

SATELLITES AND

WORLDWIDE

SPACE TRAVEL

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GUEST EDITORIAL
Security and Common Sense

The policy of the USAF in respect of Flying Saucers and the like appears in itself to be productive of a general feeling of suspicion as to their motives and to cause much more irritation than the results would justify.

One fully realises their desire to keep secret any new types of aircraft they are developing and also to keep secret from any potential enemy the observations of craft which were intended to slip in unobserved but which failed to do so. But, in general, against whom is the veil of secrecy directed? Perhaps one of the most hush hush jobs in North America was the AVRO Flying Saucer being built in Canada. Full details of this were published in the Soviet journal "Technika" at the end of 1956, and doubtless full details of all the other USAF projects have also become available to the Soviets since then.

While it is admitted that the activities of the various FO groups in the USA are scarcely calculated to inspire wild enthusiasm on the part of the security chiefs of the USAF, it should be observed that security is a battle of intellects and does not really function on the lines of a grade B movie. In other words it is far less work to tell the truth and shame the devil, bearing in mind that unless the Soviets are exceptionally stupid they already have details of every new project the USAF have on hand - or for that matter the British and the French - and it would be far simpler to say in respect of future UFO sightings: "What you saw was one of our experimental craft" or "What you saw was probably a Soviet Craft making an observation flight" or "We have no idea what it was that you saw, we are filing the report for future reference".

All these endeavours to explain everything away by denying the veracity or the observations of persons who are, presumably, honest citizens, cause a feeling of intense frustration and resentment and enables far more ill advised and uninformed speculation than is necessary. The net result of the present system is that the only people who have no idea of what is happening are the citizens of the United States.

A dispassionate attack on the problem would show that at least half of the sightings are covered by "a" and "b" above, another 40% are sheer imagination, leaving some 10% unaccounted for which may well be extra terrestrial.

The article by Thomas M. Comella in the present issue shows the marked disadvantage of trying to deal with what is, after all, a purely scientific problem, from the emotional angle. While metaphysics doubtless have a place in our culture, it is hard to see how they can be applied to resolving the question of space travel, whether by ourselves or by denizens of other worlds. However one point does arise from his ideas. If these extra terrestrials have a culture which is completely alien to us and which cannot be understood by any human, then the Adamskis and the like fade completely out of the picture.

J.M.

NAVIGATING THE SOLAR SYSTEM

Improved methods and equipment will soon make it possible to maintain control of a Lunar probe or satellite throughout every stage of its journey, but problems involved in the remote control of probes which travel further afield present much more difficult though not insurmountable problems.

By "navigation", is not meant solely the determining of correct position and course to follow, but provision also for rapid and infallible methods of checking and correcting errors. That errors will occur is not in doubt and the problems involved in correcting them are far more difficult than those encountered when navigating sea or air lanes.

In the last issue we described how a very small error in "navigation" en route for the Moon would result in a space ship missing its "appointment" by some 8,500 miles, it is obvious that an error of the same magnitude while en route for the planets would send a space ship millions of miles off course. Because of the vast distances involved there is a greater chance of errors

appearing of course but several other factors contribute additional problems. A ship travelling to another planet comes under the influence of the Sun's tremendous gravity field for most of the voyage and the fact that our neighbour worlds travel in orbits which lie at varying inclinations to that of the Earth makes a change of course en route imperative. It will be obvious from the tables given below that the accuracy in guidance and control of speed at take off which would render such a change of course unnecessary can never be achieved.

Trip to Mars (assumed dist. 141,000,000 mls)

Speed miles per.hr.	Apogee (miles)	Time to Apogee (hours)	Speed at Apogee (miles per hour)
73,160	140,840,000	6179	48,309
73,170	140,940,000	6183	48,282
73,180	141,036,000	6186	48,255
73,190	141,134,000	6190	48,228

A change of 10 mph in the speed thus changes the aphe-
lion distance by 100,000 miles, while the time to Mars
is also badly affected. Errors in the angle of take off
may be seen in the following table.

