

I've been enjoying a spot of ill health and things have stacked up a bit.

Starting tomorrow I plan to produce a timely newsletter and prepare a half section of an "old newsletter." Let's see how that works.

1. Merc 2/21 - TRUMP'S PLAN FOR CLIMATE CHANGE AND WATER POLLUTION: "To the rear . . . MARCH!" The EPA will soon be old to rewrite the GHG rules for electric utilities and the BLM to lift a moratorium on federal land coal leasing. The EPA and the Corps of Engineers will revamp a 2015 Waters of the U.S. rule. It applies to 60% of our waterbodies and wetlands and restricts development and farming activities to prevent polluting of smaller waterways. After anticipated legal challenges, if the plan survives, it'll be a year and a half or so before we begin to feel the ill effects.

2. Chron 2/22 - KLAMATH WATER: The U.S. Bureau of Reclamation has a 1955 law allowing it to release water from the Lewiston Dam when fish and wildlife needed it. The 9th U.S. Circuit Court of Appeals recently ruled 3-0 that the government has "substantial discretion" to do this. (If not so released, the water was destined to Central Valley farmers.) Fishing groups see the decision as strongly protective against any future attempts to stop releases.

3. Merc 2/22 - LOCH LOMOND RESERVOIR: The reservoir, 10 mi. N of Santa Cruz and holding 2.8B gallons, is held in check by the 56-year old Newell Creek Dam. Should Santa Cruz be worrying about an Oroville event? Even though rainfall has been almost doubled, managers think not. Newell Creek Dam has two emergency outlet drains besides its main spillway.

4. Merc 2/23 - WEST ANTARCTIC ICE SHEET RELEASES AN ICEBERG: Pine Island Glacier (West Antarctic) dumps about 50B tons of ice each year. This promises to increase and to raise global sea levels by maybe 2 feet. Warming ocean water attacks the glacier's face and undersurface. Made thinner (and weaker) it "calves" more readily. In 2015 a hunk with an area of more than 200 sq. mi. broke off. In Jan. 2017 just small pieces, but giving signs there'll be more. With the new administration we may not know it is happening. During the campaign one advisor suggested NASA's climate research should be curtailed. More recent bad omen: On Feb. 16, Lamar Smith, chair of the House Committee on Science, Space and Technology, had a hearing. He said NASA needed a "rebalancing" and should spend more time on space exploration [Opinion: To prepare our future home?], leaving other agencies to handle climate change.

5. Merc 2/22-Chron 2/23 - PRUITT'S COZY WITH FOSSIL FUEL AND UTILITY FIRMS: He's produced 6K pages of emails with them. They're good friends. Lots of dinners. Devon Energy especially. Devon has helped draft letters for Pruitt's signature. One Pruitt staffer to Devon: "Any suggestions?" Lobbying against a measure to add some portion of renewable fuel to transportation fuel, a lobbyist wrote Pruitt that the argument against this would be "more credible coming from a state." Surprise! OK sued! The Koch Brothers were strong supporters of the groups working with Pruitt.

6. Chron 2/23 - op ed - CORPORATE BUSES IN S.F.: The MTC finalized its plan. They're here to stay. They'll be allowed to use 125 bus stops; some shared with Muni. They'll pay a \$7.31 fee per stop. Larger buses have to use only wider streets. The Chron loves this deal that will ease congestion.

7. Chron 2/22-Merc 2/23 - BAAMQD DOING FAVORS FOR BIG POLLUTERS?: Two former Bay Area Air Quality Control District employees claimed district managers gave big breaks in the fines they should have received. The two protested and were fired. The district denies the charge, asserts it was reviewed by an outside law firm and found to be baseless. The two employees were digitizing some records and found that some had been destroyed. In 2015-16 they were told to destroy others. (The district says all records are available in an electronic format and available for public review.) The employees (Steele/Bachman) revealed some 1990-91 Tesoro [now Tesoro] records of "flaring". When brought to the district's attention the Chief Counsel told them staff could destroy documents and that the documents destroyed "could hurt us." The employees had surreptitiously made copies; then returned the originals, which subsequently disappeared.

7. Chron 2/23 - editorial - ELECTRIFICATION: Chao's (Chaos?) action was politics at its worst. Trump should include the project in his budget.

8. Merc 2/24 - RAIN: Since Oct. 1/16 to Feb 10/17 we had 30 "Pineapple Expresses." In a typical year we get 10-15. They don't know why they come and why they stop. This uncertainty shows how urgent it is to repair dams/dikes to defend against "atmospheric rivers" on steroids. (We've had lotsa rain but ground water still suffers.

9. Merc 2/24 - DON'T BELIEVE EVERYTHING YOU READ - EVEN HERE: [see Vol. 2, Nwsltr #26, 3, [2/23] - BRIMMING COLORADO RIVER]: On the other hand . . . Two scientists [CO State/U. of AZ] reported in the journal Water Resources that global warming is shrinking the river and, perhaps by the end of the century, by a third. Since 2000 its volume has dropped 19%, but the drought accounts for only 2/3 of the shrinkage. The remaining third comes from a warming atmosphere that sucks out moisture from snowbanks, plants and soil. This will be a problem for 7 states, 40M people and 6,300 sq. mi. of farmlands. Lakes Mead and Powell now hold 42% and 46% of capacity respectively. This could get worse, but there's hope that WY's and CO's snowpack at 120% and 216% respectively may keep the cuts at bay.

#### 10. SIGNS OF THE TIMES - LETTERS:

a. Merc 2/22 - HIGHWAY 17 AND LOS GATOS CONGESTION: A good way to relieve this would be to restore the Los Gatos - Santa Cruz train.

b. Merc 2/23 - OROVILLE - HINDSIGHT: They should have been restoring and strengthening Oroville and other dams during the drought.

