Space can't wait

Sir — We applaud Alexander Harcourt (*Nature* **387**, 340; 1997) for emphasizing the value of exploring the world around us. Pressure abounds to devote all our resources toward investigations that promise quick technological pay-offs. It is refreshing to read an exhortation for support of discovery and understanding of the biological sphere.

In recent years, our understanding of biota has grown significantly from an unexpected vantage point — the "lifeless void" of space. Only in space can the influence of gravity and other earthly physical phenomena be separated from the organisms and biological processes we want to understand.

By conducting biological research on orbital platforms, scientists have been able to make tremendous gains in basic understanding of human physiology, protein structure, signal transduction, developmental biology and immunology.

Exciting developments in the area of exobiology may signal present or past life on our neighbouring planet Mars, and have also sparked the search for life in extreme environments on Earth. Space research ignites our curiosity and goads us on to new levels of understanding.

We therefore disagree with Harcourt's contention that "space can wait" for the attention of future generations. It is also a mistake to pit one area of science against another in the guise of bolstering funding of earthbound exploration, when contributions to our understanding come from every discipline.

Scientists should instead strive to foster an awareness that scientific inquiry and discovery are intrinsically valuable and worthy of increased support. To borrow a slogan from the International Space Station: "Great nations dare to explore."

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Sir — I was disappointed to read your leading article "Martian life to be avoided" (*Nature* **388**, 211; 1997). I strongly believe that it is appropriate to plan, and to achieve, the human exploration of Mars.

Excellent science is indeed possible without humans, as the robotic explorations of the Moon by the Ranger, Surveyor and Luna probes, and of course Mars by the Viking probes, has proved. However, there is no substitute 'in the field' for the flexibility of the human hand and mind; ask Harrison Schmidt, Apollo 17 astronaut and the first geologist to study, first hand, another world.

Apart from the vast increase in our knowledge of our nearest neighbour, we have in fact been bequeathed a huge legacy by the US and Soviet space programmes in the 1960s and 1970s; computer miniaturization, the development of new materials for engineering and improvements in satellites and communications were all accelerated by the space race. And almost as important as the technological advances is the powerful sense of awe and wonder still engendered by seeing films and pictures of men actually walking on and orbiting the surface of the Moon.

I therefore believe it is crucial for the advancement of our knowledge of Mars, the Solar System and our own planet that we plan to make direct human involvement an important part of space exploration, complementing the use of robot probes. Not to do so would be misguided and shortsighted in the extreme, and the NASA administrator's recent challenge to his engineers is to be welcomed, as would be a strong commitment to a return to the Moon. Let's hope the present US president has the foresight to support this bold and inspirational voyage.

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Time and motion

Sir — In her review of my book *Telling Time: Clocks, Diaries, and the English Diurnal Form, 1660–1785* (*Nature* **387**, 468; 1997), Kristen Lippincott warns readers that my thesis "seems to be somewhat flawed". Her hesitancy is justified.

The flaw, she says, is this: I start from the observation that soon after Christiaan Huygens steadied clockwork's motion by inventing the pendulum regulator, the English language appears to have coined a phrase to describe the new clocks' sound: *tick, tick, tick* (not *tick-tock*, the onomatopoeia we have grown used to since its first appearance about 150 years ago).

Lippincott's objection is that clocks don't really sound like that. The escapement's alternate beats differ from each other more markedly than *tick, tick, tick* suggests.

That is true. I say so in the book: the "sameness" voiced by *tick, tick, tick* is "fictional", because "no successive impulses of the clock's escapement will actually sound identical" (page 8).

The phrase is the more striking because it is in part illusory; it emphasizes the new evenness of the intervals between the sounds over the quality of the sounds themselves. The first users of the phrase were (as Lippincott claims I am) "exaggerating to make a point": that this was the way they newly imagined time to move — in small, steady increments — and that the new clocks were prompting them to imagine time this way.

Such imaginings have much to do, I try to show, with subsequent shapes of narrative, with the incremental, open-ended ways in which writers told stories of themselves and others, in the diaries, daily newspapers and other periodic forms that developed during the decades after Huygens' innovation.

Perceptions are not the same thing as reality, but they have history and consequences of their own, worth chronicling.

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Identity crisis

Sir — Joel E. Cohen's review of John Cairns' book *Matters of Life and Death* (*Nature* **387**, 565–566; 1997) refers to "seventeenth-century Breslau in Poland".

In the seventeenth century, Breslau was the capital of the duchy of Silesia, which was part of the kingdom of Bohemia (and thus part of the Austrian empire). During the first Silesian war (also known as the War of the Austrian Succession) between Prussia (under King Friedrich II) and Austria (under the Empress Maria-Theresa), the duchy of Silesia became part of Prussia and remained so until the end of the Second World War, when the German population of Silesia was either killed or forced to leave and was replaced by Poles who had also been forced to leave their homes in eastern Poland.

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● The error was introduced in the *Nature* office. — Editor, *Nature*.