Angle of Projection	Apogee (miles)	v	Q sin v (miles)
80°	141,331,000	11° 7	28,566,000
89°	141,083,000	5.9	14,414,000
90°	141,000,000	0	0

It will be seen from this table that the effect in
an error in the angle of take off is much more ser-
ious than in the case of a trip to the Moon and at the
great distance at which Mars lies it would be quite

impossible to keep an accurately timed appointment. The speed would have to be controlled to within one mile per hour and the angle of take off to a minute fraction of one degree and even if these conditions could be achieved it would still be necessary to affect a change of course en route.

Most articles on the topic of space travel tend to make "transfer orbits" seem difficult but no great obstacle; this is not quite correct, there are certain problems which have yet to be overcome. To change from one orbit to another one, lying in a different plane presents an extremely complicated problem and no simple application of thrust at a computed angle to the craft's flight path would suffice. Briefly; it is not only necessary to be able to determine the space ship's position at any given time, speed and direction of motion are an essential factor and at present there is no known method whereby these factors can be determined from a single observation. One method of determining position is to photograph the Sun against the background of stars, three successive "fixes" would enable the orbit to be determined but these would have to be made at fairly wide intervals. At best, this is a slow process and far from being satisfactory, and there still remains the problem of changing course which presents the most difficult problem of all.

The size, shape and orientation of the orbit depends upon speed and direction of motion at a particular position in space and if the craft is in the right place but has the wrong velocity, it is possible to calculate the thrust and the direction in which it must be applied to accelerate the ship to the correct speed. However, if both speed and position are wrong the ship cannot be put into the correct orbit in one manoeuvre at all. An increase of speed would alter the size of the orbit and produce other variations, and all corrections require the expenditure of considerable amounts of fuel for a space craft may weigh thousands of tons and be moving at upwards of 15 miles per sec'.

Propulsion methods giving a constant thrust with unlimited sources of power could go a long way towards solving these problems, nuclear power seems to be the

answer. The idea that "ion propulsion" could be used for interplanetary travel is rather optimistic to say the least. This method provides low but constant thrust which is quite satisfactory until it is required to change course or brake a space craft. For an example: It would take about 140 hours to match a space ship's speed with the orbital velocity of Mars and to change course the period of time necessary would have to be measured in weeks.

In the future no doubt, the intricacies of transfer orbits, the determining of a craft's position and velocity in space will be reduced to feeding appropriate formulae into a computer and by that time nuclear power will be available to propel our manned space vessel across the tremendous gulf of interplanetary space.

MARS IN THE HEADLINES

How much, and what kind of plant life exists on Mars? Are Phobos and Deimos really "Moons" or are they gigantic, artificial satellites put into orbit by a super-intelligent race which inhabited the planet millions of years ago?

The month of May brought simultaneous announcements from the U.S.A. and Russia about surface conditions and the satellites of Mars respectively. The more spectacular news came from the Russian scientist Dr. Shklovosky who said that apart from being entirely different from other satellites in the Solar System by their insignificant size and their extreme close proximity to their parent body, Phobos, the larger of the two (10 miles diam) had deviated from its calculated orbit by two and a half degrees and speeded up in its movements during the last few decades. This meant it had moved closer to Mars. Pointing out that exactly the something happened to artificial Earth satellites, Dr. Shklovosky said he believed Phobos was hollow and therefore artificial. Although such a body may weigh a hundred million tons or more, it was stated that such a feat of engineering a science should present no insoluble problems to

intelligent beings. Dr. Shklovosky concluded by admitting the lack of proof for his beliefs but hoped that within a matter of decades it would be possible for science to resolve the problem. For instance: if the luminosity of the two bodies was proved to be constant it would prove their spherical shape. (The inference here is, apparently, that no natural bodies so small would develop this symmetry. ed).

Phobos 6000 Klm from surface, rotates in 7h 39m,
diameter 16klm.

Deimos 23,500 klm from surface, rotates in 30h 18m,
diameter 8klm.

The cause of the slowing down in pace might be that both Phobos and Deimos were hollow and light in relation to their bulk.

Other news about Mars came from the National Academy of Sciences in Washington, D.C., on April 30th. Here, the consensus of opinion that, "There is, most probably life on Mars", was based on a spectral analysis of the dark areas of Mars made last year by Dr. W.M. Sinton at Mt Wilson. Details of the analysis were given as follows:

"The spectrum which Dr. Sinton has obtained shows a band of spectral lines at a wavelength of 6.7 microns. He confirmed, by measuring the spectra of terrestrial objects, such as plants and even filter paper that these spectral lines are a common characteristic of large organic molecules of the kind found in terrestrial living things. The particular spectral lines obtained are characteristic of chemicals in which hydrogen and carbon atoms are linked together in the neighbourhood of oxygen atoms. Dr. Sinton said the wavelength he distinguished in his work was identical with that found reflecting infra-red radiation from algae - the microbial, organic form of plant life found on the surface of ponds etc.

