blocks must be cleared away. Written by the Labor and Health and Human Services subcommittee chaired by Senator Arlen Specter (R–PA), the Senate bill proposes to spend more money on jobs and education programs than was allocated to the subcommittee by budget chiefs. The bill gets around this problem by deferring costs and recalculating accounts in ways that leave even seasoned congressional hands befuddled.

One academic lobbyist who attended the bill's markup on 3 September says that Senator Pete Domenici (R–NM), chair of the budget committee, seemed ready to go along with a "rescoring" process that would make available about one-third of the money needed to float this bill. But it's not clear how Specter and the subcommittee's top Democrat, Tom Harkin (IA), will find the remainder.

The political roadblocks could be formidable, too. Mainly because conservatives and moderates differ so sharply, the House has not yet acted on an NIH funding bill drafted by a subcommittee chaired by Representative John Porter (R–IL). This proposal would give NIH a $1.2 billion increase (9.1%). But other parts of the bill would end funding for popular summer jobs and home heat subsidy programs. Even moderate Republicans have refused to support these cuts, and President Clinton has said he would veto the bill. This problem must be solved before the House and Senate can agree.

Congress has only a couple of weeks left to resolve these issues before the fiscal year ends on 1 October. Already, Republicans are talking about the need to pass "one or two" stopgap funding resolutions to keep the government afloat as they wheel and deal.

–ELIOT MARSHALL

BIOLOGY

RNA-Splicing Machinery Revealed

For proteins in human cells, teamwork often beats working alone. Many proteins gather in complexes that contain up to dozens of components and help cells replicate DNA, turn on genes, and perform other key tasks. It can take years of work to isolate and identify the proteins in these complexes, then track down their genes. But teaming up pays off in the biology lab, too. By pairing a new high-speed technique for analyzing proteins with a database of partial gene sequences, a European group fingered nearly all of the parts of a critical piece of protein machinery in one fell swoop.

In the September issue of *Nature Genetics*, Matthias Mann of Odense University in Denmark, Angus Lamond of Dundee University in Scotland, and their colleagues report that they have identified 44 components of the human spliceosome, a multiprotein machine that splices the noncoding sequences out of newly minted RNAs to produce messenger RNAs, the cell's templates for protein production. Having an almost complete parts list for the spliceosome should help researchers figure out how it works. The feat, achieved while Mann and Lamond were both at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany, also proved the worth of the database of human gene fragments called "expressed sequence tags" (ESTs), which some genome experts once dismissed as a poor substitute for the complete gene sequences to come from the Human Genome Project. "They have leapfrogged over what would have been years of work," says Francis Collins, director of the National Human Genome Research Institute. "The significance goes beyond spliceosomes, although that's significant enough."

Although researchers had been working on the human spliceosome for 2 decades, they had only identified about half of its proteins, Lamond says. To find the remaining ones, the team fished out intact spliceosomes from cultured human cells and separated them into what appeared to be 69 individual proteins. With a protein-splitting enzyme, they digested each protein component into shorter pieces. They then analyzed each piece by a technique called nanoelectrospray mass spectrometry, pioneered by Mann's group, which rapidly and accurately identifies amino acid sequences by shattering the protein fragments and comparing the mass of the resulting pieces.

Next, the EMBL team compared the amino acid se-

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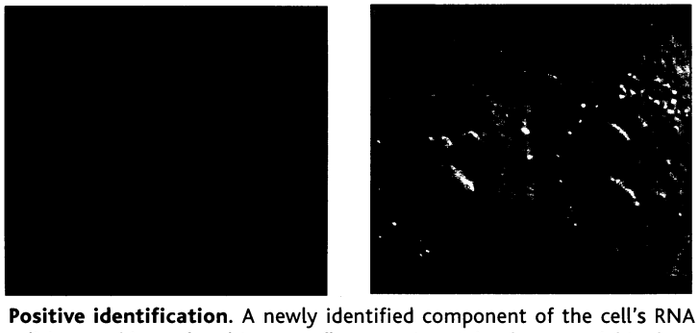

Positive identification. A newly identified component of the cell's RNA splicing machinery, fused to green fluorescent protein, shows up right where it should: in the cell nucleus but not in the nucleoli, the islandlike structures seen in the micrograph at right.

ScienceScope

SPACECRAFT MOTIONS PUZZLE ASTRONOMERS

Could the trajectories of three space probes force scientists to revise the laws of physics? Experts are debating that provocative question, raised in a paper to appear in *Physical Review Letters* later this year.

NASA

Accelerating? Pioneer 10.

From measurements made with radio signals, John Anderson of NASA's Jet Propulsion Laboratory in Pasadena, California, and colleagues have concluded that three spacecraft—the Jupiter explorers Pioneer 10 and 11 and the sun probe Ulysses—are apparently encountering an extra gravitational tug as they leave the solar system. The subtle pull—about 10 billion times less than the acceleration of an apple falling on Earth—can't be explained by current theories. "There's a small probability that we've found something important," says Anderson.

But theorist Irwin Shapiro of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts, believes further scrutiny of the radio data will reveal nothing unusual. "The devil is often in the details," he says.

OUTSIDERS VET KOREAN LABS

South Korean science officials have enlisted outside help in a campaign to reform the country's inefficient national laboratories.

The Ministry of Science and Technology (MOST) has hired a U.S. consulting firm, McKinsey Inc., to tell it something it already knows: that cronyism, a lack of standards, and petty corruption are reducing the size of an expected payoff from the country's R&D investment (*Science*, 10 July, p. 163). The ministry even has a plan to fix things by consolidating labs and subjecting research projects to more rigorous review.

What MOST doesn't have is the clout to convince politicians to go along. So officials are hoping that McKinsey will write a highly critical report that will bolster their case. The firm plans to inspect 11 institutes, including Korea's flagship Institute of Science and Technology, during a 10-week study that ends next month.

Contributors: Govert Schilling and Michael Baker