# The Moller International Skycar FAQ 有关穆勒飞行车的问题

**What is the Moller Skycar?** 穆勒飞行车是什么？

The Moller Skycar can best be described as a 'flying car' that can navigate city and suburban streets at speeds of up to 40 mph to reach designated spots for takeoff and landing. It combines the privacy, convenience and trip flexibility of the auto with the speed and range of a short-hop jet.

The Moller Skycar is the only flying car with VTOL (Vertical Takeoff and Landing) capability, using space-age technology that was developed exclusively by Paul Moller. The Moller Skycar can take off and land likes a helicopter and flies at speeds nearly three times faster – over 300 mph! The Skycar is designed to carry up to four passengers and fly at altitudes up to 25,000 feet. It's safer and quieter than a light plane or helicopter and has the potential to be safer than an auto or commercial jet. And the Skycar can travel as far 750 miles before needing to refuel.

穆勒飞行车最好的描述是：一辆可以在城市和乡村公路上，以时速 40 英里的速度，驶向垂直起降点的可以飞行的汽车。它是一个集私密，方便，灵活，高速的飞机汽车混合体。

穆勒飞行车是唯一具备垂直起降功能的飞行车，由保罗穆勒博士使用航天技术独立研发推出。飞行车可以像直升机一样垂直起降，以 3 倍于直升机的速度飞行 - 时速 300 英里。飞行车设计座位：超过四人，飞行高度：25000 英尺。飞行车比小型飞机和直升机安全和安静，比驾驶汽车和商务飞机安全。飞行车的航程：750 英里（在 750 英里以内的距离飞行，不用加油）

**What type of fuel does the Moller Skycar use?** 穆勒飞行车使用什么燃料？

The Moller Skycar can efficiently utilize ethanol, methanol, natural gas or gasoline. Even 100 proof vodka!

穆勒飞行车可以使用乙醇，甲醇，天然气或汽油，甚至可以使用 100%纯度的伏特加！

**What makes the Moller Skycar the future of travel?** 用穆勒飞行车旅行有什么不同？

The Moller Skycar is the first practical high-speed, lost-cost alternative to the automobile that takes advantage of the unused air space above us as a 'Highway in the Sky.' The Skycar reduces fuel consumption and pollution while increasing personal mobility.

The transportation infrastructure in this country is already unable to meet our needs. Gridlock has become the rule, not the exception. For trips of 25 to 750 miles, the Skycar used in fleet operations will compete effectively as a passenger vehicle against the auto, bus, rail, ferry and short-hop jet, while requiring far less infrastructure than auto, rail or other aircraft. The Skycar can be put into use in new areas almost immediately!

穆勒飞行车是第一辆集高速经济可以替代汽车并使用"天空高速路"的飞行汽车。它可以降低油耗和污染，同时提高了个人可移动性。

传统交通基础设施已经不能满足当今人类社会的需求，交通堵塞已成常态而不是偶然现象。25-750 英里的旅行，飞行车群体载客功能可以比汽车，公共汽车，火车，轮渡和喷气机更加快速有效地运送乘客。飞行车在其它各个领域可以立即投入使用。

**Who can operate the Moller Skycar?** **谁可以驾驶穆勒飞行车？**

The Skycar is easy to operate now, and later, with electronic piloting, anyone can fly it!

穆勒飞行车很容易驾驶，全自动导航控制后，任何人都可以驾驶！（只需输入目的地，飞行车全程自动导航飞行并降落！）

M400 Skycar and Dr Paul Moller

（董事长及发明人保罗.穆勒博士和他的 M400 飞行车）

## PAUL MOLLER - MOLLER INTERNATIONAL INC (MLER)

### 华尔街日报对(以下简称华尔街) 保罗.穆勒 - 穆勒国际集团总裁访谈

CEO Interview - published 03/28/2005 – 2005 年 3 月 28 日发表

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PAUL MOLLER is Chairman of the Board of Moller International Inc. In 1972 Dr. Moller founded Supertrapp Industries and was Chief Executive Officer, as Supertrapp became the most recognized international name in high-performance engine silencing systems. Supertrapp Industries was sold in 1988. In 1983 he founded Moller International to develop powered lift aircraft. Dr. Moller has served as the company's President since its formation. Under Dr. Moller's direction, Moller International completed contracts with NASA, NOSC, DARPA, NRL, Harry Diamond Labs, Hughes Aircraft Company, California Department of Transportation and the U.S. Army, Navy and Air force. These contracts included the development and deployment of numerous unmanned aerial vehicles and Wankel-based engines. Dr. Moller has received 43 patents including the first US patent on a fundamentally new form of powered lift aircraft. He is a world-renowned feature lecturer and guest speaker on next-generation transportation systems. He holds a Master's degree in Engineering and PhD from McGill University. Dr. Moller was a professor of Mechanical and Aeronautical Engineering

at the University of California, Davis, from 1963 to 1975, where he developed the Aeronautical Engineering program.

保罗。穆勒先生是穆勒国际集团有限公司的主席。在 1972 年，穆勒博士创建了 SUPERTRAPP 公司并且成为其中的一名主要高层管理人员，伴随着 SUPERTRAPP 一起发展直至成为一个在国际高效抑制躁声发动机领域越来越广为人所知的名字。SUPERTRAPP 公司在 1988 年时出售，但是在 1983 年穆勒先生就创办了穆勒国际集团来开发使用强力动力爬升(垂直起降)的飞行器。自从该公司成立以来，穆勒先生一直担任其的董事会主席一职。在穆勒先生的带领下，穆勒国际圆满完成了与美国宇航局(NASA)，NOSC，DARPA，NRL，哈里钻石实验室，休斯飞机公司，加洲运输部门以及美国陆军，海军，空军的多项合同。这些合同包括了发展及部署许多无人驾驶空中交通工具(UAVS) 和万能发动机的使用。穆勒博士拥有多达 43 项的专利成果，其中包括美国首个关于新式动力起升（垂直起降）飞行器的专利。对于美国下一代运输系统项目来说，穆勒博士是一个著名的讲师和广受欢迎的客座发言人。他拥有工程学硕士文凭和 MCGILL 大学的博士学位。从 1963 年到 1975 年，穆勒博士同时也就任加州大学的机械学和航空学的教授，在那里他创立了航空动力学学位。

**TWST: We would like to begin with a brief historical sketch of the company and a picture of the things you are doing at the present time.**

Dr. Moller: Moller International was formed in 1983, and incorporated at that time to develop vertical takeoff and landing technology. It could be applied either to UAVs (unmanned aerial vehicles) or, at some point, to create a replacement for the automobile. The company has had a number of government contracts over the years. We have built unmanned vehicles for the army, navy, air force and California Department of Transportation (Caltrans) for bridge inspection. We have flown a number of these manned vehicles for application as a personal transport, including an earlier version flown in 1989 before the international press. That particular aircraft flew over 200 times. More recently we have been developing a four-passenger vehicle called a Skycar Volantor, which I have tested unmanned and plan to test this summer in a manned version. The company itself is a relatively small technology-driven company, but it is forming alliances with a number of larger organizations, which are better positioned to move this technology into the marketplace. We will continue to be a technology developer, as we have in the past and expect to continue generating numerous patents. In some cases we license our technology; in others we enter joint ventures as we have done recently with Boeing Rocketdyne for engine/generator production.

