

John D. and Catherine T. MacArthur Foundation in Chicago, "Everybody is going to have to do something if we're going to get hold of the deficit. But in general, this would seem to me to be such a small source of funds . . . that I'm not sure it's among the important things that need to be done."

In fact, the intent of the tax reform package is for it to be "revenue neutral" — that is, to bring in only as much money as before, according to Betty Scott Boom, a staff member of the Senate Finance Committee. If individuals pay less tax per dollar earned — one goal of the reform — the "lost" revenues will have to be made up elsewhere. As a result, the Senate committee has recommended doing away with many existing deductions, including the one for these prizes. But removing exemptions on awards like the Nobel will not make much of a dent, Boom concedes. Over five years it is expected to bring in less than \$50 million.

The MacArthur award, potentially the largest of those that would lose their exempted status, seeks to stimulate further innovative activity in persons who have already demonstrated exceptional creativity by freeing them from some fiscal constraints that their income, or their need to earn an income, might place on them. MacArthur Fellowships vary from \$128,000 to \$300,000, paid out over five years, depending on the age of the recipient; recipients over age 65 at the time of the award receive the most money. But if these prizes were taxed, Corbally told *SCIENCE NEWS*, the MacArthur Foundation would have to evaluate whether the tax burden on the winner countered the intent of the award. And if it did, he says, the foundation "certainly would consider" increasing its awards to offset the effect of the tax.

The Nobel Foundation is considering a similar move. Compensating U.S. winners for their tax burden could, according to the foundation's position statement, "significantly increase the cost to the Nobel Foundation," since 102 of its awards over the past 25 years — some 40 percent — have gone to U.S. citizens.

The Reagan administration's reasoning in initially proposing to tax these prizes was not only to simplify tax law but also to take advantage of the fact that receipt of a monetary award would increase a citizen's ability to pay taxes in much the same way that winning a lottery would. According to an analysis by the Joint Committee on Taxation, however, one could tighten existing laws and still maintain an exclusion for certain expressly earmarked awards, like the Nobel. However, the tax reform package has already passed through the House without any changes to this provision. An alternative tax reform proposal drafted and passed by the Senate Finance Committee last week would also tax these prizes. — *J. Raloff*

A potpourri of earth activity

The northeastern section of the "ring of fire" — an area encircling the Pacific Ocean that is renown for seismic and volcanic rumblings — has kept scientists on their toes during the last several weeks. Following the March 27 eruption of the Augustine volcano, its first in 10 years, three other Alaskan volcanoes either erupted or threatened to erupt throughout April and May. And two of the strongest earthquakes to hit California in two years jolted the San Francisco Bay area at the end of March.

Then, last week, a magnitude 7.7 earthquake and a series of smaller tremors rocked the Aleutian Islands in Alaska. Not to be left out, Mt. St. Helens in Washington is now in the midst of a dome-building eruption, and out on the Pacific plate, Hawaii's Kilauea volcano last week spewed fountains of lava 800 feet in the air to mark the 45th major peak of activity in its three-year-long eruption.

Most of these events are related to the subduction, or plunging, of oceanic plates under the North American plate. The abrupt movement between two plates is what causes earthquakes, and the melting of descending ocean plates causes rising plumes of molten rocks to fire up volcanoes. While the process that generates most of these events is the same, scientists say it's probably just a coincidence that so many quakes and volcanoes have occurred at about the same time.

However, some researchers are wondering if these events, especially those in Alaska, are precursors of bigger things to come. Others have speculated that in general volcanoes and eruptions are triggered by far-reaching forces generated either by the movement of mantle material inside the earth or by the gravitational tugs, called tidal forces, of the sun and moon. Scientists have also suggested that these events can be triggered by a seasonal rise or fall in seawater along a continental shelf.

While seismologists may not understand its ultimate cause, the May 7 Alaskan earthquake, centered near Adak Island, was not unexpected. Carl Kisslinger and his co-workers at the University of Colorado in Boulder announced early last year that there was a great likelihood of a large earthquake occurring in the Adak seismic zone before October 1985.

They based their prediction on the past behavior of the zone: For three years prior to a magnitude 7.1 earthquake in 1971, the number of small quakes had decreased dramatically. Since September 1982 Kisslinger's group has noted another period of pro-

nounced seismic quiescence.

"Based on the data that are now coming in, it looks pretty clear that [the May 7 event] is the earthquake we've been expecting," says Kisslinger. "The preliminary data indicate that it ruptured the region of most profound quiescence."

Still, because there have been so few large earthquakes since their seismic network was erected, the researchers cannot be certain that seismic quiescence is a precursor of Adak earthquakes. The idea would be given a considerable boost, however, if the rate of small quake activity returned to its pre-September 1982 values by the end of this summer.

The Adak quake did not rupture one of the three seismic "gaps" that seismologists, using another approach to earthquake prediction, had pegged as being most ripe for even larger quakes (*SN*: 2/15/86, p. 104). Scientists still expect large quakes in these gaps.

Like the Adak quake, the eruption of the Augustine volcano was foreseen by researchers. The prediction was made primarily on the basis of seismic rumblings at the volcano. Juergen Kienle at the Geophysical Institute at the University of Alaska in Fairbanks and his colleagues alerted authorities of impending activity 9 days and then 10 hours before the volcano erupted, disrupting air traffic with plumes of ash extending up to 47,000 feet high.

The volcano's last explosive burst occurred on March 31. According to Betsy Yount at the U.S. Geological Survey in Anchorage, there was dome building and a slow-moving lava flow at the volcano from April 24 through April 28, but it has been essentially quiet since. Yount says Augustine has a history of erupting sporadically over a period of months, so chances are there will be more eruptions.

Augustine has been joined by the Pavlof volcano, which spewed out ash plumes up to 53,000 feet high in mid-April. The Akutan and Herbert volcanoes also have shown signs of restlessness.

Meanwhile, from April 15 through May 1, weak explosive bursts of gas, ash and rocks rattled Mt. St. Helens for the first time in two years. Increased seismicity and tilt at the volcano during the first week in May led geophysicists to issue an advisory on May 8 for an eruption, possibly an explosive one, within a few days or a week. At press time, it appeared that a dome-building eruption was in progress, but because of poor observing weather, scientists could not say whether the magma had reached the surface yet. — *S. Weisburd*