1. Merc 2/19 - CA LEGISLATURE'S SUPERMAJORITY'S POSSIBILITY ON CAP & TRADE: Both Senate and Assembly! Gov. Brown needs a 2/3 vote to extend C&T (if it survives a court challenge). The money it earns will fund a lot of things - even if HSR may not be one of them.
2. Chron 2/20 - op ed - Kevin McCarthy (R-Bkfld) and Vince Fong (R-CA Assembly Whip): They suggest CA should work together with the administration on water and highway infrastructure. The infrastructure has been underfunded and undermaintained for years. Together we must dismantle the HSR project and turn to more local transit and other infrastructure projects. To do otherwise will fail the people we serve.
3. Chron 2/20 - BRIMMING COLORADO RIVER: The Colorado River Basin serves about 40M people in 7 states. The Bureau of Reclamation hopes that if snowfall continues this year, Lake Powell could pass about 20 feet of water to Lake Mead to be distributed next year. The harsh reality, however, is that even this won't overcome the "structural deficit" (= people have more legal rights to water than an average year can produce). The seven states (AZ,CA,CO,NV,NM,UT,WY) have been collaborating for years on an effective conservation plan. The BoR hopes these efforts will continue strongly despite the current bountiful year.
4. Merc 2/20 - DARK CLOUDS OVER CA'S CLEAN AIR ACT WAIVERS: Pruitt, during his confirmation hearing, was asked by CA's Sen. Harris if he would continue to grant the decades-long waivers that allow CA to set more stringent standards. (We reduced emissions by 30% since 2009.) Pruitt said he'd have to study the issue. Trump's views on this are opaque. Our present waivers are good until 2025. Should the situation sour, CA will have its dukes up. [Mixed Metaphor #271.] We have 50 years of precedents; we have 50 years of healthful achievement; we have Eric Holder as Litigator in-Chief guarding State interests, and we have a stalwart Attorney General Becerra.
5. Chron 2/20 - editorial - PRUITT: Never has there been such united opposition to a nominee! Scientists, lawyers, unions, former EPA staff. We'll need constant vigilance and resistance.
6. Chron 2/21 - ND PIPELINE PROTESTORS: About 200 are still there, threatened with arrest and flooding. The Army wants them out for safety reasons and to clear out all the trash before it washes downstream.
7. Chron 2/21 - FUTURE DAM POLICY: Looks like we'll continue to rely on the same-old, same-old, fixing them and building more, even though dams are stressed, dikes are shaky and the aqueducts are sinking. There's a quiet voice that says simple is better. E.g., a simple weir was able to spread the water released from Oroville into the Yolo Bypass. This made fish and birds happy and recharged the aquifer as well. Nonetheless, state Secretary of Natural Resources Laird has a \$100B wish list to be sent to D.C., the first of a list of half a trillion over 20 years. The indictment of dams: Very tough on fish and wildlife; not helpful to aquifers; not too long-lasting; costing an arm and a leg. The best dam locations have been used; remaining sites will generally yield less water. Right now four dams are serious contenders: 1. Sites Reservoir: a valley 60 mi. NW of Sacramento, to be filled with water pumped from the Sacramento River. It will be half the size of Oroville and cost \$4B-\$6B. (The three others weren't listed.) There is a plan to retrofit San Luis against quakes -\$360M-plus.. Another idea: Store water underground. It's cheaper; the Kern Water Bank (Bkfld) proves it. One drawback: It's a new concept; a lot of time will be needed to find locations and get them approved. Meanwhile, the CA Water Commission will be approving more shovel-ready dam sites. . . . [Opinion: Undergrounding may be the best thing. Short term?: Buy cement stock.]
8. Chron 2/21 - editorial - MIND THE GAPS IN DAM SAFETY: The Chron tells us to pay attention. It praises a measure by Assy. member M. Levine (D-San Rafael) for more extensive annual inspections; more emergency plans, etc. "This state cannot simply count on luck and hasty spillway patches to save lives in the future."
9. Merc 2/21 - BAY, DELTA SEWER POLLUTION: In January there were 120 sewage overflows; 85 of them sent pollution to the Bay and Delta. Contra Costa Sanitary Plant: 9M gals./Vallejo: 2M gals./ EBMUD: 5M gals./San Mateo: 265K gals. Along with the sewage we get chemicals, bacteria, heavy metals and other stuff from storm drain runs-off. Fortunately, it gets diluted. But is dilution a solution to pollution?
10. SIGNS OF THE TIMES - LETTERS:
  - a. Merc 2/20 - OROVILLE: Aging dams and infrastructure are vulnerable to the "new normal" = long droughts; long wets. The story about less O in the ocean reinforces the conclusion that climate change is real and won't go away until we stop using fossil fuels. Bring on the carbon tax!

1. Merc 2/17 - AFTERMATH OF GHOST SHIP FIRE: The Bay Area Air Quality Management District is trying to find out who authorized debris from the warehouse fire to be dumped on Oakland city property near a Regional Shoreline and bay front trail. There was not the required notification to BAAQM. It is feared some of the material may be asbestos and other pollutants which may leach into the water.
- 2/ Chron 2/17 - TESLA'S BATTERIES JOIN PG&E GRID: The batteries can store energy when it's plentiful and feed it back when

demand is peaking. The big batteries can replace the utilities' "peaker plants" = small fossil fuel plants in use only a few hours as needed. With the batteries PG&E won't have to upgrade the peakers to provide more energy. The batteries are made in the Reno plant; a new plant in San Bernardino serves SouCalEd, and one in HI goes to panels in Kauai. (The batteries consist of 22 Powerpacks, storing half a MW = enough for 380 homes for 4 hours.)

