellect" or "People must not interfere with aliens' activity as it is they who study us and, hence, they are masters of the planet" and so on. The Existential approach to the problem given that it can dethrone these sayings. Keeping in mind man's understanding freedom of choice one may state that man has the right to decide and answer for his deeds. It is man's moral right to carry well or evil or not. Man can give life to a new intellectual being - to bear a child, he can also take somebody's life having committed a crime. Man is free and if one even speaks of some fatality of his, it does not influence momentary inclination and instantaneous actions of a human being. Psyche, an equivalent concept to soul, subordinated to create the origin, which exists in each person. It is predetermined by nature. Momentary impulse to action determines positive or negative deeds.

Having marked the turning point in the scientific - like understanding of Different Worlds and possible intellectual beings inhabiting it, ufology contributes to revealing different sociocultural organization of such beings. Investigating all possible post-contact phenomena, modern ufologists open a certain programme according to which probable aliens act. Their way of exiting radically differs from our human Earth one as it undermines the necessity to be subordinate to concrete tasks given either by nature or by, unknown to humankind its Spiritual Creator. In the cultural aspect, a modern ufologist can be identified with a medieval demonologist. However, it is reasonable to stress that the latter had no aim of interpreting the nature of demonic beings from the scientific point of view, using a rational apparatus. Even metaphysical concepts did not find their place in understanding what humankind came across. As was mentioned above, ufology uses traditional, rational, and non-traditional irrational approaches in explaining unreal worlds. Continuing from the comparison of human nature and unfamiliar life forms of nature, even on the common-practical level of conscience one makes about the conclusions as to what man -Homo sapiens - is. Ufology draws us to understanding the human being's essence, lays the foundation for further natural-scientific, estimating personal I of a human being. It is in comparison with those who are likely to visit our phenomenal world. Through the

existential approach, man realizes his essence. V.Yankov remarks, "I call it existential man's ability to identify himself with something so that his basis of being become definite. I mean man's deep self -understanding which usually doesn't come to conscious manifestation, but is expressed in the very character of his activities as the basis, as real being's strength. Man's self-understanding is a part of his fundamental world picture...." [12,p.3]

It is quite possible to ask the following question: What if ufology is a false scientific trend and the contacts with Different Worlds is the essence of a manifestation of uninvestigated psychic process of the very simple man? The answer which may be given, first, marks all the human history when the cultural layers of mysticism has been constantly finding its place and thinkers of different epochs have been realizing their efforts of "studying" the different Worlds. It cannot be a simple chance but rather a necessity and probably a certain reality standing behind it. Second, even in the case of phenomena unreality of what ufology tries to understand, there certainly exists nominal reality also connected with the concealed psychic process of man. But if one treats it only as a sphere of medical research, who will have the responsibility of investigating the following social moment coming from the new understanding of man's essence? Ufology takes the burden of such problems.

G.Kunitsin remarks that "one of man's life paradoxes is the fact that they turn their attention to the problems which are the most important for the genus - "human beings", too late...If one pays attention to society and culture itself, here it is the same: man has now entered the a new era of Space and Astronomy and has found great delight in books, articles and talks...Having gone beyond cosmologic conscience, this is the true testimony of the fact that such an individual doesn't yet fail to think seriously as to what is purpose as a representative of the genus "human beings" is. [10,p.3-4] Ufology is a universal means of realizing the change in understanding ethics - the categories of good and evil, from the mystic state to the social state. Early mystic concepts attempted to absolutes these Origins.

Trying to characterize anomalous phenomena, ufology primarily refers to understanding good and evil in mystic interpretation. It is important to define the primary nature of these categories. For the second time ufology transfers the post-contact problem to socium and refers to the questions of social adaptation of people who suffered a contact. At the same time, from ufology's point of view many social problems are the sequences of manifesting different anomalies. Little in terms of collection time (during the last few years), but quite competent in terms of qualitative analysis, statistical material concerning for example UFO apparition and the following natural technological and social cataclysms makes it possible for ufology to declare as to what is the cause of good and evil manifestation in the material world coming from the unreal world which is defined as fine material, nominal, etc. Hence, Nature of Good and Evil becomes scientifically grounded. One may almost for sure to state the fact that in the long run in the methodology light ufology strives for idealistic trends of scientific knowledge, being based on dualistic concepts.