Support for the view that this evidence points to the existence of life on Mars comes from the observation of dust storms on the planet. One of these which arose suddenly one night towards the end of last year, and which was studied at the Yerkes observatory, covered the surface of the planet with red dust in a matter of days. At the end of a month however, the patches of presumed

vegetation on the surface of the planet began to break through the dust. This, it is assumed, indicates either that the plant life is able to shake off the dust or that somehow it can regenerate on top. However, it is also possible that the reappearance of the dark patches is due to sweeping of the dust into cracks on the surface rocks.

So convincing is this evidence that Dr. Gerald de Voucoureurs said, "...it is pretty well the final proof". This ties in with the feeling that physical conditions on the planet are roughly those under which plant life processes should go on, though it has always been thought that life must have started on the Earth in the oceans. Therefore, the new emphasis of thought about Mars will lead people to seek evidence of the existence of oceans on that planet in the distant past.

Other observations of Mars during the end of last year have shown that on two separate occasions what appeared to be clouds of some kind formed about certain surface features on the dark patches of the planet. The significance of this is not yet understood but may possibly be connected with the presence of water in small quantities.

Tentative plans to obtain pictures of Mars from a distance of 5,000 miles are being made at the Massachusetts Institute of Technology. An automatic camera could take pictures and the negatives recovered after a period of three years and two months, by which time the camera and equipment would have been carried twice round the Sun. It is expected that such a picture would decide once and for all whether or not there is life on Mars. To test this, an aerial photograph of the Bay of San Francisco has been reduced in scale to simulate the appearance of the Earth from a height of 5,000 miles.

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CORRESPONDENCE

Largs, Ayrshire.

Dear Sir,

I am in receipt of the Jan-Feb issue of URANUS and I find it to be of the greatest interest indeed. I am glad to see that there is at least one magazine dealing with UFO's which steers clear of religious nonsense.... I am also very pleased to find that you devote considerable space to astronomical development on Earth as this was, and still is, a prominent interest of mine long before UFO's came to my notice.

W.H. Watson.

We would be pleased to hear what other readers have to say about the recent space-travel/UFO's editions of URANUS. Ed.

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We reproduce the following article by the kind permission of James Moseley, Editor of "Saucer News".

THE NATURE OF THE UFO MYSTERY

By Thomas M. Comella, former editor of "The F.S. News Service Research Bulletin".

A great change is taking place in UFO research. Those investigators who used to believe that the Flying Saucers are real, are now not so sure. This existing attitude has brought serious research to a virtual standstill, because everyone is asking, "What are we investigating anyway?" For almost twelve years, the problem of UFO's has been attacked and the solution still eludes us. Hidden within this failure is a lesson for the human race, a lesson that must be learned if man is to progress in the truthful knowledge of the universe. The lesson is in two parts, one a corollary of the other, and it is of such fundamental importance that it might provide us with the very key to the UFO

mystery.

Man is a rational being. That is, his mind operates logically or according to the process of reasoning. That which is not logical, is by definition, chaotic and not meaningful, for logic is the human being's index for intelligence. For centuries, Man has searched for the secrets of the universe and out of this search has come the science and technology of today. However, all science and technology is based upon one assumption -- that the universe is not chaotic or unmeaningful; that it is logical and can be understood by the human mind. This is the crux of the UFO problem as well as of untold other mysteries.

When Man attacks a problem, he proceeds logically and his solution conforms with the facts that his mind perceives. For years this method has yielded practical results. Once in a while though, Man is confronted with a situation that is different, the UFO problem is such a one. For ten years Man has applied logic to the UFO and he has failed miserably to resolve the mystery. In 1947, after the initial shock had worn off, it was believed that Man's proven formula would solve the UFO saga., all that was needed was the time, money and the human mind. Man's inability to cope with this problem has been neatly covered up, I believe, by the very workings of his mind. He has rationalized that because problem-solving formula failed, there wasn't any mystery to begin with. In other words, if our logical approach finds nothing, there must be nothing there.