3. Merc/Chron 2/18 - PRUITT HEADS EPA: Be-heads? He'll do his best to ratchet back EPA's scope. He expects some helpful executive orders to do some downfield blocking for him but some items won't happen soon. E.g., to change fuel standards, or mercury pollution, and many other regulations will require repeating the same lengthy process Obama went through to impose them. (And the Clean Power Plan for power plants needs court review.) The vote was 52-46, with 2 Dems defecting and voting "Aye" (Mankin (WV) and Heitkamp (ND), and one "No" (Rep. Collins (ME)). The Dems held the floor for long hours, hoping somehow that the issue of Pruitt's email exchanges with oil, gas and coal companies (to be revealed 2/21 by court order) might cause a pause . . . but alas.) The National Association of Manufacturers said Pruitt would "restore balance", and the National Mining Association was glad he would be "mindful of the costs." [Opinion: I guess the EPA lawyers will be glad he won't be suing them anymore (14 times). . . . But now others might.]

4. Chron/Merc 2/18 - ELECTRIFICATION: It didn't take Chao long to respond favorably to the request of the 14 CA Rep. congressmen to have an HSR audit and thus a freeze on money for Caltrain to electrify the commute line until Trump's budget reveals if that project is included. That Caltrain has a deadline of 3/1 to sign contracts for the work likely means a lengthy and more costly delay for new bids meant nothing. (It's not fatal to HSR, but it's not helpful.)

5. Chron 2/18 - Chron 2/18 - [see Nwsltrs #23-24 - HOW ABOUT THE OTHER DAMS? -] Berryessa is full but not worrisome. Its heretofore unused drain (straight down, like a bathtub's) is working fine. Don Pedro (45 mi. from Modesto) will be full by 2/21 and about 200 residents along the Tuolumne River have been told to prepare for flooding.

6. Chron 2/18 - NEW CLIMATE CHANGE COMPUTER IN COAL STATE WYOMING: A new \$30M house-size supercomputer "Cheyenne" just started up. It models air currents at energy windmills and will predict weather months and years ahead. Even climate change skeptics agreed that accurate scientific information is required. (There's some fear that the Trump budget will under- or de-fund operating costs.)

7. Chron 2/19 - STATE DAM RISK ASSESSMENT: When Oroville's two spillways collapsed and cavitated, after having been frequently inspected and found to be sound, questions were raised about all the other dams as well. We have 1,585 dams, some getting noticeably old, and all faced with the prospects of heavier, long-lasting rains and long-lasting droughts. According to federal records (as of Oct. 2015) some haven't been inspected annually as is required; many high-risk dams lack emergency plans (some executives didn't know they needed one); and some inspections have been more visual than physical. In its response to these findings the state Department of Water Resources says they've pushed emergency plans for more than 100 dams and are spending \$2B in repairs. [Over what period of time was not stated.] The DWR is supported by a report from the Association of State Dam Safety Officials, saying the state has most high-risk dams monitored by a very-well documented and rigorous inspection program. A little history: A third of our dams were built in the 50s and 60s, at a time when downstream housing developments were flourishing (and thereby multiplying risk threats). These are supposed to be inspected yearly, but "yearly" can mean January followed by next year's December. Every 5 years federal and independent boards do an in-depth study. [Oroville's last 5-year study is not immediately available.] We have about 833 "high-hazard" dams and 80% of them are rated "relatively good condition." [The national average is 40%.] Aging: Pre-1900 [one built in 1865]-1950: 607/ 1950-1969: 506/ 1970-post-2000: 333/ (119 have no date.) About a third of our high-hazard dams lack emergency plans. This is 8% fewer than the U.S. average. (Oroville has one, but in 2011 they told the feds they feared it wouldn't evacuate the people in time.) It's been concluded that closer inspections should have disclosed Oroville's spillway damage, damage occurring under low-flow releases, and could have been seen as a predictor of what did occur when water was released in spate. The future: We can be sure more attention will be paid, more inspections will be made, and probably more money will be available. (We spend \$9K per year on dam safety. The national average is \$1K.)

## 8. SIGNS OF THE TIMES LETTERS

a. Merc 2/18 - SAN JOSE CLEAN ENERGY: Writer says San Jose can provide power 10%-20% cheaper if it joins with other cities using the Clean Energy plan. (And it's clean.) Visit <http://sjenvironmental.org/sjce> for details.

b. ELECTRIFICATION: Well, it's moot now, but if Chao hadn't slowed it up . . . Writer wonders if it's fair for CA to ask to subsidize electrification with federal dollars (including money from poorer states) when we are so successful and prosperous.

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Newsletter 24, vol. 2

1. Chron 2/15 - BEACH EROSION: Last year's El Nino was rough on our beaches. Beaches protect cliffs from erosion and lowlands from flooding. A survey by USGS shows we lost lots of beach, while inflowing streams/rivers failed to deliver enough sand to make up for the loss. The loss was about 76% above normal, the worst since surveys started 150 years ago. USGS checked 29 major beaches along OR and CA (1,242.8 mi.) Wave height was excessive - 26-36 feet in CA; 39-62 feet in OR - like Mavericks! Ocean Beach in S.F. lost 180 feet. Unfortunately, the forecast is for a doubling of heavy El Ninos, higher temperatures and less rain = less sand from rivers and streams.

2. Chron - 2/15 - op ed - ELECTRIFICATION: Carl Guardino, CEO, S.V. Leadership Group: There's been a Peninsula commute S.J.-S.F. since 1863. The 14 Republican House members' plan to audit HSR and freeze funding for Caltrain electrification flies in the face of the Federal Transit Administration's recommendation and almost 20 years of advocacy by S.V.L.G., Bay Area Council, SPUR and others.

Caltrain's ridership is up 125% of capacity, 65K daily trips [round trip = 2 trips]. Electrification will produce grade separations, extended platforms for longer trains, elevated [step in] platforms for quicker boarding, increased ridership to 110K, no diesel pollution. Cars off the road? You bet! 619K car miles daily = 40K fewer cars and their pollution. More jobs here and out of state. Don't short-change Caltrain to kill HSR. Republicans: Please back off.

