C 1 ACADEMIC ENGLISH - TAPESCRIPT – 17.06.2015

Listening 1.1

Susan: Hello, John. How was your conference on space travel?

John: Hi, Susan. It was great. We heard some fascinating speakers, especially one fellow who was an expert on Mars. He thinks it's quite feasible for humans to live there in the near future.

Susan: Well, if we spent the billions of dollars that go into space research on looking after our own planet, then perhaps we wouldn't need to worry about the Earth being uninhabitable in a hundred years' time. Nor would we need to look for another planet to colonise!

John: Yes, but there are some important things that space exploration can teach us, you know, especially about the history of our own planet and its atmosphere. That sort of knowledge could help us solve some of the problems that threaten our planet.

Susan: Still, I don't really see why they have to send astronauts into space. Robotics is so much more advanced now, why can't they simply send robots?

John: Well, robotics has come a long way and it is more expensive to send a manned spaceship into orbit, but the biggest problem with robots is that they have to be programmed for every possible eventuality.

Susan: Yes, I suppose you're right. Robots just can't react to situations independently the way that humans do - they still need us to tell them what to do.

John: That's right. Robots may have come a long way, but if you're going to go all the expense of building one, you really need to make sure it's going to work when it gets there and they don't tend to take risks with now and untested technology. What if it lets you down? So, instead, a lot of the space technology nowadays is actually based on the technology they used in the 1970s, because we know that it works and it's reliable.

Susan: So do you think it will ever be possible to send robots to Mars?

John: I'm not sure. One of the speakers spoke about that, and he says that communication would be a problem.

Susan: Is that because of the conditions? I mean those extremes of temperature and even the atmosphere itself, would probably create an awful lot of interference.

John: Yes, but they're both issues that can be dealt with. No, the real problem is simply how far away it is. That would cause long delays before the robots received any messages about what to do next, so for the moment they don't think it's feasible.

Susan: Hmm, that makes sense. But, tell me, do you really think we should be contemplating sending humans to Mars at all? Don't you think we should wait until we do have the technology?

John: Well, many years ago the civilisations that built the pyramids or that began building enormous cathedrals must have started the project never expecting to see it finished. I think we should take the same approach and start our preparations now.

Susan: That's an interesting point, though I'm still not convinced. Surely you don't foresee a time when humans will be living on Mars, that's just science fiction, isn't it?

John: Not at all. I think there is a distinct possibility that humans will live there.

Susan: But what about the conditions there? Even the dirt on the ground could kill us.

John: Yes, I agree with you there, but we can easily build a self-contained structure there so people don't need to go outside.

Susan: Mm, I suppose the ground does also contain a lot of resources, so getting metals wouldn't be a problem.

John: That's right. A lot of building materials could be found there. But there are still many risks involved.

Susan: Yes, what about radiation? I don't think there will ever be a way to shield us totally from cosmic radiation. Even inside a spaceship.

John: I can't agree with you there. Astronauts have been travelling in space for a long time now, so that shouldn't be too much of a problem for us.

Susan: I just don't think we have enough experience of living in space long-term.

John: But you have to accept that it is within the realms of possibility that one day there will be a Martian space station.

Susan: Well, I have every faith in science and Mars does seem to be the next frontier. So, yes, I imagine we will eventually send a space mission there, but I can't see people living there.

Listening 1.2

Sandy: Good afternoon. I'm Sandy Raymond and I'm going to be talking about a remarkable timepiece called the Breitling Emergency Watch. Some of you may remember it as the watch that Richard Branson auctioned off on eBay, raising £20,000 for charity, after he'd lent it to Steve Fossett for his non-stop round the world flight. Perhaps more significantly, though, it was the kind of watch being worn last year by two British pilots whose helicopter crashed into the sea just off Antarctica. Finding themselves in a lifeboat with no other means of communication, they activated the transmitters inside their watches. The signals were picked up by a Chilean aircraft, which homed in on them and then organized a rescue that saved the men's lives. And these are just the people the watch was designed for: aviators and air crew who suddenly find themselves on the ground or in the water after a forced landing. The watch has a built-in microtransmitter which can broadcast a signal for up to 48 hours on 121 point 5 megahertz, the aircraft emergency frequency. It's water resistant, too. Even with the transmitter operating, it can be used at depths of up to 30 metres. The operating range depends to a great extent on whether there are any obstacles between the transmitter and the rescue aircraft. On flat terrain with few trees, for instance, the signal can be picked up at up to 160 kilometres away, and it's the same on water as long as the seas are calm, while from the top of a mountain it has a range of up to 400 kilometres. It's not a particularly bulky or heavy item to wear, though: at 16 millimetres thick and measuring 43 in diameter, it's just 85 grams, which is about the normal weight for this kind of wrist watch. So, what makes this watch tick, as it were? The answer to that is two separate mechanisms: one quartz electronic with an LCD digital display, and the other a self-winding mechanical system that turns the hands. This is driven by an oscillating weight that swings in time with the movements of the wrist, thus creating the energy to rewind the watch automatically. I should point out here that this is hardly a new invention, as it dates back to 1770 when the Frenchman Abraham-Louis Perrelet first made a watch of this kind. Incidentally, an example of his work is still keeping good time today, over two hundred years laser.

Let's take a look inside an Emergency Watch. Possibly the first thing you notice at the top is the gold ring indicating compass points and degrees. This surrounds the crystal, which looks like glass but is in fact made of a scratch-proof synthetic material. On a scale of one to ten, with ten as diamond hardness, this scores nine. So the crystal fits onto a protective case made of titanium, a hard but light antimagnetic metal that is also used in the manufacture of high-performance aircraft. On the right-hand side of the inner case is the crown, used for setting the time and the date. This rounded knob has a locking device to prevent moisture or dust getting into the watch. The watch itself, with the two independent timing systems I mentioned before, is kept separate from the other components. This means that even if the timekeeping functions are damaged in a crash, the emergency signal can still keep going out. For this reason there are two batteries, an upper one for the watch and a transmitter battery below which fits neatly into the circuit board. All the above are housed in the outer case, which in the case of the version shown is made of gold alloy. On the right of this case you'll notice a rounded cap, which looks like a winding knob, but isn't. This is the real 007 bit: if you twist the cap anticlockwise and then pull to its full extent, the cap comes off and you have a 43-centimetre antenna, which immediately starts transmitting on 121.5 megahertz. Incidentally, on the other side of the case there's a secondary antenna which can also be extended, thereby increasing the range of the transmitter.