华尔街: 让我们首先来了解您回顾公司的发展历史，并描述一下现阶段的工作.

穆勒博士：穆勒国际是在 1983 年成立的，在当时这是一家立志于开发垂直起降科技的集团公司，这可以被应用于 UAVS（无人驾驶飞机）或者，在某些情况下，起到替代汽车的作用。公司拥有大量来自于政府方面的合约。我们为美国的海陆空 3 军都开发无人驾驶飞机，也协助加州交通部进行桥梁的勘察。我们成功的开发了许多获得许可的私人空中交通工具，其中包括一个在 1989 年成功的早期版本，这个特殊的飞行器航行了大约 200 多次。最近我们开发出了一种 4 人的交通工具，我们将它命名为飞行车，这个飞行器的无人驾驶版本已经成功试验完毕，并且在今夏，我们还将会测试它的人工驾驶版本。我们的公司本身是一个较小的

以科技研发为主的公司，但是由于它和许多大的公司形成了良好的合作关系，这十分有利于将新的科技投向市场。我们将会继续保持科技研发者的身份，就象我们过去做的那样继续开发出更多的专利产品。一些情况下我们会自己授权我们的科技，其他情况我们则会参与一些合作经营，就好比最近我们和波音 ROCKETDYNE 一起关于发动机和发电机的合作开发那样。

**TWST: When you tested the vehicle in its unmanned version, how well did it fly?**

Dr. Moller: The various aircraft we develop are usually designed for the customers' goals. In the case of Caltrans, that was a vehicle that could go up with a camera and inspect bridges. In the case of the air force, it was a vehicle that was designed to go out and assess nuclear damage following a nuclear attack where they didn't want to send people in. In the army's case, it was a commander's observation vehicle, something that could be carried on a tank and used in the field to look over the next hill to see if an enemy tank was there prior to actually bridging the hill. All of these were demonstrated, and they were all successful. In fact, many of them are still in use in those applications. Again, we are technology driven, so we will be partnering with other companies to put those vehicles into volume production.

华尔街：当您在测试那无人驾驶版本的飞行器时，实际效果令您满意吗？

穆勒博士：我们所开发的多种多样的飞行器都是为了客户的不同需求设计的。以加州交通部的例子来说，那是一种带有摄像头并可以独自进行桥梁勘测的无人驾驶飞行器。再说说空军的例子，他们所要的是一种可以在受到核武器攻击之后去进行核损害程度测量的无人驾驶飞行器，出于人道主义，这种情况下我们基本是不愿意让人参与的。陆军所需的是一种指挥官用的战况观测无人驾驶飞行器，可以被坦克所运载并且能快速到达前线侦察是否有敌方坦克的踪迹，然后再决定是否要快速占领该区域。所有的这些都参与了演练，并且都获得了成功。事实上，它们之中的大多数目前仍然在它们的岗位上发挥着作用。我要再强调一次，我们是一家科技研发公司，所以我们需要和其他公司合作来达到产品的量化生产。

**TWST: As you go forward, which will loom larger in your picture, the unmanned vehicle used by the military or the four-man manned vehicle?**

Dr. Moller: In the immediate future, certainly the unmanned simply because we have an easy entree into the market with that technology. There are many places where they are needed right now, such as Iraq and in many civilian applications. You don't have any of the flying complexity and danger to the individual, so we can test much of the technology and the electronic stabilization systems that make the Skycar easy to fly. We can do all of that without risking anybody's life, so that is a logical approach. Prior to putting a man on board I would say for the next three to five years, unmanned applications of our vehicles, as well as the power plants that we have developed will become a very attractive product for much of the marketplace and will dominant our activity. The Skycar as a passenger-carrying vehicle, one that you and I might access at some point, is probably five to 10 years away before it reaches high volume production.

华尔街：您在继续向前迈进的时候，哪一个成果对您愈发重要起来？是军用无人驾驶飞行器还是那载 4 人的交通工具？

穆勒博士：在不远的将来，当然无人驾驶科技更为简单，因为它将会更容易踏入市场的门槛。有许多地方现在就需要这项科技，好比伊拉克和许多民用需求。（使用这项科技）你不用考虑任何有关飞行的复杂因素也不会使任何人陷入危险之中，这样我们就可以有效的测试这项科技和其相关的电子系统的稳定性。我们可以屏弃一切可能涉及人们生命的风险，非常符合逻辑的方法。我想说，在未来的 3 到 5 年，无人驾驶科技和我们所开发的动力发动机将会在许多领域成为非常受欢迎的产品并将给我们的生活行为带来巨大变化。也许你和我将会在某些观点上达成一致，作为一种载人的飞行交通工具 - 飞行车，将会在 5 到 10 年内达到产量的高峰期。

**TWST: Either with the unmanned or with the Skycar, can you describe what takes place?**

Dr. Moller: The Skycar itself is a hybrid vehicle in the sense that it is really a combination car, helicopter and airplane. It can fold to an 8.5-foot width, so you can drive it on the street. I wouldn't call it a racecar or anything like that; it is a mobile vehicle that you can drive at city speeds to a vertiport ' currently called a heliport. In the fairly near future, you will see a few Skycars in and around the city. Someday you will be able to drive to the vertiport where the Skycar would be coded into an airway network and could then be operated without your input. You would be a passenger reading, playing computer games, or sleeping while you are taken from point A to point B on an airway guide network. That airway guide network is quite advanced, much more than the average person realizes, and within five years it will be pretty much complete. So we will then have the highway in the sky system. We have the vehicle technology now, and that vehicle will be able to be safely in people's hands because of this airway network's existence within the next five years. That is really the time frame I think when you are going to start seeing a number of Skycars coming into everyday use.

华尔街：关于飞行车或者无人驾驶飞行交通工具，您可以解释一下有可能将会发生什么吗？

穆勒博士：飞行车本身我可以这么说，它是一个混血儿，一个汽车，直升飞机，飞机的结合。它可以被折叠成 8.5 英尺宽，这样你就可以在公路上驾驶它，我可不会把它称作“赛车”或者是其他的什么东西，你可以以正常市内速度，驾驶它去到垂直起降机场-----我们现在称之为“直升机场的地方”。在可以预见的未来，我们可以发现在城市周边将出现一些投入应用的飞行车。有一天，你将会驾驶着飞行车去机场，在那里，你的飞行车将会在空中航路网络中被编码，然后就可以不用你亲身操作地航行了。作为一名乘客，你可以阅读，玩电脑游戏或是睡觉，而与此同时，空中导航系统将会自动地把你从 A 点带往 B 点。这个空中导航系统的网络是极其先进的，远远地超出了一般人的想象。并且在未来的 5 年内将会更加的完善。我们将会拥有在空中的高速公路。我们已经拥有了飞行车这项科技，而且它的飞行任务将会更加安全，原因就是未来 5 年内完善起来的空中交通系统。我可以说，飞行车步入千家万户并得到实际应用的时代就要到来。

**TWST: I have the impression that the Skycar eventually will not be overwhelmingly expensive.**

Dr. Moller: Various experts have examined the Skycar in detail, companies like Boeing, and nothing about it is expensive. We have replaced components that traditionally are quite expensive with computer technology, including the flaps, variable pitch fans, ailerons, etc. These are some of the things that make airplanes expensive to build and maintain. Admittedly, we have quite a few computers on board, but computers are now fairly inexpensive. Therefore we are able to provide great redundancy; if one computer fails, another takes over, and if that fails another takes over, so you don't have to worry that it might fail like your typical desktop computer. It is a flying computer, and inexpensive computer technology means the Skycar itself can be quite inexpensive. The other critical component, of course, is the engine, which we have spent enormous time and money developing. It is inexpensive, powerful, light and reliable and as a result has generated a huge potential as a spin-off product.