3. Chron 2/16 - TRUCK PLATOONING: Aerodynamics may help reduce fuel consumption. Peleton Technology (Mtn. View) makes hardware and software that allows two trucks to travel closely apart (30-50 feet) with the trailing truck's brakes and accelerator synchronized with the leader's. The leader's acceleration/deceleration is adopted by the second truck and their closeness provides lower wind resistance. There are devices to "disconnect" if necessary. This system is now becoming available commercially, and they expect that as more truck firms sign on, they'll be able to "cross-fleet". Savings are significant - lead truck: 4.5% less fuel; second truck: 10%. To the extent other vehicles cut in or there is slow-down congestion requiring a disconnect, the savings would be reduced. Extensive road tests have demonstrated that cut-ins are infrequent, and that drivers are able to react quickly. In the future, it may be possible to make the second truck robotic.

4. Chron 2/16 - op ed - [see Vol. 2, Newsletter #23, 6 (2/14) - HOW ABOUT THE OTHER DAMS?]: From Friends of the River: We have to diversify our water use. With climate change we must expect more water, and more problems with reservoirs as they age. Dam-building is 20th century. Building more dams now would cost \$\$ and destroy rivers. "We can't dam our way to paradise." Instead:

- a. Shore up or dismantle risky dams.
- b. Build more levees to reduce flood risk while simultaneously re-stocking ground water.
- c. Intensify water-saving and -recycling.
- d. Discourage housing developments downstream from dams and around levees.

5. Chron 2/16 - POPE BACKS TRIBES: The pope said indigenous tribes should be asked to consent to any land-taking. Only an agreed taking will bring cooperation and soften conflict. He didn't specifically mention Dakota Access, and his office said he wasn't referring to it directly. The pope frequently speaks in behalf of indigenous peoples, and he referred to a 2007 U.N. General Assembly Declaration on indigenous rights - opposed by the U.S., Canada, Australia and New Zealand. Trump and the Pope will meet at a G-7 in May. [Volunteers for flies on the wall?]

6. Merc 2/16 - OCEANS LOSING THEIR O: The journal Nature reports a decline in the amount of dissolved oxygen, about 2% between 1960 and 2010. The largest volume lost was in the Pacific, but it was most sharply felt in the Arctic Ocean. Computer models suggest the reason for the decline is that warmer surface water holds less oxygen to start with and, because it's less dense, doesn't descend to the lower, colder depths.

7. Merc 2/16 - NOW THEY'RE REALLY ENDANGERED: A meeting of the Senate Environment and Public Works Committee (chairman J. Barasso, R-WY) heard that the Endangered Species Act encroaches on states' rights, is unfair to landowners, and prevents mineral mining and jobs. - "red tape" - "bureaucratic burden" - They said the Act limits housing and grazing, especially in the West. (The Act is 43 years old (Nixon) and has saved the bald eagle, condor, gray wolf, ferret, alligator, and manatee.) In the House, chairman R. Bishop (R-UT) of the Natural Resources Committee, has vowed to repeal it.

8. Merc 2/17 - editorial - [See Vol. 2, Nwsltr #22, 5 (2/13) - COASTLINE FUTURE AT STAKE: -] Huzzah! The choice of Jack Ainsworth as executive director of the CA Coastal Commission is reassuring. A 30-year employee and interim director for a year, he knows his onions. It is hoped Ainsworth will do more for transparency. (Only the CPUC and the CCC are allowed to have private conversations with interested parties.) "Transparency is the way to earn . . . trust."

9. Merc 2/17 - op ed - S. F. BAY - DELTA ESTUARY: Policy Director for Tuolumne River Trust: The proposed update of the Bay Delta Quality Control Plan, Phase 1, calls for requiring 40% of "unimpaired flow" (= what would flow to the lower San Joaquin River and its three major tributaries if there were no dams or diversions) between February and June. Over a year that's only 14%, but it's a good start. On average, because of dams and diversions, only about half of the water is available. Fish stocks are depleted; the ecosystems suffer. Bring it on.

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Newsletter 23, vol. 2

1. Chron 2/12 - HSR STILL ALIVE: While CA Republican congressmen seek a pause and an audit of HSR in the Central Valley, construction continues. They're building bridges, clearing land, relocating 2 miles of Highway 99 - all this between Madera and Bakersfield. They've purchased more than 1K parcels of land and signed contracts with construction companies. Ninety percent of the businesses forced to shut down have already or will relocate. Pretty soon the project will need federal dollars. Trump's inclinations are unclear. He's called CA "out of control", yet he told airline executives he was surprised that the country doesn't have many fast trains. The HSR has about \$20B in hand. The biggest and most visible construction is an 80-foot tall, half-mile viaduct near Fresno, with two more a-building nearby and two others over the San Joaquin and Fresno rivers.

2. WAPost 2/12 - THERE'S MONEY IN DEAD TREES: There's \$50M in contracts available to fell dead trees. Out-of-state and local contractors are flocking to the new CA gold fields. There's more than a million vertical nuggets, some worth \$1K or more. And bark beetles are killing more before our eyes.

3. Chron 2/13 - HETCH HETCHY: Workers shut down a 19-mile water tunnel in Tuolumne County until March 7 to inspect it. The tunnel is almost 100 years old and, it seems, it's still pretty healthy. So healthy that, it seems likely, they'll decide to repair it (two-month shutdowns for perhaps 10 years; \$100M) instead of replacement (\$710M). They've already enlarged the entry points and the gravel roads for larger, modern equipment.

4. Chron 2/13 - op ed - SPEED UP TRANSPORTATION BUCKS: V.P. for Transportation Policy, Bay Area Council: It costs about 8 times more to keep patching potholes and duct-taping other under-maintained transportation elements than to fix them robustly. Over the years, funding has been shrinking and vehicle repair costs have been increasing. SB1 (Beall, D-San Jose) and AB1 (Frazier, D-Oakley) will provide \$6B to really fix, equally, local and state roads. Hurry up. "We all pay, the more they delay."