But there is a fallacy here, and a very prominent one, for the UFO is not a logical quantity, it has been proven time and time again. These strange objects show us no pattern, no reasonable conformity to what we know as intelligence, and no purpose. We have applied logic to an illogical quantity.

Consider for a moment a race of beings from some planet in the depths of space, a race that by our standards is almost completely undetectable because its actions, possessions and purposes are unintelligible to us. We could no more communicate with such a race than we could converse with a piece of stone. If such a situation as

this presented itself, would there be any hope of resolving it? Could Man, by any stretch of the imagination, resolve such a problem? Could he ever overcome the logic and ego that bind him and "see" the reality present? The chances of success would be very minute indeed and would involve a fantastic trek down the trail of the incredible.

If Man is to gain the truthful knowledge of the universe, he must view nature as it is; for to impose the logic of Man upon the universe is to change nature according to Man's understanding. I will say that Man has developed his logical ways because his ego has not allowed for the possibility that he is not supreme throughout the cosmos. I will say that because twelve years of research have failed to resolve the UFO mystery, there is no reason to state dogmatically that no problem ever existed. I have given you another possibility - one that our egos might be able to rationalize, but one that our minds won't be able to exclude. I say that the above situation might be embodied in the UFO saga. Now, tell me who is free enough to solve it.

With these words of challenge I am terminating my investigations into the UFO mystery, Yes, this is Comella's "swansong". I hope that this last article of mine has glimpsed for you a truth that will propel you to accept my challenge.

The friends I have made while trailing the UFO have been lasting friends. We have disagreed more than we have agreed, but I know that all of us are willing to fight for the right to agree or disagree. We have stumbled after the UFO in most unorganised fashion and we have failed. I have tried to provide us with a perspective of the problem that is new and accurate and it is with the hope that the end of my efforts will bring life to what I have fought for, that I pass from the UFO scene.

To the readers of this and other saucerzines, may I say that you are the foundation of UFO research. Like the citizens of a great city, your ideals and discriminations will decide whether sincere research goes on, or comes to a halt for good. To those of you who have

claimed contacts with outer space and have lied, let me say that it is too bad you couldn't have made a worthwhile contribution. To those of you who have claimed contacts and have told the truth, I am sorry for you for me. I am sorry for you for in your experience you and have glimpsed reality but have failed to prove it. I am sorry for me because I was unable to see the truth in what you said and hence missed that reality. But it is these isolated pieces of reality that added up to the paradox of the UFO mystery.

To all you story tellers and gossipers, let me say that you have done a fine job of avoiding the truth, if you finally get tired of your babblings and you seek elsewhere for your thrills, the cartoon of the UFO will become real research. To you who have found the UFO a fitting subject to make money on, I have only one thing to say: You are shutting out the truth completely when you compromise with sincerity.

To you who want to believe in UFO, search for a justification of your belief. To those who have closed minds to the unusual - ask yourself what you are after, the truth - or what you merely want to be the truth. To those who are honestly curious - temper your imagination with sincerity and you shall know the secret of the saucers.

LUNAR JOTTINGS

Volcanoes on the Moon? The notion that extinct volcanoes are to be seen on the Moon was made by Prof. G. Kuiper on April 20th this year. He says that some 20 objects each resembling the shape of extinct volcanoes in Hawaii and having craters on the top perhaps half a mile or so in diam' can be seen on the surface of the Moon.

Prof. Harold Urey seems to think that some meteorites which fall on the Earth are actually rocks carried here from the Moon. His argument is that measurements of the amount of heavy radioactive hydrogen which the meteorites contain shows that they have only been exposed

to the interplanetary cosmic rays for a few million years. According to Prof. Urey it is unlikely that such pieces of rock can have reached the Earth from more distant parts of the solar system.

"The Moon Leaves Him Cold". In Melbourne on May 3rd, Sir John Cockroft said in a television programme that he could not see the sense in sending a man to the Moon and spending thousands of millions of dollars or roubles on space travel. Research on cosmic rays or the taking of photographs from high altitude rockets would be more worthy of the expenditure.