华尔街：我有一种想法，是不是飞行车最后的价格将会不可避免的昂贵?

穆勒博士：许多专家都检测过飞行车的细节，好比波音这样的公司。事实上并没有得出有关价格昂贵方面的信息，我们用新的科技替代了一些传统但昂贵的电脑技术，其中包括 FLAPS，可变倾斜风扇，副翼，等等。的确有许多东西使得飞机建造和保养的价格昂贵，不可否认，我们的确在机上用到了一些电脑设备，但是现在电脑设备的价格已经相当便宜，这样就使我们有着充足的后备，如果其中一部电脑出了故障，则另外一部将会代替它的职能。所以你别担心它会像你的台式电脑那样突然出故障。这是空中用的电脑，同时并不昂贵的电脑科技的价格代表着飞行车本身的价格也并不会太高。还有一个关键的部分，就是发动机，它是我们花费了庞大的精力和财力去开发的，它是一个价格合理，动力强劲，质量轻盈并且是值得信赖，充满潜力的产品。

**TWST: Can you tell us something about the guide network? How far advanced is it, and what kind of vehicle will be allowed to work through with it?**

Dr. Moller: The network is rapidly going into place and is for use by all types of aircraft. Commercial airlines use is initially its number one priority, and then it will be flights to and from small airports by charter flights so that they can use all these thousands of local airports. Today these convenient airports really can't be used effectively because it would be too dangerous if they were used in large numbers within our marginally controlled airspace. This developing airway network is most essential for vehicles like ours, which can be totally automated. This network is primarily dependent upon GPS. There are three worldwide GPS networks ' two in place and one going in place with the GPS launched by the US, the GLONASS by Russia, and the Galileo in development in Europe. So you have the triple redundancy, which is always a requirement. Then you have support systems called WAAS and LAAS, wide area augmentation system, and local area augmentation system that allow you to know where every vehicle is within inches. WAAS is already in place and LAAS is going into place. In fact, WAAS has worked so well that the FAA feels that they can reduce the need for LAAS. In any case, it really gives you the ultimate protection to you know that central

control knows precisely where every commercial airliner, general aviation aircraft and Skycar commuter is located and able to be precisely controlled as well.

华尔街：您可以向我们介绍一下空中航路系统吗？它现在的进展情况，并且什么样的交通工具允许在上面航行？

穆勒博士：这个系统将会很快的被投入使用而且所有种类的飞机都可以在其中通行。一些商业性的航路将优先得到它的使用权，然后它将会被租给其余的一些小机场，从而他们可以将其运用在某些区域内的数千个机场之中。在今日这些机场仍然无法被充分的使用，因为如果他们仅仅通过旁边的交通管制中心来处理大量的客流那将是十分危险的。这个航路系统可以说是恰恰为了像我们这样，完全自动化的交通工具而诞生的。这个操作系统首先取决于 GPS（全球卫星定位系统，目前全球一共有着 3 个主要的 GPS 网路，2 个已经投入使用还有一个也即将到位，它们是美国发射的 GPS，俄罗斯的 GLONASS，还有在欧洲研发的 Galileo 加利略计划。这样你就有了 3 手后备，任意那个都可能被用到。接下来你需要用到叫做 WAAS 和 LAAS 的支援系统，广域拓展系统，局部区域拓展系统，它们能让你知道每架飞机的准确方位，可以精确到英寸。WAAS 已经投入使用了而且 LAAS 也即将被投入。事实上 WAAS 的表现太出色了，使得联邦航空局(FAA)想要减少 LAAS 的使用。无论怎样，这确实给了你最顶级的保护，使中心控制部门了解所有商务航班，通用飞机和飞行车的动向从而能更好的控制它们。

**TWST: Are accident and fatality rates with general aviation much higher than commercial aviation?**

Dr. Moller: They are significantly higher, and that reflects not so much reliability of the light planes (that is a small factor), but it is more of a fact that these airplanes are not easy to fly. Weather is usually the thing that gets them into trouble. When you have an automated system, of course that removes the danger created by inexperienced individuals. Inexperience can simply mean you don't have the thousands of hours of training that make you an expert. More important, if something goes wrong with the Skycar, you have vertical landing capability; you don't have to find an airport. It is automatically flying IFR (instrument flight rules) and the aircraft is flying itself. You don't depend on personal skill to find your way out of a fog bank, and since you can land vertically anywhere, you have an infinite number of landing sites. It is quite a different world from what we know today. Aviation is dangerous for a number of reasons, mostly because it is relatively uncontrolled; quite frankly, when you are up in the air today, you are advised to look around constantly to see if somebody is coming in your direction.

华尔街：对于民用航空飞机来说，事故和灾害的发生率是否比商务客机要高呢？

穆勒博士：的确是非常高，这也反映出了轻便飞机的不可靠性（仅仅是一个因素），但是更重要的是这些飞机并不是那么容易就可以飞起来的，天气是最常见的不利因素，如果你拥有了自动的操作系统，很明显它消除了因为经验不足所带来的危险性。简单的说，没有经验的意思就是你没有经过数千个小时的训练而成为专家。更重要的事，如果飞行车出了什么故障，它是拥有垂直起降能力的，你不用去找一个机场，它将会自动按照飞行规格飞行。你不用靠

你的个人技巧来脱离一片雾区，因为你可以自由的降落在任何地方，这就意味着你拥有了无数个降落地点。这可是个和我们所了解的当今世界完全不同的情况啊。航空学在某种程度上来说是很危险的，因为它的确难以被控制，坦白地说，在今天，你仍然被建议在飞行途中注意张望四周,看看是不是有人向你飞来。

**TWST: Can you visualize a time when there will be lots of Skycars up there being very useful and practical?**

Dr. Moller: I think it is absolutely inevitable. I am not going to say that it needs to be Skycar; the technology is coming whether my company does it or not, but certainly the Skycar or something like that is emerging. We call them Volantor as a generic term, Skycar being our particular form of a Volantor. They are called powered-lift aircraft by the FAA. It is so inevitable that the FAA has already generated a private pilot's license called a powered lift pilot's license. We know it is coming. The question really is when. Our company is speeding up its arrival, but if we didn't do it, it would still happen. If the Wright Brothers hadn't flown, airplanes would have still come about.

