

SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication
Volume 140, No. 12, September 21, 1991

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SCIENCE NEWS (ISSN 0036-8423) is published weekly on Saturday, except the last week in December, for \$39.50 for 1 year or \$68.00 for 2 years (foreign postage \$6.00 additional per year) by Science Service, Inc., 1719 N Street, N.W., Washington, DC 20036. Second-class postage paid at Washington, DC, and additional mailing office. **POSTMASTER:** Send address changes to SCIENCE NEWS, 231 West Center Street, Marion, OH 43305. Change of address: Four to six weeks' notice is required — old and new addresses, including zip codes, must be provided.

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Editorial and Business Offices:
1719 N St., N.W., Washington, D.C. 20036
(202-785-2255)

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Subscription Department:
231 West Center Street, Marion, OH 43305
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Letters

Retrospective chuckle

The strings-and-springs conundrum may have perplexed a physicist and a mathematician ("Strings and springs net mechanical surprise," SN: 8/24/91, p.118), but for many of us who are familiar with elementary mechanics and physics it evoked little more than a chuckle.

Once the slack "safety strings" are erased from the diagram in which they are not involved, it is obvious that the springs in one diagram are arranged in parallel and that those in the other diagram are in series. The weight on each spring in series is twice that in parallel. The effect on weight height is then not surprising in the least. The whole matter devolves to a clever problem worthy of a freshman mechanics or physics exam.

All of which is not to say that someone cannot profit from a situation he perceives as perplexing, even though to most others the

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Cover: Pluto — shown with its satellite Charon in this image from the Hubble Space Telescope — is often described as the "oddball" planet. According to a new theory, however, as many as 1,000 Pluto-sized planets may roam the outskirts of the solar system. (Photo: NASA/European Space Agency)
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matter is readily comprehensible.

*Fredric M. Blum
Mechanical Engineer
Wynnewood, Pa.*

When confronted by the initial spring-and-string configuration, most people are inclined to guess that the weight will go down. Few automatically predict that the weight will go up unless they have already worked out the problem or have seen it before. (Try it on your colleagues.) Only when someone knows the answer does it become "obvious."

The point here is that it takes some analysis to find this out. That's what makes it a good exam question. You can't rely on your intuition unless it already incorporates an understanding of springs in series and parallel arrangements. Moreover, most people fail to recognize exactly the same kind of behavior in analogous situations, such as transportation networks, and some even deny that it can occur in those cases.

The mechanical analogy thus provides a useful lesson about the kind of "surprising" behavior that may lurk in a wide range of networks.

— I. Peterson

A dose of skepticism

You got the facts right, but the implications wrong, in your discussion of the many incidental sources of power-frequency electromagnetic fields in the environment, as measured by personal dosimeters ("Electromagnetic commute," SN: 7/6/91, p.15).

Dozens of epidemiologic studies in the past have searched for possible links between power-frequency fields and disease. None took such incidental exposures into account; few made any direct measurements of exposure at all. The positive associations that emerged

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