5. Merc 2/13 - CHINOOK BABIES: In the spring, 250K two-inch Chinook smolts will be trucked from a Lodi Hatchery to net pens in Bodega Bay. There'll they'll get used to salt water and then move oceanward with the next tide. They'll avoid the deadly water pumps of the Delta. [This will be especially helpful to the fishing industry this year because of the salmon wipeout expected from the Oroville disaster.] Similar methods will be used at Half Moon Bay, Santa Cruz and elsewhere. Some of the cost is offset by payments from various fish marketing groups.

6. Merc 2/14 - HOW ABOUT THE OTHER DAMS?: Well, there's Anderson Dam above Morgan Hill. This year it almost overflowed. This was alarming; the more so because in 2011 state and federal authorities told the Santa Clara Water District to keep the water level at 68%, because analysis showed that a major earthquake could rupture it, taking out Morgan Hill below and reaching San Jose. [Opinion: The article doesn't say it, but I sense the district wasn't paying attention to the 68% rule. It topped out in March 2011.] The district is now releasing water, but it will take 6-8 weeks before it is compliant. > We have 1,250 + dams now, and they're aging. Six hundred seventy eight are deemed "high hazard" - [Opinion: not necessarily because they're falling apart, but "because of the consequences of their failure."] Rebuilding Anderson will start in 2020 and finish in 2024. (The district plans to update Almaden, Calera and Guadalupe also - no start date given. Further north, Calaveras Dam, bordering Alameda and Santa Clara counties, is now being replaced by the S.F. PUC, as is Lower Crystal Springs (San Mateo County), and EBMUD's Chabot Dam (Castro Valley).

7. Merc 2/14 - ND PIPELINE: A federal judge refused to order a halt. (The job may be finished in 30 days.) His reasoning: No spill/leak is imminent because no oil is flowing through it. However, he agreed to hear more arguments on 2/27.

#### 8. SIGNS OF THE TIMES - LETTERS:

a. Chron 2/13 - [see Vol. 2, Newsletter #21, 9 (2/10) - BRAKES ON EPA SCIENCE]: Writer: To hear chemical and oil industry flacks sing for their supper at a hearing is like asking foxes to provide care in the recovery room of a chicken hospital.

b. Merc 2/13 - [see Vol. 2, Newsletter #21, 2 - (2/10) - WATER CUTS - NO, NO, . . . NO: - Staff Attorney, S.F. Baykeeper: Calm down, sir. There'll not be 50% cuts at the first sign of any future drought. This will only happen when there's a drought, and it will be proportional. And, likely never more than 20%. Remember, last year, without mandating it, we cut 30%. Please quit the scare tactics.

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#### Newsletter 22, vol. 2

1. a. Merc 2/8 - SD PIPELINE OK'D BY ARMY: They finally approved it. The tribe promised legal action.

1. b. Merc 2/9 - SD PIPELINE: Besides the threatened lawsuit, opponents are calling for protests off-site - at banks, fuel-transportation hubs and the White House. Some, not all, protestors call for "non-violent prayer". SD Sen. Thune called for harmony.

1. c. Chron 2/10 - SD PIPELINE: The suit has been filed. Contractors, seeking early completion, have drilled entry and exit holes at the unfinished portion and have started transporting oil. (The judges will hear arguments 2/13.)

2. Merc 2/9 - op ed - WATER CUTS? NO, NO, A THOUSAND TIMES, NO!: A V.P. of the Bay Area Council says the State Water Resources Control Board's plan to cut the water of 2.6M Bay Area residents by "up to" 50% at the first sign of another drought would be slowing housing development. Ironically, the Bay Area is the stingiest water user (54 gals./day) vs. state average of 82 gpd. Furthermore, if we have to find new sources to compensate for the cuts, it will be more costly. (Public comments will be received until 3/7. Weigh in if you have views.)

3. Merc 2/9 - GOP CARBON TAX PUSH FACING UPHILL SLOG: Jim Baker, George Schultz and others made a pitch to Reince Priebus, Pence and Jared Kushner for the carbon tax idea they've long advocated. Indications are that Grover Nordquist has already nixed it and the House last year called it "detrimental to the U.S. economy."

4. Chron 2/10 - OUT OF THE MOUTHS OF THE YOUNG 'UNS: A few years ago in Oregon 21 kids (ages 9-20) sued Obama for failing to protect their and the planet's health. Their suit said the government must preserve public resources [public trust] and can't deprive people of their life, liberty or property without due process [substantive due process]. Last November an OR judge denied a government motion to dismiss. This month the kids asked their lawyers to substitute Trump for Obama. Recently one plaintiff, age 19, speaking before the Commonwealth Club, explained; The government knows about climate change and the underlying science. Knowing and not fixing denies us our right of protection. [Boy Scout rule: "leave your campsite better than you found it."] The suit asks for limits on fossil fuels, use of alternative sources, reduction of GHG, stopping new oil drilling, stop relying on non-renewable energy.

5. Merc 2/10 - COASTLINE FUTURE AT STAKE: The executive director job at the CA Coastal Commission has to be filled. When the CCC fired Charles Lester last year (7-5, poor communicator, failed to reach goals) the environmentalists feared the nose of the camel would enter the tent. Candidates for the job (unnamed) are being interviewed now in private. Soon to be vacated are three Commission seats (Gov. Brown and the Senate Rules Committee have the say), plus four other seats (Senate and Assembly leaders choose them). In short, Brown, Senate President Pro Tem de Leon and Speaker Rendon are tall in the saddle. All these influential folks say, "Have no fear.

We'll protect the Coastland.", etc. But until there's a new boss and new commissioners, we don't know.