华尔街：您可以想象一个时间，在那时将会有大量的飞行车被实际应用吗？

穆勒博士：我认为这是完全不可避免的，我并不是说这一定需要飞行车，不管我们公司研不研发该技术，飞行车及类似这样的科技正在涌现出来，我们称之为 VOLANTORS as a generic term 飞行车就是我们这方面的典型范例。在联邦航空局(FAA)，它们被称作动力起升飞行器。同样不可避免的就是,联邦航空局早已下发了这私人的“动力起升飞行器”的驾驶证。我们知道（飞行车的时代）将要到来了，真正的问题是在什么时候，我们公司正在快步推进它的到来，但是就算我们不做，它也一样会到来，试想一下，就算莱特兄弟不去研发飞机，飞机也是一样会出现在我们的生活中。

**TWST: As we look into the future, will the way it happens always be that you have it at home and you drive it to the airport and take off from the airport, or would they be left at airports as well?**

Dr. Moller: There is a very broad spectrum of ways that could be used. Boeing Company, for example, thinks that air taxi is going to be the major usage, and they could very well be right. People could lease them or they could rent them. Again, they could land at your local heliport or vertiport or at some point arrive at your home without a pilot on board ready to transport you and your family anywhere you like. You would then climb on board and be delivered to wherever you want without being involved in the flying process.

华尔街：我们放眼未来时，是否会是这样一种情况：就是你可以把它（飞行车）停在家里然后开去机场起飞，还是干脆就把它停放于机场呢？

穆勒博士：将会有非常广泛的用途，举例来说，波音公司，认为空中出租汽车将会是一个很主要的用途，并且将会被很好的使用。人们可以租赁飞行车或者租用飞行车。还是老话，它们可以自由的降落在任何一个你家附近的直升机场或者垂直起降机场，然后你不需要飞行员

就可以把你和你的家人飞到你们想要去的地方，同时，你也不用为了那些烦琐的飞行规则进程而感到棘手。

**TWST: That would be airport to airport.**

Dr. Moller: That could initially be airport to airport or vertiport to vertiport, which might be a small area in the city or a number of areas in the city, and then you would drive the Skycar from there to your appointment and then return to the vertiport. At some advanced stage, probably within 10 years, many of us will be able to take off from our homes. The only limitation to that right now is noise, and we have ways to bring the noise down to the point where you would be able to take off and fly without disturbing your neighbours. When that happens, you really won't need a vertiport. You will be able to go directly from your home to anywhere within 750 miles non-stop.

华尔街：所以将会是机场到机场的点对点传输

穆勒博士：在最初的时候将会是这样，从机场到机场，这将会函盖城市里的许多区域，你可以开着你的飞行车从你的指定地点回到机场。如果进展顺利的话，可能在 10 年之内，我们就可以从我们自己的家中起飞了，现在唯一的障碍就是噪音，我们也有办法来降低起飞时的噪音，从而使你在起飞时不至于吵到你的邻居。当以上情况出现时，你就完全不需要机场了，你可以简单的从你家飞往任何一个距离在 750 英里(1 英里=1.6 公里)之内的地方。

**TWST: Would you describe in layman's terms the technological breakthrough that you made?**

Dr. Moller: The most important one, quite frankly, is the engine. The Skycar is a little like a hummingbird. A hummingbird has a high metabolism, and that means you need a large amount of power and must generate that power in a very small package. So my company has spent almost 40 years and close to $40 million developing engines that are low cost, extremely reliable, very small, very powerful and can burn any fuel. The Skycar presently uses alcohol, but we can operate on diesel or gasoline as well. Without this engine, there could not be a Skycar. We have also done a lot of things in material use and concept design, and we have done testing to develop the appropriate computer algorithms etc., to work with our computers, but if there is one single factor that is most significant, it is our development of these special powerplants. Look at the history of aviation. It has gone forward based upon the powerplant development. The Wright Brothers built their own engine and made it work. The next big step was Glenn Curtis with his motorcycle engine that he ended up expanding into the aviation market, and that has pretty much been the history. Jet planes came along with the jet engine. The rotary engine or the Rotapower engine, as we call it, is the key to the future of personal aviation.

华尔街：您可以稍微通俗的介绍一下您所带来的这项巨大科技突破吗？

穆勒博士：最重要的一项坦白地说是发动机，这方面说飞行车有一点象蜂雀，蜂雀拥有很高的新陈代谢率，这意味着你需要极大的能量并且要把它们储存在很小的空间里，所以我们公司花了长达 40 年和接近 4000 万美元来开发低消耗，极其值得信赖，动力强劲，又小又可以使用任何燃料的发动机。目前飞行车是烧酒精的，但是我们可以把它换作柴油动力或者汽油动力也一样行的通。如果没有这个发动机，那就也没有现在的飞行车。我们在材料选择和理念设计方面也下了很大的工夫，我们也已经完成了对电脑系统处理能力的测试，等等，然而最重要就是我们这个独特的发动机。回顾飞行学的历史，可以看到发动机是起着举足轻重的作用，莱特兄弟开发了他们自己的发动机并让它们正常运作，然后是格论.柯迪斯和他的摩托车发动机，最后他可是成功的拓展到了航空市场，这也是一段广为流传的历史。还有伴随着喷气机一起出现的喷气机发动机，转子发动机或者是转子动力发动机，我们都把它们称之为通向个人航空未来的钥匙。

**TWST: Could you sketch out your timetable or your scenario for the next two to four years?**

Dr. Moller: In the next two to four years, we are going to be supplying unmanned and manned vehicles for paramilitary, military and other specialized users as well as other spin-off technology for the market. Initially you are not going to see many of these vehicles in the civilian market, but they are going to arrive in fairly large numbers within five to 10 years. I think

Dr. Daniel Goldin, the ex-head of NASA, put it really well when he said that within 10 years, 25% of the American population will have access to this type of vehicle, and within 25 years, 90% of the American population will have access. I think you can accept his view better than mine. Obviously I'm biased and an optimist or I wouldn't be doing what I am doing.

华尔街：您可以描绘一下您未来 2 年的工作计划吗？

穆勒博士：在未来的 2 至 4 年内我们将会提供无人驾驶和有人驾驶的交通工具给一些准军事，军用和其他有特殊需要的客户，前提是他们需要资助这项技术投入市场。最初在民间市场上你将不会看到太多的飞行车，但是在 5~10 年内它们将大量地被投向市场，我是这样认为的。

丹尼尔.高登博士，前美国航天局的领军人物，在谈到这点时很自信的说，在未来的 10 年内，25%的美国人民将会用上(飞行车)这种交通工具，并且在 25 年内，普及率将会达到 90%，我相信相对于我的论点，你更容易接受他的，因为我多少带点偏颇而且还是个乐天派,并且有点自卖自夸.

**TWST: What problems or challenges still lie ahead for you?**

Dr. Moller: The major issue for us is finding the right strategic partner to make this happen because clearly this is a technology that is not something you can develop in your garage, and it is not even something you can bring to the marketplace in a small organization. So we are casting about for the right partner to make this happen. It could be a General Electric or a General Motors. It could be some combination of both, but it is clearly a manufacturing entity

that knows how to produce product in large volumes economically. That's what the automotive industry can do. It is also what foreign countries like China can do and seem more inclined to do so; therefore, we are talking to businesses and government in that country as well.