One of the most interesting aspects connected with forming ufology as a scientific discipline is the process of natural-scientific substantiation of morality. Taking into consideration both psychological and philosophical factors influencing morality substantiation and technogenic ones, ufology creates the model of "widening conscience" which, in A.Gorelov's opinion"...also has evident ecological knowledge that makes it possible to speak about widening conscience in "deep ecology", [4,p.173]. It would be appropriate here to speak about the ecology of man's conscience. Drawing parallels in comparison to the behaviour of probable aliens from Different Worlds, and judging from the attitude of humankind itself, to what exists beyond our phenomena. The result of this is a new model of moral social conscience, which, in turn, refers to people's problems of being.

It is known from history that the ideal-theoretical level of moral conscience is determined by morality. Morality in this or that society resulted in social structure reigning in it. So, for example, in antiquity, morals of a master and a slave were

strictly discriminated, in the Middle Ages morality of knighthood was a guarantee of human dignity, later there appeared bourgeois morality of hoarding and social prosperity, etc. Nowadays mankind faces the dilemma: to choose moral principles originating from the basis of social life or, to understand deeply new cosmological doctrines, to choose his life's moral structures which is appropriate to all existential way and its own spiritual demands. The difficulty of such choice is in fact that the former is to be considered the most rational one, but it is also this one that makes mankind admit social brutality, severe demands to "surviving" and partly to accepting aggression towards one's neighbour. This is the real modern situation in social relationships. Therefore, the door for entering the people's world of social evil is opening. Its roots are seen especially in our understanding of ourselves as human beings.

Modern philosophers believe increasingly that social conscience still has a nature that is more difficult in its structure and origin than that which has been seen in it before. "Man's conscience formed as a planetary phenomenon, which made all of mankind a united organism where everything is connected with everything (and everybody with one another) became an integral part of the world being, having Manifested itself as a phenomenon of the cosmic order. The man who begins to realize his connection with a space medium understands more and more that he himself was given birth to, not only by the Earth nature but also by a lot of effort on the part of all the Universe which he is joined to by his being. Until life itself realizes it cannot make an independent choice, man's conscious, which lets man choose for himself, also created the prerequisite for an opportunity of this or that choice. The conscious choice, in its turn, means responsibility. And man who realizes that he is a space being is reaching the conclusion: what is made by him, how he acts, drive him to a definite relationship with all the world as a whole". [11,p.7-8]. Arising from this understanding of such nature as man's conscience, there arises a necessity to reveal a certain cosmic mechanism even with the ethical relations of man where the basic categories are good and evil. It may also speak of the so-called ethics phenomenon at this stage.

The foundations of such ethics are found in ancient mystic teachings. Buddhism, and the philosophy of later Thinkers such as Teilhard de Chardin, and those of the Russian Cosmic School are also based upon them. In modern-day understanding, such a trend must connect man's place in the world with his conscience ecology. Opposition to everlasting Good and Evil as an absolute idea would probably find its scientific substantiation in the frame of understanding cosmic ethics.

Finally ufology is the cause of understanding all formations of scientific knowledge gradually dying. "On the one hand, it had divided into "para-scientific", "pre-scientific", "pseudo-scientific", "anti-scientific", "over-scientific", etc. On the other hand, any form of knowledge in connection with the activity, on its production has become a specific", a universal (within the limits of some universal community) types of cognitive and even a wider-spiritual attitude to the world". [6,p.14]

Understanding ufology as a subculture of scientific thinking corresponds quite well to its orientations. So, one can say for sure that, like any other subculture form, ufological knowledge doesn't contradict the process of normal developed scientific thinking culture in general. It may necessary be a matter of time before ufology appears on the scientific stage as a naturally determined process. As Yu. Kulakov remarks, today, on the eve of 21-st century it is becoming clear to many people that the time and resources of opposing Science and Religion have been exhausted. Nowadays their union is fast becoming a strict demand and the first step on the way to this is to admit the fact that science is not the only source of our knowledge about the World, and that experience, knowledge, spiritual insight and spiritual experience are a united process of our understanding of the World".

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We would like to thank the author for permission to reproduce the above article. Apologies for any spelling or grammatical errors, which have resulted from a literal translation into English by the author.

## SPACE MEDICINE

Space medicine is the branch of medicine involved in protecting human beings from the environment of space, and at the same time, studying their reactions to that environment. The foundations of space medicine can be traced back to aviation medicine, and the term aerospace medicine has evolved to encompass activity in both areas. Aerospace medicine has been a certified subspecialty of the American Board of Preventive Medicine since 1953. In addition to physicians, however, engineers, veterinarians, dentists, nurses, physiologists, psychologists, bacteriologists, toxicologists, pharmacologists and biochemists also work in the field of space medicine. Specialists in space medicine are involved in all aspects of space flight, from spacecraft design and crew selection to flight operations and post flight review.