Trip to Venus Off. The rocket the Americans intended sending to Venus in June this year will not go after all. The next suitable date will be in 1961.

WHO DO THEY THINK THEY ARE KIDDING?

Since 1953 Donald Keyhoe has written three books each offering evidence for the suppression of information by the American authorities on the subject of Unidentified Flying objects. Keyhoe is now director of N.I.C.A.P. in Washington D.C. whose main object it is to break this policy; however, despite all efforts there are scant signs of any achievement in this direction.

Now, from two other sources there has come two of the most outstanding examples of this policy, perhaps more striking than anything Keyhoe has been able to reveal. They are, "The Fitzgerald Report", issued by the Akron Group in Ohio and a tape recorded report and analysis of the Olden Moore case by Dan Haber. Both these cases are worthy of attention because they contain facts which leave only two possible conclusions, namely, the craft concerned were either extra-terrestrial in nature or they were advanced, unconventional craft under development by the United States. We shall deal first of all with the "Fitzgerald Report".

On Sept. 21st, 1958 at 3 a.m. a wierd looking craft came to within ten feet of Mrs. W. Fitzgerald, she had been sitting up late watching TV and had just settled into bed when she was disturbed by a very bright light

flooding into her bedroom, getting up, she pulled back the curtains and saw what she described as, "....a disc with a hump in the middle". The object was in her back garden only ten feet away from the window at which she was standing, it was about 22 ft in diam' and 6 ft high. Although it was so close, Mrs. Fitzgerald could see no seams or rivets, it was completely smooth with a colour of dull aluminium, the only thing which broke the smooth outline was two openings in the rim, each one contained seven pipes but there was no sign of jet exhaust, no rush of air and no heat was detected. When first sighted the object was moving slowly in a Northerly direction only 5 ft above the ground, as it moved toward the garden next door it lost height and when about 50ft away it hovered motionless for several seconds. As the object stopped moving, smoke, which seemed slightly luminescent came from the openings containing the pipes, this billowed around the strange craft and appeared to be of a "pinky - grey colour". Then the object began to move towards Mrs. Fitzgerald's garden again and rose slightly, the smoke ceased to come from the two openings in the rim just before it made two very quick turns in a clockwise direction and rose so quickly that it gave no time for Mrs. Fitzgerald to see the underside. During the half minute for which the object was in view it made a sound "like a jet warming up".

At breakfast next morning, Mrs. Fitzgerald's 10 yr old son excitedly told of what he had seen in the back garden as he was coming back from the bathroom. His description and the time agreed exactly with that given by his Mother but at that time she had mentioned it to no one. Two other witnesses in the neighbourhood had experiences which helped to confirm the presence of a strange craft.

Four days later two members of the Akron group interviewed Mrs. Fitzgerald and they sent a summary of their findings to ATIC at Wright Patterson Base. Two investigators came down and made a survey of train schedules and lake activity but when they interviewed Mrs. "F" on Oct. 4th, they only asked her six questions of little or no significance. A subsequent letter from

Maj' General W.F. Fisher stated the following: "....The night of Mrs. Fitzgerald's sighting a train passed the house at approximately the same hour of the reported incident. The train had a rotating headlight which, under some conditions would produce unusual effects. Chief Bosun Schott of the Coast Guard Station reported that he was using his spotlight in an attempt to catch the attention of another ship and that the light was directed toward the shore in the general direction of Mrs. Fitzgerald's house. The time and date of this incident coincide.

.....The conclusion of the Air Force investigators was that the combination of the moving lights, noise of the train and prevailing weather account for the illusion experienced by Mrs. Fitzgerald".

The following facts are given by the Akron Group's own investigators.

1) A train did pass the house, probably just after 3 a.m. and a type of light mentioned by A.F. investigators is used but it was ascertained that a train passing in that direction could not direct its light so as to fall on Mrs. "F's" house.

2) Mrs. Fitzgerald has lived in the house since June of 1958 and she has failed to satisfy herself of any connection between the sound made by the object and that of a passing train.

3) Lake Erie is about 3,000 ft North of the house at its nearest point, the house is 50 ft above water level. By interviewing Chief Bosun Schott it was found that the light on the boat casts a diffused beam, also, at the time he was using the light mentioned in the A.F. report his vessel was $4\frac{1}{2}$ miles away from the shore and even had he been directing his light in the direction of Mrs. "F's" house it could not possibly have reached there. Chief Scott has signed a statement to this effect.