华尔街：还有什么麻烦或挑战仍然摆在你们前面？

穆勒博士：目前我们所需要的是寻找一个合适的战略合作伙伴，来确定它（这项计划）的实施，因为这归根到底是一项高科技而不是你在你家车库里可以捣鼓出来的东西，这甚至不是一个小公司能够有能力把它带到市场上去推广的项目。所以我们正在寻求一个合作伙伴，它可以是通用电器公司或者通用汽车公司，也可以是两者的一个结合。但是他们必须是一个懂得如何去把产品用最经济的手段大量生产出来的制造商。这恰恰是汽车工业可以作到的，这也是那些海外国家好比中国可以做，同时也更加倾向去做的，所以，我们也在和满足这些条件的海外厂商洽谈。

**TWST: What about the short takeoff type vehicle? It might be one that just goes a few hundred yards and then takes off. We've heard a lot about that, but it doesn't seem to have permeated the whole situation.**

Dr. Moller: I think the problem with STOL (short take-off and landing) is that while it may be a vehicle that is more useful than many of the light planes today, it still needs an airport. It is still far removed from that final step of vertical takeoff because vertical takeoff makes it possible to have a flat roofed house in the city and take off from your home. That is a major step. STOL is interesting. It has a lot of specialized uses, but it really doesn't do anything like VTOL will do and that is the big difference. That is why what the humming bird does is quite unique. It is not an easy thing to do in nature and it is certainly equally difficult to do technologically.

华尔街：能说说关于短距离起飞交通工具的情况吗？我们听说它甚至只用助跑几百码就可以起飞，但是这看起来被接受度还不是很大呢。

穆勒博士：我认为关于 STOL（短距起降）的问题，在于它虽然可能是一件比当前的那些轻便飞机更有用的交通工具，可是它仍然需要一个机场。这和垂直起降飞机的最终理想还有差距，因为我们是认为到了最后你只需要在市区拥有一栋平顶的房子，你就可以从你家的屋顶上起飞。这将会是一个主要的用途。STOL 是很有趣的，它有着许多特殊的用途，但是有些象 VTOL（垂直其降）可以作到的事，它确实作不到，这也是最大的不同点。这就是蜂雀为何如此与众不同，对于自然界来说这都是很难均衡的，何况这是一项重要的科技呢.

**TWST: Have you been on this project full time to the exclusion of other things or have you been working on other inventions along the way?**

Dr. Moller: You get spin-off technologies when you're working on any major project and, of course, I use those spin-off technologies to help fund the Skycar development. The Skycar is longer range, which many people might consider an impractical goal. Of course, it was an impractical goal to start with considering that it took 40 years to develop. But along the way

we've created many other things. At one point we were the world's largest manufacturer of high performance mufflers. I have had personal success in some fairly large real estate projects which has helped create operating capital. We've licensed certain elements of our technology to other companies along the line. At one point we developed an engine for General Electric. So we have done anything necessary to survive financially. In recent years we have had increasing interest in our engine technology from the investor community. Raising capital for technologies like the Skycar continues to be very difficult. Corporations today in America look at the six-month bottom line. They don't look at six years, and that makes it very difficult to raise capital with corporate America's limited vision.

华尔街：您在专注于这件事的时候是不是把其他琐事都排除了呢？ 还是您同时也在进行其他的研究发明？

穆勒博士：当你在进行主业的时候，你通常难以避免处理一些旁支项目，当然，我利用这些旁支科技来为飞行车的研发融资。飞行车是一个长远的计划，很多人认为它是一个不切实际的目标。当然，花费 40 年来研发，咋听的确不切实际，但是在达到这个目的的途中我们开发出了许多相关产品。一方面我们是世界上最大的消声器生产厂商，我个人在一些大型房地产投资中也有巨大的成功，这可以帮我们征集到一些资金，在可以被接受的条件下我们也会授权给其他的公司我们的一些科技基础。从另外的方面来说我们也为通用电气生产发动机，总而言之，我们会做一切能使我们在市场上能够存活下去的工作。最近几年，投资者对我们的发动机技术愈来愈有兴趣。对于飞行车这样的一项高科技来说，想要筹集资本是比较困难的。现在在美国的那些公司往往只着眼于 6 个月内的利益，他们从不放眼将来，比如说未来的六年，这就使得想从目光短浅的那些美国公司那里筹集到资金变的非常困难。

**TWST: How are you doing for cash right now?**

Dr. Moller: We've always been under capitalized, but we continue to progress technically despite this. So I suppose persistence is probably our greatest attribute.

华尔街：你们手头的资金目前怎么样了？

穆勒博士：（不幸的是）我们总是处在一种资金不足的情况下，但是我们会继续通过技术性手段来解决它，我认为之所以我们仍然坚持不懈正是由于我们坚持不懈的优秀品质。

**TWST: Could you tell us about yourself and perhaps about one or two of your colleagues?**

Dr. Moller: My technical background started at trade school where I became an aircraft welder, machinist and a certified aircraft mechanic. I went into industry for a while and then back into graduate school where I got my Master's and PhD. I still felt that because I had not done undergraduate work that I needed to improve my basic background, so I decided to teach as a means of learning. I joined the University of California and taught for approximately 10 years. While there I created the aeronautical curriculum at the University of California in Davis, putting in wind tunnels and a lot of aeronautical tools. In 1967 I formed a small company,

almost a garage operation, and began developing various aeronautical products. This activity expanded into a number of businesses, one of which sold about $100 million of muffler product worldwide. I've also developed other mechanical products that have been licensed and manufactured. But even though my company created hundreds of millions of dollars in capital, the problem is that this technology costs hundreds of millions of dollars to develop, so the net consequence of that is zero. Only now are we in a position to move our products into the global economy.

华尔街：您可以向我们大家介绍一下您自己或者简单的介绍一下你的一些同事么？

穆勒博士：我的科学方面的背景知识来源于我所在的技术学校，在那里，我成为了一名飞行器的焊接工，机械师和得到鉴定的航行器技师。我在从事工作了一段时间后又回到了大学校园并且拿到了我的硕士和博士学位。我仍然感觉我需要弥补一些基础方面的知识，于是我就想通过教书的手段来进一步学习。然后我就投身于加州大学并且从事了大约 10 年的教育工作，我在那里为加州大学创立了航空动力学这门课程,设计了风道和许多的航空学相关工具。在 1967 年我成立了一家小公司，几乎就只有一间仓库的规模，开始开发一些航空方面的相关产品，业务涉及到许多家公司，其中一家在全世界范围内有着上亿美圆的消声器销售额。我也开发了其他不少拥有许可以及已经被生产的航空学产品。可是问题在于虽然我们公司创造了数亿的利润，可惜我们也需要数亿的成本去开发这项科技，所以算下来净利润基本为零。而正是在这个时候，我们需要把我们的产品投入全球市场。

**TWST: And your colleagues?**

Dr. Moller: I have, of course, various talented people within my company because while I'm a mechanical and aeronautical engineer, I'm not an electronics engineer. This is a technology that requires expertise in many other areas like materials and composite construction. So I have had some of the best people working with me over the years, and have hired the very best as consultants. Today we probably have every significant expert in rotary engines working for us as consultants except those employed by Mazda.

华尔街：那您的同事呢？

穆勒博士：是的，我当然有，有许多的天才员工在我的公司效力，我想这或者是因为我是一个机械学和航空学的工程师而不是电子学的吧。这是一项需要在许多领域可以给予专家性见解的人才，比如说材料或者一些结构设计的问题。所幸的是我拥有许多优秀的人才和我一起工作，同时也聘请了许多专业顾问。我想我们今天拥有在转子发动机领域最优秀的专家来做我们的顾问，当然，除了那些被马自达公司雇走的。

**TWST: Looking back over the years as you've worked on these things, has there been any controversy? I read that the SEC issued a complaint.**

Dr. Moller: That's correct.