## EARLY HISTORY

The early history of space flight was characterized by deep concern on the part of many scientists that humans would not be able to withstand the rigors of space flight, especially during launch and re-entry, and might not be able to function usefully in space. As a result of this concern, the United States flew a number of monkeys aboard captured German V-2 rockets between 1948 and 1952. These early flights provided some launch and re-entry data on comparable life forms and demonstrated the need for effective and reliable LIFE SUPPORT SYSTEMS. Between 1949 and 1956 the Soviet Union flew 15 similar flights using dogs, some flights reaching an altitude of 213 km (132 mi). A dog named LAIKA was then launched aboard SPUTNIK 2 on November 3rd 1957, and orbited the for seven days until she was finally euthanised. Between 1958 and 1961 the United States flew monkeys in several sub-orbital and orbital missions. These flights showed that pulse and respiration rates, blood pressure, and performance of specific tasks for which the monkeys had been trained were basically unaffected by space flight.

On April 12th 1961, the Soviet cosmonaut Yuri GAGARIN demonstrated for the first time that human beings could safely orbit the Earth. His flight confirmed a U.S. decision to use humans rather than animals on succeeding space flights. The U.S. program proceeded cautiously, however, by gradually increasing the exposure time of humans in space and by carefully reviewing the effects of each flight.

The six U.S. astronauts who flew on Project Mercury between May 1961 and May 1963 returned in good health, and as a result, many of the earlier medical concerns about space flight were dispelled.

## ENVIRONMENTAL AND PHYSIOLOGICAL EFFECTS.

The physiological functions of crews in space have been measured by a variety of means over the years, ranging from simple sensors placed on the body to monitor heart rate and respiration, to the use of techniques such as echocardiography and electroencephalography. The many thousands of hours of information thus gained on human activity in a weightless environment have proved that people can perform assigned tasks well and need suffer no permanent post flight physiological changes, even after missions lasting several months. To maintain an acceptable state of health, however, space crews do require an appropriate atmosphere, adequate food and hygiene facilities, exercise, a proper balance between work and rest periods, and sufficient time to acclimatize to space and also to the return to Earth.

## Environmental Factors

The atmosphere, pressure, and temperature of spacecraft interiors are always strictly controlled in order to avoid serious or even fatal health hazards such as explosive decompression of the craft, the onset of decompression sickness, carbon dioxide narcosis, HYPOXIA, and other such problems. All materials used in or brought aboard spacecraft are tested beforehand for potential release of toxic substances when in the spacecraft environment. As of the late 1980s, even human fatalities could be attributed to errors or malfunctions in life-support systems. Three were U.S. astronauts: Gus Grissom, Roger Chaffee, and Edward White, who died on Jan 27th, 1967, in the Apollo 1 spacecraft as the result of a fire during a ground simulation. As a result, the U.S. space program abandoned the use of a pure oxygen atmosphere during launch and ascent. A Soviet cosmonaut, Valentin Bondarenko, had died in 1960 under similar circumstances on the ground. Three cosmonauts, however -Georgy Dobrovolsky, Vladislav Volkov, and Viktor Paysayev -died in space, on June 30th, 1971, when a valve for equalizing air pressure in their Soyuz 11 spacecraft opened during descent and all their air quickly leaked out.

An important concern is the radiation encountered in space, since excessive exposure to such radiation can result in a greater likelihood of developing certain kinds of cancer. A crew's exposure to radiation depends on many factors: the type and length of the mission, the amount of shielding on the spacecraft, the relative altitude of the craft's orbit, and activity on the Sun during the period of flight.

The average skin radiation dose received on the Apollo missions ranged from 0.16 to 1.14 rads, which is less than the dose received with some diagnostic X-ray procedures. The effect of altitude is illustrated by comparing the third, 84-day U.S. Skylab mission with the 365-day mission spent aboard Mir 1 by a soviet crew. The Skylab crew received a dose of 17.85 rads to the skin, whereas on the low altitude Soviet mission crew received a dose of 10.81 rads to the skin. The career limit for radiation exposure placed on U.S. astronauts varies with age and sex, ranging from 100 rems for younger women to 400 rems for older men, but these limits may be revised sharply downward to half those amounts. (One rem roughly equals one rad, but it is a more biologically sophisticated expression of the amount of any ionising radiation absorbed by the body that is equal to one roentgen of X rays.)

