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- 974 The Chemistry and Applications of Metal-Organic Frameworks  
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*Review Summary; for full text:*  
<http://dx.doi.org/10.1126/science.1230444>

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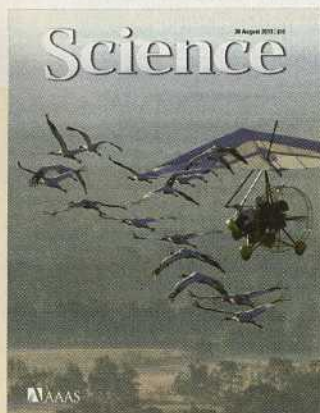
## ON THE WEB THIS WEEK

### >> *Science* Podcast

Listen to stories on stretchable, transparent ionic conductors; fecal transplants; teaching birds migratory routes; and more.

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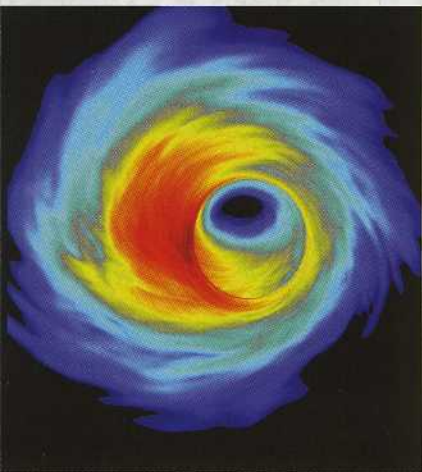
## COVER

Young whooping cranes (*Grus americana*) follow an ultralight aircraft. Each year, endangered whooping cranes are reared in captivity and artificially trained by ultralight aircraft on their first lifetime migration from Wisconsin to Florida. Analyses of data from subsequent unaided migration events show that migratory performance improves over many years and that social learning from older birds plays an important role. See page 999.

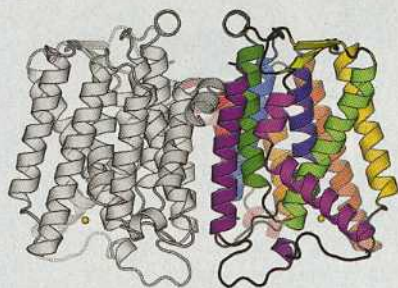
Photo: Joseph Duff/Operation Migration USA, Inc.

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## RESEARCH ARTICLES

## 975 Nuclear Lamin-A Scales with Tissue Stiffness and Enhances Matrix-Directed Differentiation

J. Swift et al.

Tissues that need to remain stiff under stress rely on lamin-A to keep the cell nucleus whole.

Research Article Summary; for full text: <http://dx.doi.org/10.1126/science.1240104>

&gt;&gt; Perspective p. 965

## 976 Poverty Impedes Cognitive Function

A. Mani et al.

Being poor is a state of mind.

&gt;&gt; Perspective p. 969

## REPORTS

## 981 Dissecting X-ray-Emitting Gas Around the Center of Our Galaxy

Q. D. Wang et al.

X-ray observations of the center of our Galaxy reveal the interplay between the massive black hole there and its surroundings.

&gt;&gt; Perspective p. 964

## 984 Stretchable, Transparent, Ionic Conductors

C. Keplinger et al.

Stretchable ionic gels are fabricated into transparent actuators and loudspeakers.

&gt;&gt; Perspective p. 968; Science Podcast

988 Reaction of O<sub>2</sub> with Subsurface Oxygen Vacancies on TiO<sub>2</sub> Anatase (101)

M. Setvin et al.

Subsurface oxygen vacancies created at an anatase surface play a key role in forming a bridging oxygen (O<sub>2</sub>) dimer from adsorbed O<sub>2</sub>.

## 991 Electron Acceleration in the Heart of the Van Allen Radiation Belts

G. D. Reeves et al.

Satellite observations provide evidence for local relativistic electron acceleration in Earth's radiation belts.

## 994 A Uranian Trojan and the Frequency of Temporary Giant-Planet Co-Orbitals

M. Alexandersen et al.

Observations with the Canada-France-Hawaii Telescope reveal a body that temporarily shares its orbit with that of Uranus.

## 997 Paleofluvial Mega-Canyon Beneath the Central Greenland Ice Sheet

J. L. Bamber et al.

A large subglacial canyon extends for more than 750 kilometers from central Greenland to its northern margin.

## 999 Social Learning of Migratory Performance

T. Mueller et al.

Whooping cranes learn their annual migration routes from their neighbors.

&gt;&gt; Science Podcast

## 1002 Nuclear Wave1 Is Required for Reprogramming Transcription in Oocytes and for Normal Development

K. Miyamoto et al.

A cytoskeletal protein associates with the transcription machinery and is required for nuclear reprogramming.

## 1005 Pou5f1 Transcription Factor Controls Zygotic Gene Activation in Vertebrates

M. Leichsenring et al.

Work in zebrafish provides a link between zygotic gene activation and pluripotency control.

## 1009 Molecular Basis of Tubulin Transport Within the Cilium by IFT74 and IFT81

S. Bhogaraju et al.

Two proteins cooperate to promote tubulin transport to and into cilia.

## 1012 Crystal Structure of MraY, an Essential Membrane Enzyme for Bacterial Cell Wall Synthesis

B. C. Chung et al.

The cell wall component peptidoglycan is attached to a carrier lipid for transfer across the cell membrane.

1016  $\beta$ CaMKII in Lateral Habenula Mediates Core Symptoms of Depression

K. Li et al.

In a rodent model of depression, the increase of a protein kinase is accompanied by an up-regulation of GluR1 receptors.

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