华尔街：回顾这些年您的工作，当中是否有过什么争论？我从证券交易委员会的报告中读到了一些抱怨。

穆勒博士：是的，没错。

**TWST: Could you explain that?**

Dr. Moller: Yes. Any non-public company (which we were early on) that raises money from what we would call angel investors or any investors has to raise it under certain SEC regulations that require you to determine that you are dealing with sophisticated investors. The problem is that sometimes people who want to become investors in your company will exaggerate their own net worth or sophistication, and it's really up to us to determine whether that's valid or not. We did have some investors come on board that the SEC argued were not sophisticated. Normally this kind of issue is resolved by providing a rescission agreement so that the investor can get his money back plus 12% interest. We have used this before successfully when any issue came up. The individual we were dealing with within the SEC resisted this approach. We believe he did so knowing that the investors in question did not want their money back and this would have voided his case. Any small company that has faced off against the SEC will tell you that you do not fight this powerful government agency. You accept a fine to settle. You don't accept guilt. You're not claimed to be guilty, but a fine is a way of getting rid of something that you could never win if you really try to defend yourself. If anybody has experienced a fight with the IRS or the SEC, they learn quickly enough that, as a small company, you don't have the government resources to legally fight it. The few who try always lose.

华尔街时报：您可以解释一下吗？

穆勒博士：可以. 任何一个像我们这样，从我们称之为 “天使”投资者处融资的非公众上市企业，必须遵守证券交易委员会的有关条例. 该条例要求我们的投资者必须是 “成熟老练投资者”(sophisticated investors). 但有的时候，希望成为我们投资者的人可能会夸大他们的净值或”成熟老练”，这真的需要我们自己来决定取舍. 我们有一些从海外来的投资者，被证券交易委员会裁决为: 不是“成熟老练投资者”(sophisticated investors). 正常情况下，解决这一问题的方法是，我们可以同该投资者签署一个”废止”协议，他们可以在收取 12%利息的基础上收回投资. 但是在证券交易委员会中主管我们案件的官员，他不同意这种解决办法. 我们分析他不同意的原因可能是: 他知道我们的投资者不想 (在短期内) 撤资，这种解决办法没有法律实效.

任何同证券交易委员会有过争议的小公司都会告诉你: 不要同政府部门打，交罚金走人，不要接受任何有罪指证等等…但是交罚金只能了事但你永远也无法捍卫你的权利. 如果你同税务证券政府部门打过，你会很快明白，由于你缺乏政府部门(人力)资源，打赢几乎是不可能的事.

**TWST: Do you get around much lecturing and talking about what you're doing?**

Dr. Moller: I get invited to talk at many different forums, but the only thing I do consistently is give a paper every year at the World Aviation Congress. Periodically during the year, I may give a talk to various groups. I was recently invited to be on a panel of a major FAA sponsored discussion in Atlantic City on the future of aviation. I had to decline because I am scheduled to meet in China to discuss the production of the Skycar there.

华尔街：你有受邀去参与一些关于你所从事工作的讲座吗。

穆勒博士：我曾经受邀请去许多论坛演讲，但是我每年唯一一件一直做的事情就是在世界航空学大会上发表一些讲演，每年的一定时间我都会给一些团体进行演讲。最近，我又受邀去亚特兰大参加一个由 FAA 主要创办人小组的座谈会，是关于航空业的未来的，但是我想我不得不拒绝因为我必须去中国讨论飞行车在当地生产的有关事宜。

**TWST: Around the globe I assume there are some people doing things that are somewhat similar.**

Dr. Moller: Some smaller companies are trying. But I'm actually protected by the enormous cost of doing this. On one hand, you have the big organizations like the aerospace companies working on military VTOL aircraft, but their solution is always the same one: put a large turbine engine in it, take off vertically, and yes, that's doable, but you have a product that costs $25 to $100 million. On the other hand, you have people who, if they do not possess our engine technology, have no serious way of achieving their goals inexpensively. The bottom line is that no matter how successful you are at vertical takeoff, if it's not economic, it doesn't have a market. So that is where we have a great advantage with our engine. It is low-cost and powerful, and makes all our products possible. In addition we have a number of patents that give us a lead. We won't keep this lead forever, but for the time being, we certainly are ahead of everyone else in the world by at least five years.

华尔街：我猜想世界上也有一些人在做着某些类似的事情。

穆勒博士：一些小型的公司也在尝试中。然而我们由于有强大的财力支持而受保护。一方面，虽然其他公司拥有一些大的组织做后盾，比如生产 VTOL 型军用飞机的航空宇宙公司，但是他们总是使用相同的的解决方案：使用涡轮发动机，垂直起飞。是的，这当然是可行的。但是他们每生产一件的成本是 2500 万到 1 亿美元。另外一方面，其他公司的那些员工们，如果他们没有掌握我们的发动机技术，则无法在低成本上达到他们的目标。这个底线并不在于你在垂直起飞方面做的多么的成功，如果它不经济，它就没有市场。所以说呢，这就是我们发动机具有巨大的优势所在。我们的发动机成本低，动力大，让我们所有的产品的商品化成为可能。另外，我们有很多的专利让我们处于领先的地位。我们不可能永远保持领先的地位，但是就目前而言，我能肯定我们超过世界同行至少五年。

**TWST: I read that when Skycar is completely ready, in today's money you could purchase one for $50,000 to $60,000. Is that correct?**

Dr. Moller: Yes, in volume production probably less. I don't promote this potential because it may sound unrealistic. I will state as others have stated after reviewing this technology that it should be as inexpensive as a modest priced car at high production volumes. The basic vehicle itself is not expensive, but its ultimate cost is colored by the fact that you're dealing with the FAA, and you have maintenance issues, reliability issues and some things that cars don't face. Still it is only a matter of time, and someday at some point, everybody in the world is going to have access to Skycars. They may not own it, but they'll be able to get it and go wherever they want, whenever they want at 300 miles an hour and up to 25,000 feet altitude.

华尔街：我曾了解到，今天如果飞行车生产交货，你花上五到六万美元就可以购买到一部。这是真的吗？

穆勒博士：是的，规模生产后价格可能会更低，但是我不想促进这种趋势，因为这听起来不现实。。在回顾了这种技术之后，我想表达的也就是其他人曾经说过的：应该大量的生产这种成本跟普通价位的轿车差不多的飞行车。这种交通工具本身并不贵，但是它最后的成本还将包括如下几个内容：和联邦航空局(FAA)打交道，维修问题，公共责任险的问题还有其他一些一般汽车所没有面临的问题等等。这仍然是一个需要时间的问题，在将来的某一天从某种程度上来说，世界上的每个人都有权进入飞行车这个领域。或许他们还没法拥有，但是他们有能力去使用，不管他们想去哪里，在任何时候都能做到 25000 英尺的高空中时速 300 英里。

**TWST: Very nice for the Boston-Washington corridor.**

Dr. Moller: Well, not just there. I can assure you even from a small town like Davis, California, going to San Francisco, which used to be a one-hour drive, can now take five hours. It would make a great difference to cover those 70 miles in 15 minutes.