-4) The official report contains a statement saying another witness could recall seeing nothing unusual. The witness concerned has signed a statement refuting this.

The "Fitzgerald Report" emphasises the extreme negligence of the official investigation and painstakingly

lists essential points missed by the two men who conducted the enquiry. The report concludes with the following: "The investigation and analysis of this case is typical of the treatment which has been given to UFO reports over the past ten years. This case has now become one of the 98.1% of all UFO reports listed as 'known'. The A.F. official release of Oct. 6th, 1958 states, 'Refinements in investigative procedure have resulted in a steady decline of unknowns'. After studying the Fitzgerald report it should be manifestly clear what the Air Force means by 'refinements in investigative procedure'.

In a letter to the group General Fisher said, "We feel sure our analyses and evaluations by qualified scientific personnel of the reported sightings of UFO's are more than adequate".

A point of significance is that the drawing done by an artist from Mrs. F's description is exactly the same as that reproduced in the "Project Blue Book Special Report No 14", which is of the AVRO Flying Saucer produced in Canada.

ADAMSKI IN EUROPE

"Mit der Dummheit kämpfen Götter selbst vergebem"
Schiller.

The visit of George Adamski to Europe has certainly had its ups and downs. The high spot was a reception by the Queen of the Netherlands, while the nadir was attained at Zurich where the Swiss students showed a remarkably astute appreciation of the true value of Adamski and his theories by bombarding him with flying saucers - i.e. the cardboard discs used under beer glasses - and by displaying a banner with the above quotation from Schiller on it, which may be freely translated: "Even the Gods cannot overcome human stupidity".

However what is most interesting is the pattern into which all these various meetings tend to fall. The first and most significant point is the supporters of

Adamski are, in the main, frightened to death of space travel in any real form and would do anything in their power to prevent it. All these messages from Venusian scientists, etc., are all directed against man's efforts to establish himself in space, if only because the landing of the first manned space ship on the Moon, Venus or Mars, will show precisely how inaccurate are the views attributed to these extra terrestrial authorities.

ANOTHER ADAMSKI STORY DISPROVED

On Dec. 1st last year Adamski boarded a train at Kansas City en route for Davenport Iowa where he had a lecture engagement. According to Adamski the train stopped shortly after leaving the station and an announcement was made about the delay. Adamski had been standing in the carriage vestibule with his luggage and while the train was stopped a car drew up alongside, he recognised the driver from a previous "contact", so after transferring his luggage to the car and climbing in himself the two of them drove to a secluded spot and they got out. Adamski's companion pointed to a Saucer hovering some 50 ft off the ground and then the luggage, followed by Adamski and his companion was teleported up to the craft. After spending 8 hours in the Saucer Adamski and his luggage were teleported to the ground again, this time at a spot not far from Davenport. Adamski was able to go to his hotel and fulfil his lecture engagement. An unused railway ticket and the fact that people who went to meet Adamski say he did not disembark from the train when it reached Davenport constitutes evidence to support the story. Adamski also claimed he had a yardmaster's statement to support his claim.

Arthur Campbell, a member of the Kansas City UFO Study Club, having read what URANUS had to say about Adamski, decided to investigate the story. He went to considerable trouble in checking up the facts, which showed marked discrepancies from the story as first told and posted the results to your Editor in the hope that it would be possible to confront Adamski with them during

his English tour.

The evidence included signed affidavits by three of the train's crew to the effect that no delay occurred after the train had left Kansas City station. The train was already 51 minutes late and made up 13 minutes during its journey, it could not have done so had there been any further delay, especially a 10 minute delay as Adamski claimed there was.

The opportunity to do this arose when Adamski was speaking in Manchester. Of the lecture itself it may be said that it confounded your editor's previous opinion that Adamski had ridden along on a powerful personality and an air of sincerity which had gulled 90% of his audiences. We were wrong. The lecture can best be described as a pitiful, rambling discourse on religion, philosophy, education, politics, war and - oh yes, "Flying Saucers" were mentioned.

After the talk Adamski was approached in his hotel and proceeded to give a slightly different version of the story, to that given at London Airport.