Another environmental concern is that of the natural circadian (24- hour) cycle of human body rhythms. Although it is best to maintain these rhythms by keeping U.S. crews on Houston time and Russian crews on Moscow time, special space activities, such as the launching of certain satellites, requires that the crews do "a circadian shift" out of their accustomed sleep/wake cycles. To encourage their circadian rhythms to shift, U.S. crews use the "bright lights" method a few days before launch. This entails exposing themselves to bright, Sun-like fluorescent lights in their crew's quarters for several hours, followed by complete darkness, to achieve the desired sleep/wake schedule.

### Short-Term Physiological Effects.

In order to deal with the effects of increased gravity loading (g loading) during the acceleration of launch and deceleration of re-entry, crews in both U.S. and Soviet spacecraft generally have been placed so that the g loads are experienced in the chest-to-back position rather than the head-to-foot position. The human body can withstand a much higher g loading in the former mode. The g loads themselves, which have varied from 3 to 8.2 times the gravity experienced at the Earth's surface, have created no problems. In the U.S. Space Shuttle, however, crews take a re-entry decelerative force of about 1.5 g in a feet-first position, which causes blood to push toward the feet. To counteract this effect, Shuttle crews are provided with suits that produce pressure on the lower part of the body.

Physiological changes start to occur from the first moment of achieving orbit. Body fluids redistribute themselves toward the head. As they do, the face puffs out, and



some astronauts experience sensations similar to those of a head cold. The intestines also tend to float upward, and as a result an astronaut may lose as much as 10cm (4 in) in girth. The curve of the spine also straightens out somewhat, so that persons may gain an inch or so in height while in the weightless environment. Many astronauts have experienced a mild lower backache as a result of the different stresses being placed on the back muscles in space.

The vestibule system consists of the otolith and the semicircular canals of the inner ear-which constitutes the body's organs of balance. When they are disturbed, MOTION SICKNESS can result.

In space, this is known as "space adaptation syndrome". Its symptoms include loss of appetite, cold sweating, mild dizziness, stomach awareness, nausea, and vomiting. The symptoms occur as early as an hour after lunch or as late as the second of flight, and they can persist for as long as four days. Approximately half of all astronauts and cosmonauts have experienced these symptoms. The causes of the disorder are not yet known. However, most astronauts report symptom relief after an intramuscularly injection of Promethazine (also known as Phenargan), although this drug can cause drowsiness. Because the symptoms disappear shortly, even if untreated, space adaptation syndrome is considered adaptive and self-limiting.

Other physiological changes associated with short-term space flight include some cardiac deconditioning and a decrease in the volume of body fluids. These changes return to preflight norms within a short time.

#### Effects of Long-Term Space flight.

Exposure to weightlessness for time periods exceeding about two weeks results in degenerative physiological effects similar to those of prolonged bed rest on Earth. If left unchecked, these changes could result in severe and perhaps even dangerous weakness. Because of this, several countermeasures are employed on long-duration flights to arrest the body's adaptation to the effortless weightless environment and to keep it fit to return to Earth. For example, certain muscles tend to atrophy through lack of use during weightlessness, and animal tests show that the muscle tissue can also lose blood vessels and nerve associations. Studies also suggest that deterioration in muscle tissue may be accompanied by decreases in metabolic efficiency. An increase in food intake, combined with vigorous in-flight exercise using a variety of equipment, can at least partially counteract muscle deterioration.

The redistribution of body fluids during weightlessness causes the to eliminate some fluids in the urine. Tissues dehydrate to some degree, and the volume of blood plasma drops by about 10 percent. The mass of red blood cells drops by about 15 percent in two weeks, and the shape of the cells also changes. Their function, however, is not impaired. In fact, red-blood -cell mass appears to stabilize and recover after about 60days of weightlessness, in most cases. These changes appear to be normal body adaptations to space conditions; countermeasures include increased water intake and exercise during the flight. After the return to Earth, body fluids return to pre-flight norms rapidly and blood counts return to normal within a few weeks.

The shift in body fluids and the decrease in blood volume, along with the absence of gravity, also reduce the size and pumping capacity. Exercise and adequate fluid intake are, again, the usual countermeasures used to avoid serious cardiac and circulatory problems. Most cardiovascular responses return to normal within a few weeks.