华尔街：对于波士顿－华盛顿通道来说是件好事。

穆勒博士：是的，不仅仅是那里。我敢肯定，你从一个小镇比如说戴维斯、加利福尼亚等去旧金山这个路程，过去开车要一个小时，现在可能需要花上五个小时才能到达。但是，飞行车完成这 70 英里长的路程，无论在任何时间，只要十五分钟。

**TWST: What is the ceiling? 29,000 feet?**

Dr. Moller: It can go even higher than that, but the engine's become less efficient because we only turbo charge them for operation up to 25,000 feet. The Skycar itself has the aerodynamic capability of flying up to 40,000 feet, but it would take a two-stage turbocharger 'something that we haven't developed at this time.

华尔街：那最高飞行高度是多少呢？ 29000 英尺？

穆勒博士：它可以航行到更高的高度，但是到更高的高度发动机的动力就没那么好了，因为我们的最大运行高度是25000英尺。飞行车机器本身实际的空气动力能力能达到40000英尺，

但是这需要第二阶段的某种涡轮增压器，这种增压器我们目前尚未研发出来。

**TWST: What will it look like, and what will its dimensions be in terms of wingspread, etc?**

Dr. Moller: When it's folded, it's the size of a big Cadillac; you can park it in a single car garage. When the wings are unfolded, it's still much smaller than a typical light plane, with a wingspan of only 18 feet. In the folded form, it is described as looking like a Batmobile. I suppose that's a reasonable description; I can't do any better than that. When the wings are folded out, it looks somewhat like a canard-winged airplane with large knobs on the end of the wings, which are the ducted fan thrust units.

华尔街：那飞行车的外观呢？ 它翼幅的尺寸有多大呢？

穆勒博士：它折叠起来就跟大的卡迪拉克轿车差不多，你可以停放在单间的车库里面。在机翼展开的时候，翼幅只有 18 英尺，它还是比一般轻型的飞机小得多。折叠起来的形状就像一个 Batmobile（蝙蝠车，蝙蝠侠开的车）。我想我的描述很合实际，一点夸张的成分都没有。当机翼折叠起来的时候，它看起来就像是一架机翼尾部长个大瘤的鸭式飞机，有涵道螺旋桨的推力装置。

**TWST: If it becomes very popular, are the skies going to be too crowded?**

Dr. Moller: The best vision I can give you is if you took every car that's on the highway in America today and put it in the air at the same time, they would still be miles apart, except of course near the city where you're coming in to land. So it's something where even if everybody were commuting by air and you looked up, you would see only a very few vehicles. It's remarkable how much air space is available to use. On the ground we have space for a few highways, but in the air we could have an almost infinite number of airways because we can layer them both laterally and vertically. When you're in automated flight, you will be on these airways, but airways can go around cities so even the air over cities wouldn't be something you would normally observe as being crowded.

华尔街：如果飞行车非常普及的话，那我们的天空会不会变得很拥挤？

穆勒博士：打个最形象的比方，如果把今天美国所有的汽车都排到空中公路上去，所有的车子之间的间隔还是有数英里之远，那么将来飞行车非常普及以后的情形就是这样的，当然了，除了在靠近城市即将降落着陆的上空会挤一点。所以，即使以后每个人都乘飞机上下班，你抬头看天空的时候也只能看到为数不多的几架飞机。值得关注的是我们到底有多少的高空空间可用。在陆地上我们可用的公路毕竟是有空间限制的；但是在高空中，我们能用的航道可以是很多，因为我们可以在横向和纵向上面分层规定航道。当你处于自动化飞行时可以在规定的航线上飞行，但是这些航线是绕着城市的方向走的，所以城市的上空不可能是我们通常观察到的那么拥挤。

**TWST: With everything computerized and guided, human error must be less of a factor.**

Dr. Moller: Yes. We always joke about the fact that a drunk could get in the Skycar, and the worse that could happen if he codes in the wrong destination he would end up in the wrong city. But he'd end up there safe and sound because the Skycar will fly you where you think you want to go without you being allowed to be involved as a pilot.

华尔街：如果所有的一切都是用计算机处理和引导的话，那么人为错误的因素就会减少。

穆勒博士：是的。我们经常开玩笑说醉汉开飞行车的话，如果飞行目的地编码选错的话，最糟糕的结果就是他去了不是他想去的那个城市。但是这个醉汉能够安全地到达，因为飞行车会带你去你想到的地方，而不需要你亲自当飞行员。

**TWST: Regarding the company itself, do you see any reason or need to improve your capital structure right now?**

Dr. Moller: We're always in a mode of either finding the right partner to make it happen more quickly or raising capital internally, and of course, raising capital is very difficult for an emerging technology like the Skycar. As a result, we have spun off our engine technology into a separate production corporation called Freedom Motors. Right now we have letters of intent for almost $1 billion in engines (approximately 500,000 engines). So the engine business is going to be a big part of our investors' future. We're sure to eventually fund the Skycar this way if we don't find the right strategic partner in the near future.

华尔街：提到公司本身，你觉得有理由或有必要改善目前的资产结构吗？

穆勒博士：我们总是处于一种模式，要么寻找合适的合作者使企业更快速地发展，要么就是增加自身的资本。当然了，增加资本对于像飞行车这种新兴的技术来说是非常难的。我们已经把我们的发动机技术分割出来成立一个独立的生产企业一起名叫 Freedom Motors（自由发动机）。目前我们已经有大约 10 亿美元的意向预订合同（大概是 50 万台发动机）。所以说发动机的生意将成为我们资金来源的主要部分。在不久的将来如果我们没能找到合适的战略伙伴，我们肯定最后会通过这种方法来投资飞行车。

**TWST: Regarding finding a partner or alliance, what about also being acquired? Would that be of interest at some point?**

Dr. Moller: Neither I, nor my private and public investors are interested in that at the moment. Of course, if we are going to join forces with a company like Boeing, they're not going to sit there and let me control that industry. So clearly, we would give up some measure of control, but not our entire ownership. Besides, as a public company, it would be up to my stockholders what we really ended up doing. I can see a situation where we became a significant stockholder in a very large corporation. I'm not saying we would join a Boeing; Boeing might form a separate company, and we would have a strategic partnership involving our stockholders and Boeing. We're in this for the long haul. We see the future as being so bright that everybody is excited to continue to be a part of it. If you follow our stock, you'll see that

people don't really want to sell it. We don't have a lot of people buying it because they're not aware of our company, but it would take a very modest purchase of our stock and the stock price would go through the roof because there are very few of our stockholders who want to sell.

华尔街：提到寻找合作伙伴或联盟，收购怎么样？ 某些方面来说是否有兴趣？

穆勒博士：在包括我还有我们私营的和公共的投资者对这都不感兴趣。当然了，如果我们加盟像波音这样的大公司，他们绝对不会交出这个企业的控制权，放手让我们来管。所以很清楚的是，我们将会放弃某些控制权，但不是全部的所有权。另外，作为一家股份制公司，我们最终真正想做的事情将由我们的股民来做决定。我们将成为一个大企业的大股东。我不是在说我们将加入波音公司；波音公司可能另外成立一个独立的公司来和我公司进行战略性的合作。我们一直都在为这事努力。我们能预见我们的未来是光明，每个人都激动不已地想继续做其中的一员。如果你购买了我们的股票，你将会看到拥有我们股票的股民并不想卖掉手头上的股票。还不是有太多的股民想买我们的股票，因为他们还没有真正地了解我们公司。适当地购买我们的股票，股价将一直上升，因为很少有人愿意卖出手头上的股票。

**TWST: What would be the two or three best reasons for a long-term investor to take a very good look at Moller International?**

Dr. Moller: I think they really have to look at our technology together with the declining state of automobile transportation. They can get comments from experts on our history and technology. They can get detailed information from the company. They need to look at what we have or hear somebody like the Chief Scientist at NASA, Dr. Dennis Bushnell, saying that the Skycar volantor is going to be a trillion-dollar industry within the next few years. A good example of its future is reflected in the vision China has for this technology. They believe that the Skycar can bypass much of the ground-based transportation infrastructure much like cell phones, etc. bypassed ground-based telecommunications. We're going to usher in the future personal transportation and are certainly the lead technology at the moment. With a little study it is not difficult to determine that this technology has a tremendous future.