When the detailed investigation was produced and points read from it Adamski's face registered surprise and then dismay and he came to his feet. On the production of the signed affidavits he made as if to take them from your editor saying, "I would like to see them, you can pick them up when you come by tomorrow".

It was just then that the camera flashed and Adamski's mouth opened as realisation dawned upon him.

Adamski, obsessed with his own philosophy which he used to preach when he was the head of "The Royal Order of Tibet" in 1949 seems to have become indoctrinated with his own "contact" stories, he is constantly seeking avenues and opportunities to emphasize the philosophy which he fondly believes will lift the world from its present chaotic state. There will be no confession from Adamski or from those who have "received the message" via the Adamski stories.

On the day after Adamski accused your editor of being in the employ of the Central Intelligence Agency, which might be taken as an indirect compliment.

THE FUTURE OF THE ROCKET IN SPACE

The world's rocket scientists have placed one foot on the first rung of the ladder leading to the planets but it begins to appear as though there will be a long interval before the other foot is off the ground. The problem of navigation in space is dealt with elsewhere in this issue and this is a worrismatic problem in itself but there is also the everlasting problem of the "payload". ("The weight of everything in a rocket or missile which can be described as useful") The payload of course depends upon the power available at launching and to a lesser extent to the power available in succeeding stages and this is an aspect of rocketry in which the Russian scientists seem to have outstripped their American counterparts. Dr. T. Kieth Glennan, chief of the National Aeronautics and Space Administration (NASA), has admitted that: "Soviet capabilities for placing heavy payloads in orbit rather precisely and on deep trajectories exceed ours by a substantial margin". The Americans demonstrated their peak launching power in sending off "Pioneer IV" which was tracked to a distance of 406,000 miles and passed within 38,000 miles of the Moon; the payload in Pioneer was only $13\frac{1}{2}$ lbs, a ratio to the vehicle at launching of about 10,000 to 1. Before an instrumented vehicle can be established in an orbit around Mars, the ratio will have to be reduced to the region of 50 to 1, a reduction by a factor of 200.

NASA, created to end the rivalry between the three American services is now responsible for the planning, financing and the direction of all space ventures from the U.S.A. which are not of a military nature. One of the first things done by NASA was the rejection of advance timetables for space probes and satellite launchings. On May 6th, the organisation's officials announced that contracts amounting to £12m had been awarded to General Dynamics, Convair Division. The contracts cover the design, construction and testing of "Vega" space vehicles to be used for exploring the Moon and planets - including Venus. Eight "Vegas" are to be built by 1961, each one will stand as high as a ten story building and

weigh around 150 tons. They should be capable of putting a 5,000 lb satellite in an orbit around the Earth at a distance of 200 miles out or the launching of a "manned space lab" - 300 miles out. A 1,000 lb payload could be sent to the Moon.

Further announcements from the U.S.A. speculate on a single chambered rocket capable of developing $1\frac{1}{2}$ million pounds thrust being ready in 4 years time, a rocket vehicle powered by such an engine could lift an 18 ton payload into an Earth satellite orbit or land 2 tons on the Moon. Four such engines clustered together could lift a satellite as heavy as a steam locomotive or land an 8 ton payload on the Moon. These projects (which could take a man to the Moon and bring him back) are called "Nova" but until they materialize, experience with large rockets will be gained by using a combination of eight Thor engines each giving a thrust of 150,000 lbs. Meanwhile, in two years time, Von Braun is hoping to have a rocket engine capable of developing 1,200,000 lbs thrust.

While chemical laboratories are searching for even more powerful propellants and the electronic "boffins" are busy reducing the size and weight of the already microscopical instruments which suffer the hazards of space where man has yet to reach, other, even more speculative and futuristic work is going on. The development of nuclear power for space travel may be "just around the corner" and gravity research is being hotly pursued by many universities and large private enterprise concerns. If American, or our own scientists could break through on either of these studies, the humiliation inflicted by the Russian scientists with their "Sputniks" would be erased.

But even speaking in terms of rockets, Willy Ley's dream of a series of rockets each carrying a 36 ton payload into orbit from which the first space station could be assembled may yet be realised in as little as five years. The race into space has now become a race to the planets and to all intents and purposes military strategy has taken a back seat, maybe the "cold war" will now be replaced by "space fever"?