6. Merc 2/10 - THAT SINKING FEELING: NASA tells us the San Joaquin Valley is descending. NASA's satellites see that in Tranquillity, near Fresno, there's been a 20-inch subsidence because the subterranean water supply has been overdrafted. There are big "bowls" between Modesto and Tulare and between Huron and Kettleman City. Both of these became bigger between spring 2015 and fall 2016. Near Avenal the Aqueduct dropped more than two feet. This drop requires a 20% reduction of the water flow because, in effect the rim of the bathtub was lowered. There's a 22-inch drop in the Delta-Mendota Canal. About 70 miles of aqueduct in Fresno, Kings and Kern counties sank 1.25 feet in 2 years - "troubling and unsustainable". The water removed is "old" water. It's not easily replaced by current rainfalls, although these good rains have reined in takings from underground. If we stopped all pumping now, it would take 50 years to restore it - if they haven't collapsed totally. (The 2014 Sustainable Groundwater Management Act requires local governments to regulate and better manage pumping.) . . . So?

7. Chron 2/11 - STARVING BIRDS AND HOT WATER: Last year the USGS was trying to find out why the common murre ("thin pelicans") were being found dead in Alaska (45K) and along the coasts of WA, OR and CA (6K) - extrapolated, about 500K! The answer was warm ocean water - 4.5 degrees above normal. It was too warm for the finger-length fish food source of the murre. Starvation was quick. Murre, with a high metabolism, have to eat 10%-30% of their body mass daily.

8. Chron 2/11 - editorial - [see Vol. 2, Newsletter #21, [2/10] - ELECTRIFICATION: ] It is wrong to associate HSR and commute electrification. Failure to offer federal funds would void local, regional and state matching funds. It is to be hoped Chao will recognize electrification as part of the national infrastructure update.

#### 9. SIGNS OF THE TIMES - LETTERS:

a. Merc 2/10 - --see Vol. 2, Newsletter #20, 7. a., b., c., ELECTRIFICATION: Electrification is not enough. Electric wires all over the place! Better to use newer battery-powered engines. Germany does it now.

b. Merc 2/10 - [see #2 above - WATER CUTS - NO, NO, ... NO! -] Don't mess around too much with Delta water. You're probably not going to be able to save the ecosystem - there's no easy fix. About 80% of our water is used by agriculture. Its share should be cut, because we export so much of it. "It's important to grow our own food, but the cost is too great to attempt to feed the world."

c. Merc 2/11 - see # 3 above] - [CARBON TAX - UPHILL SLOG:] Uphill, maybe, but worth pushing it if it will include a dividend back to the taxpayers from the tax money.

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#### Newsletter 21, vol. 2

1. Merc/Chron 2/6 - WHITE TIP SHARK THREATENED: The National Marine Fisheries Service agrees with Defenders of Wildlife that the species is declining. They're still found worldwide, but they're on the fade. Consequently, they're eligible to make the Endangered Species list. Since the 90s they've declined 80%-90% in the Pacific; since the 60s 50%-85% in the Atlantic. Public comment is open until March; the verdict in November.

2. Merc 2/6 - GREEN MOVEMENT - GREEN AROUND THE GILLS?: We really don't know yet. There's optimism because there's such momentum, such support from businesses, states and communities, and maybe we'll just go chuggin' along. So thinks the clean industry lobby, Advanced Energy Economy, buoyed by the facts that there are blue collar jobs and economic development. "You can't tell the administration's policy by the president's tweets" is their hope. Others [Gov. Brown et al], have their protective dukes up. In CA there are 500K jobs, grown 22% since 2013. These protectors note that totally missing from the White House list of energy goals [drill for oil, natural gas, shale] is any mention of the green component. But on the brighter side, the W.H. infrastructure policy will affect the energy grid, and the 2015 bipartisan extension of the 30% energy rebate is comforting. The bigger firms seem firm in their green policies.

3. Merc 2/6 - MERCURY MINES - UH UH: In Lake, Sonoma and Napa Counties there are hundreds of mercury (cinnabar) mines. Some are open pit, others, tunnels. The North Coast Regional Water Control Board wants to find out which ones might be a health risk. [When the mines were operating, miners' teeth fell out of receding gums and they were poisoned by toxic gases.] The Board lacks the staff to investigate. Generally speaking, things seem O.K., but the Jackson Mercury Mine near Guerneville threatens to leach into creeks flowing into the Russian River. [One of the local TV news channels on 2/5 showed a ranger warning parents not to let small children eat Russian river bass.]

4. Merc 2/6 - POSSIBLE NEW WATER SOURCE: A lot of our groundwater is brackish = salty. The Pacific Institute reports that it wouldn't cost too much to de-brack it - much cheaper than ocean water. Comparison: Brackish: \$950 per acre-foot. Seawater: \$2,100/\$2,500 paf. In-betweeners: Recycled: \$1,600-\$2K paf. Upgraded household fixtures and appliances: \$190=\$3K paf.> Presently we have 5 ocean-water plants - Carlsbad, Santa Barbara, others not named. We have 23 brackish plants making 80K af = enough for 400K people. The nearest Bay Area plant is at Newark (14K af since 2003). Bay Area water agencies are planning one at Pittsburg. It will use Delta water and make 23K af. > Because brackish is 3.5 times less salty it desalts at half the cost of ocean. To assist in the use of brackish the USGS will soon issue a map that locates all the brackish groundwater. > One problem: What do you do with the brine you've extracted? Brine near the ocean can be pipelined through a wastewater plant, diluted and returned to the ocean. (One near Santa Ana, 60 miles inland, has done this.) Another possibility: Evaporate it and make concentrated salt and truck it to an impermeable land fill. (TX and Israel have done this successfully.)