华尔街：展望穆勒国际，对于长期投资者来说能否说说两到三个最好的理由？

穆勒博士：我认为，在汽车运输走下坡路的这种状况下，他们真的应该转变过来看看我们的技术。他们可以从专家那里得到一些关于我们公司历史和技术的评价。他们也可以从我们公司获得更详细的信息。他们应该了解一些人对我们公司的评价，像美国国家航空航天局(NASA)的首席科学家 Dr. Dennis Bushnell 说我们飞行车在接下来的几年里将成为万亿美元的企业。中国也已经关注到这一技术，这就是这一新型交通工具拥有美好前景的一个很好的例子。他们相信飞行车能够避开地面上交通的基础设施不受其干扰，就像手机等一些通讯工具避开地面的有线通讯设施一样。我们将在未来个人交通工具领域中起引导作用，很肯定的是目前我们在这一方面的技术已经处于领先地位。稍加研究就不难断定，这一技术有广阔的前景。

**TWST: Have you reflected on how this will change the character of our lives way down the road? Will people be living very differently because of this?**

Dr. Moller: Yes. It is interesting to study the demographics of what could happen with everyone having access to a Skycar. I think San Francisco is a prime example of how things could change. Today in San Francisco you can pay $1 million for a small apartment because you can't tolerate the commute, and you give up a lot in the process in terms of liquidity for other things. When the Skycar is available, you can buy yourself an impressive country home, buy a Skycar and probably put money in the bank after selling your apartment in San Francisco. You just want to make sure you're one of the first few out because real estate values are going to fall. I think living conditions would be very different because the world in which we operate is pretty much defined by how far we can travel in a day. When we could only walk, it was 10 miles. When we could ride a horse it might be 100 miles, and today with cars we can go 500 miles. The Skycar expands that by at least a factor of five (covers much of the US), so your operating world becomes much broader and with cars slowing down it's probably even more competitive than what I just described.

华尔街：您是否考虑过飞行车在道路上给我们的生活方式带来怎样的变化？

穆勒博士： 是的。研究飞行车所带来变化的人口统计数据是很有意思的。我认为旧金山就是一个未来将如何变化的很好的例子。目前，由于人们因无法忍受其交通拥挤而支付 100 万买一套小型公寓，为此人们放弃许多其它的流动资产。假若可以使用飞行车，你可以在乡村买一套不错的房屋，买一辆飞行车，或许把你在旧金山的公寓变卖把钱存进银行。你要确定你是头一批由此举动的人，因为房地产价格将会下降。我认为生活条件会有很大改变，因为我们的工作空间主要是按照我们一天能走的路程计算的。如果我们只是步行，它只有 10 英里。如果我们骑马，大约会有 100 英里，而当今驾驶汽车会有 500 英里。飞行车最少会使人们的工作范围扩大五倍（可覆盖美国大部分地区）由此你的工作范围会明显扩大，汽车数量会减少。实际情况可能比我描述的更为复杂。

**TWST: There's a tremendous trend of working remotely these days. If you put that together with what you're doing, the shape of American life could be very different in the future.**

Dr. Moller: Absolutely, not only in terms of using the Skycar for getting to work, if that's your first priority, but think about the fact that when you're on that way to work, you could relax, work or even sleep because you aren't flying this vehicle. You're not devoting your energy to operating it or being stuck in traffic like we are today and still having to pay attention as the traffic moves slowly along. The ability to completely remove yourself from that and be productive will change not only your commuting experience, but also your time at work or at home.

华尔街：目前，出现了在远处工作的趋势。如果您把飞行车与您目前所作的一切结合起来，美国人未来的生活形态会有明显的不同。

穆勒博士：毫无疑问，如果飞行车是你的首选。不但可以用作上班的交通工具，而且如果你想一下上班途中，你可以休息，工作甚至可以睡觉因为并不是你在驾驶这辆飞行车。你不用去费神去驾驶或是像我们今天这样出现交通堵塞或如今缓慢的交通速度。使用飞行车你便可以摆脱这些问题的能力及其高效率改变的将不仅仅是你的通勤过程，而且也影响到你工作或在家的时间安排。

**TWST: Do you live in Davis now?**

Dr. Moller: I live in the country near Davis, California. I grew up on a farm in British Columbia, Canada. I enjoy country living, but also like visiting cities like San Francisco or Sacramento, which is becoming harder to do every year.

华尔街：目前您是住在戴维斯吗？

穆勒博士：我住在戴维斯附近。我成长在加拿大的不列颠哥伦比亚。我喜欢乡村生活，不过也喜欢到像旧金山或萨克门托这样的城市旅行，然而(由于交通堵塞问题)，这将越来越困难。

**TWST: With your background, it would have been a very easy switch for you to work for somebody bigger and make more money and be more secure. How have you sustained yourself psychologically over the years?**

Dr. Moller: I've had the satisfaction of creating products and making a lot of money with many different products and on many other projects. That, of course, helps keeps you going. But the thing that really keeps me most excited is probably my optimism for the potential of what I am doing. It's the best way I can put it because anybody who does what I'm doing is going to have to be an extremely optimistic person. There are times when things can get very difficult. We've had many periods over the last 40 years where I have been financially insolvent by most people's standards. I rose from the ashes because I have this absolute commitment to making this technology work. Now, I'm not saying that I'm so noble that I'm doing it for the sake of society. I think society would benefit greatly from it, but it is a personal drive on my part to have a vehicle that can do what I know the Skycar can do and will do. The fact that society is going to benefit from this is very satisfying as well. But I suppose I'd be doing this whether or not I knew I was going to make money from it or knew that the rest of the world would be using it at some point in time.

华尔街：据您的实力，很容易找另一个更大，赚钱更多而且更加保险的公司。在这些年里，您是怎样克服心理的障碍?

穆勒博士:我对于发明产品并从不同的产品及其他项目上而赚钱感到很满意。当然，这会促使你不断前进。但是真正使我激动的是我对于所作事情的乐观态度。任何一个和我做同样事情的人都必须是非常乐观的人。有的时候事情进展会非常困难。在过去的四十年，我们遇到了许多被其他人认为是破产的阶段，但是我下决心从事这项技术而战胜了种种困难。现在，我并不是说为了社会而说明自己高尚。我认为确实它会给这个社会

带来很大益处。对我而言，我希望能有一辆像飞行车一样的能够按照我的想象行驶的汽车。社会将从此受益的这个事实是很令人兴奋的。无论我是否可以从这个项目中获利，但整个世界最终将会使用飞行车。

**TWST: Thank you. (MC)**

华尔街：谢谢您。