Loss of calcium from the weight -bearing bones of the body is apparently continuous throughout the flight. The loss is significant ranging in various individuals from 0.3 percent to 1.5 percent of total body calcium per month. Although several countermeasures have been tried, none have halted the decalcification process; exercise, however, does appear to slow down the rate of loss. Post flight recovery of lost calcium is a lengthy process, taking at least as long as the flight itself. Some bone loss may be irreversible, particularly in the beamlike network (trabeculae) of spongy BONE.

On very - long duration Soviet flights, such changes have been observed as a rise in steroid hormones, damage to the T-lymphocytes, heightened sensitisation to allergens, and increased vulnerability to staphylococcus and streptococcus infection. Such changes indicate possible changes in the body's immune system over long periods of time.

Finally, some indications exist that the body in weightless conditions may not absorb drugs commonly used to treat illnesses on Earth properly. In addition, many drugs can have unpredictable and unwelcome side effects and can even lose their effectiveness. In space.

#### Special Hazards and Emergencies

Extravehicular activity (EVA), or space walking, poses a special health hazard. The astronaut or cosmonaut must rely on the perfect functioning of a spacesuit and may have to experience changes of atmosphere and pressure between spacecraft cabin and spacesuit that can result in decompression sickness. In situations where cabin and spacesuit atmosphere and pressure are quite different, as in the U.S. Space Shuttle, lowered cabin pressure and prebreathing of oxygen prior to EVA is required.

Few clear-cut medical emergencies have thus far occurred in space, although various medical problems have been indicated. For example, the U.S. astronaut James IRWIN experienced heart arrhythmias while walking on the Moon in 1971. Believed at the time to have been caused by an electrolyte imbalance, the arrhythmias may in fact have been an early symptom of the heart disease manifested by Irwin a few years following his Moon flight.

The first known real medical emergency in space occurred when the Soyuz T14 crew cut short their mission and returned to Earth on November 12th, 1985. The commander, Vladimir Vasyutin, had developed an "acute inflammatory infection" several weeks beforehand and had not responded to treatment with onboard drugs. The infection accompanied by very high fever, insomnia and intense irritability, and Vasyutin was relieved of command shortly before the crew's return. Once on Earth, he was hospitalised for a month. The exact type of infection was not officially disclosed, but the widespread opinion is that it was prostates. More recently, on July 30, 1987, another Soviet cosmonaut, Aleksandr Laveikin, was returned to Earth earlier than planned as a result of unexplained electrocardiogram readings that were mistakenly presumed to be arrhythmias.

#### PSYCHOLOGICAL EFFECTS.

The psychological adaptability of humans to space flight conditions has been of great interest to the space programs concerned. Soviet scientists, in particular, studied psychological matters in some detail during the lengthy occupations of their space stations. Their studies have included pre-flight crew -compatibility testing, voice stress analysis, and the elaborate psychological support of crews during actual flights.

Several stages of psychological adaptation to space flight may be elaborated. They include the period of intense and lengthy pre-flight training and testing; the period of heightened anxiety prior to and during launch; the approximately month long period of adaptation to weightlessness and the establishment of an effective work-rest routine; the following period of mid-flight depression and fatigue that comes approximately four months into a flight; the anticipation of the flight's end (called "breakaway"), including excitement and uneasiness; the exhilaration and discomfort felt upon first return to Earth; and, finally, reintegration into the setting of family and accustomed routines.

In a few cases-most notably some of the Apollo astronauts-crewmembers have reassessed their lives and changed direction after space flight.

## A LOOK TOWARD THE FUTURE

If permanently occupied space stations are developed in the future, as planned, workers in space medicine will focus increased attention on the most crucial health issues involved in Long-Term space flight: bone decalcification, changes to the immune system, heart and muscle deterioration, and Long-Term exposure to radiation. Animal experiments and studies of drug effectiveness in space will form an important part of such research.

If manned interplanetary flight becomes a priority in the farther future, health problems relating to the colonization of the Moon and the exploration of Mars will undoubtedly play a larger part in future space-medicine programs. Research on these problems will include the development of crew selection criteria for flights of very long duration, and the maintenance of mental acuity and physical well being during such prolonged periods of relative SENSORY DEPRIVATION. Maintaining the social health of small-scale societies on space stations and severely isolated extraterrestrial outposts will also present unique challenges.

Alcestis R.Oberg

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