5. Merc 2/7 - TOYOTA AND SUZUKI JOIN HANDS: The two will work together to develop ecological and safety technology. Toyota (Camry, Prius, Lexus) and Suzuki (small cars) have agreed to do what can be done in these areas. Whatever that may be, they hope, will reduce research costs; more so if others join the partnership.
6. Chron 2/7 - HONDA'S FUEL CELL VEHICLE: Meet "Clarity". Fuel cell cars have pluses and minuses. Unlike EV's they have to be re-fueled (hydrogen) at public fueling stations and the hydrogen must be trucked or piped in. So far, there are only six of them in the Bay Area. But they have longer range and they fuel fast. EV's fuel slow and get about 100 miles. (Tesla's Model S gets 335 miles. "Look at that S car go!") Tesla wants to test the market. The car is just for lease - 3 years, \$2,868 buy-in plus \$369 monthly. Lessees will receive \$15K free hydrogen. The car seats 5 and has collision sensors.
7. a. PADailyPosr 2/7 - REPUBLICANS WANT TO SHORT-CIRCUIT CALTRAIN ELECTRIFICATION: The 14 Rep. CA congressmen want to stop a \$647M electrification grant to Caltrain until the HSR project is audited. They say the original idea was San Diego to Sacramento for \$33B; now it's L.A. to S.F. for \$64B and, as yet, has no private investors as first promised. Transportation Secretary Chao is expected to decide by mid-February.
7. b. Merc 2/8 - SEE ABOVE: The HSR authority has advanced \$700M to Caltrain to jump-start electrification because it benefits both. Caltrain is now asking for \$6547M from the feds. Bay Area leaders are urging approval and have listed the benefits electrification would bring to the Peninsula: More carrying capacity, speedier, replacement of aging and polluting diesels, 9,600 jobs including 1,300 out-of-state. Our leaders also assert that Caltrain electrification stands apart from HSR, because commuter congestion alone warrants it.
- 7.c. Merc 2/7 - editorial - SEE ABOVE: It's long overdue and is beneficial to commuters alone. [The Merc opposes HSR.]
8. Merc 2/8 - SOLAR SUNSHINE: The industry basks in the sun. Nationwide solar employment grew 25% last year, with 25K of the 51K in CA. Since 2010 solar industry has tripled. It now employs 260K (100K in CA) and benefited all states except TN with job growth. The big industrial-size installations led the way. Diversity (women, African-Americans, Latinos) grew as well. [NOTE: CA jobs stated here don't jibe with those stated in #2 above. I believe the explanation is that #2 includes broadly employees in sales, green industry investment firms, warehouses, etc.]
9. BRAKES ON EPA SCIENCE: Lamar Smith, chairman of the House Science, Space and Technology Committee said the EPA has used faulty and falsified data to justify onerous restrictions on the coal and chemical industries. To be sure only "legit science" is used, he's invited a chemical industry representative, a corporate consultant and a coal-company lobbyist to a committee hearing. [Opinion: Long a disbeliever in human-caused climate change, Smith will now be known also as a proponent of shared housing - foxes in henhouses. Pfeh.]

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Newsletter 20, vol. 2

1. NYT 12/30 - op ed - OIL WELL STENCH IN WILMINGTON, CA:  
Los Angeles has more than 1K active oil wells. Wilmington, just to the south, has them near homes, playgrounds and schools. On the city's west, wealthier side the wells are further away, many are enclosed, and the area is healthier. In 2015 a local group, Youth for Environmental Justice, sued L.A. for authorizing wells without the required environmental reviews. In 2016 L.A. settled, promising public hearings, environmental reviews and mitigation if found necessary. The CA Independent Oil Association counter-sued. The outcome isn't known, but even if Wilmington wins, that's far short of what other cities/states do. In PA drilling is banned 200 feet from a building; 500 feet if fracking. Dallas: Stay 1,500 feet away. [Scientists recommend a half mile.] The ultimate answer is - switch to renewables. The city is studying that. God speed!
2. NYT 1/30 - MONGOLIAN POLLUTION PROTEST: About 7K people protested in subzero weather in Ulan Bator about smog. This capitol is one of the world's coldest. It holds about 1.3M people. Most of them burn raw coal, plastic and rubber tires for heating and cooking. In the outskirts they live in unheated tents. Unicef says U.B. is one of the 10 most polluted cities. Children there typically have lungs that under-function. U.B. authorities say that between 2011 and 2015 they spent \$84B to fight pollution. Not enuf, say those who breathe by inhaling and exhaling.
3. NYT 1/31 - THE CONGRESSIONAL REVIEW ACT: It allows Congress, by a simple majority and with the president's OK, to annul any recent measure considered burdensome. Time limits range from 60 days to 6/13/16. [I don't know on what basis.] Environmental measures at risk: Limit on methane emissions; stricter rules on giving permits to coal mines and closer monitoring of mines that could pollute streams; requirement to disclose payments made to the U.S. or foreign government to commercially develop oil, natural gas or minerals. [One plus: the CRA has prompted the GAO to post the rules on an on-line data base.]
4. Chron 1/31 - ND PIPELINE: A ND lawmaker has proposed a state law that would sentence protestors in a crowd of more than 100 to 10 years in prison and a \$20K fine if convicted.
5. Merc 2/1 - BART SETTLES HAZMAT SUIT: BART will pay \$1.275M to Alameda, Contra Costa and San Mateo Counties for failing to have response plans, rules or training for handling spills or leaks of diesel fuel, oil, sulfuric acid and chemicals. While BART agreed to the payment, it pointed out plaintively that there had never been a spill or leakage.
6. NYT 2/4 - LEAD-LADEN WATER: NYC used to test its school water by first letting it run for 2 hours, then let it sit for 8 more and then begin the test. They didn't think this distorted the results. When they decided to test it immediately, they were surprised - and

alarmed. Sometimes 9 times the acceptable "action level" of 15 parts per billion! A few were more astronomical. They found that sitting water absorbs lead from old pipes. Only about a third of the schools have been tested to date, but whenever a test is over 15 ppb, that outlet is shut down until pipes are replaced. The testing last year cost \$13M; this year \$\$13M-\$20M.

7. NYT 2/4 - NEW DELHI OIL SPILL: Two oil tankers collided in the Bay of Bengal. The loaded one leaked 20 tons of oil, messing up 25 miles of coastland, the income of 100K fishermen and the health of Olive Ridley sea turtles.

8. Merc 2/5 - MARCH FOR SCIENCE: It will take place on Saturday, 4/22. It will be worldwide; in the U.S. S.F., Washington D.C., L.A., San Jose, Denver, Portland, Miami; Okla. City have been named. There will probably be others. These marches are an attempt to encourage all politicians to use science when making policy decisions, and to encourage scientists to become more vocal and forceful in explaining science's impact. Said one: "How can a society survive without truth, without data and information, without diversity of people and their perspective?"

9. Merc 2/5 - STARRY STONEWORT - BAD!! : Lovely name; bad actor. This aquatic weed, first encountered in the U.S. in the St. Lawrence River in NY in 1978, and now spreading into lakes in western NY, MI's Lower Peninsula (200 inland lakes), and some in IN, PA, VT and Canada. It's a tiny, white, 6-pointed, star-shaped "bulbil". It's pretty tame and almost endangered in Europe and Asia, but over here in the land of the free it gets pretty frisky. It probably immigrated in ships' ballast tanks. Its fragments and burst bulbils propagate themselves; it migrates by hitchhiking on boats and trailers near boat ramps. Herbicides can't kill it, because it lacks a vascular system. All they do is give it a "haircut" on the top, while the underpart stays healthy. Divers can hand-harvest it and feed it into a suction hose [DASH - Diver Assisted Suction Harvesting], but this costs \$ \$ \$. Best advice: Scrub down boats and trailers before moving to another body of water. (The big fear is that it'll find its way into the Mississippi.)

10. SIGNS OF THE TIMES - LETTERS:

NYT 1/31 - DEPARTING THE PARIS ACCORDS: If we do, we've ceded our climate change leadership to China. . . . Let's not be Luddites.

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Newsletter 19, vol. 2

#### BONUS FEATURE

An article in the The New Yorker, 1/30/17, "Autumn of the Atom" by Jill Lepore tells "How arguments about nuclear weapons shaped the climate-change debate."

A quick (and incomplete) skim of history: We used the Bomb twice in 1945. Since then 8 other nations got them and have not. There have been numerous conferences and summits to avoid future use and to reduce their number. (In 1985 the U.S. and U.S.S.R. held 60K warheads; today, few than 15K.) President Trump's policy is unclear, but prayer may be needed.

The U.S. and the other nuclearphile nations kept trying to increase the Bomb's lethality and they tested the results. Those tests revealed an unintended consequence: Explode a bomb and you deplete the ozone layer. This discovery first coupled Nuclear with Environmental. It was the military's environmental scientists who continued research. After the 1963 Limited Test Ban Treaty was signed there were no longer raw atmospheric data to study. These were replaced by computer models and some empirical results from other planets, esp. Mars.

Comes now Carl Sagan. He helped in atomic research, in counter-measures and, later, morphed into a disarmament advocate. He opposed Reagan's Strategic Defense Initiative [= impregnable defenses against nuclear attack.] Had we achieved this, the nuclear-use paralysis of Mutually Assured Destruction (MAD) would no longer have been a deterrent.

Sagan was zealous, he was a popularizer [a trait not admired by scientists], and sometimes over-exuberant with his warnings. He and others developed the concept of the "nuclear winter", joining nuclear use and the climate. Carried to an extreme, the end of all life on the planet could be foreseen.

Edward Teller was an S.D.I. supporter. He attacked the "winter" theory. "A severe climatic change must be considered dubious rather than robust," and "Highly speculative theories of worldwide destruction - even the end of life on earth - used as a call for a particular kind of political action serve neither the good reputation of science nor dispassionate political thought." [Author: "That S.D.I. also rested on highly speculative theories of worldwide destruction was not lost on Teller's many critics."] But Sagan's "winter" theory had become almost-certitude for him.

Enough certitude for Reagan's National Security Council in 1984 to review a National Academy of Science's report and tell Reagan that while conclusions could not be made, "temperature changes of a size that could have devastating consequences" and required a full and urgent assessment. This recommendation cast doubt about deterrence and a large stockpile when a misfire or accident could blow us to smithereens.

Reagan was persuaded; Schevardnazde and Gorbachev signaled they were aware of it. In 1968 we had the Non-Proliferation Treaty - turn nuclear swords into nuclear energy plowshares and, ultimately, study war no more.

Now the Environment: Author: "In the long term, Sagan's haste and exuberance undermined environment science. More important, the political campaign waged against nuclear winter - against science and against the press - included erecting a set of structures, arguments and institutions that have since been repurposed to challenge the science of global warming." A chief opponent was the George C.



Marshall Institute, founded by 3 men: Jastrow (NASA physicist, Nierenberg (director of Scripps Institute of Oceanography) and Seitz (past president, National Academy of Sciences). This was 3 scientists vs. 6,500 doubting them. Seitz: "a long series of conjectures". He said nuclear winter was dead - "Cause of death: notorious lack of scientific integrity." The Institute persuaded PBS, more than semi-successfully, to not air a documentary critical of S.D.I. Piggybacking on this opposition Fred S. Singer, a consultant for Exxon, Shell Oil, ARCO and Sun Oil [he later worked for Big Tobacco] said, in 1983, "Most scientists do not believe human greenhouse as emissions are a proven threat to the environment or to human well-being . . ." [For Exxon's and Friends' involvement in negating climate change see Newsletters XCVI (12/12/16) and XCVII (12/14/16).]

[Author's conclusion: "A public understanding of science is not well served by shackling science to a national-security state. . . . Critics of climate-change science who ground their argument on uncertainty have either got to apply the same standards of evidence to nuclear-weapons strategy or else find a better argument. Because, as Sagan once put it, theories that involve the end of the world are not amenable to experimental verification - at least, not more than once."]

[Opinion: I wonder if we've done enough to try to describe what various scenarios of the End Time/Last Act might be. Are folks frightened enough? The sins of the fathers and mothers to be visited on which generation of their great-great-grands?]