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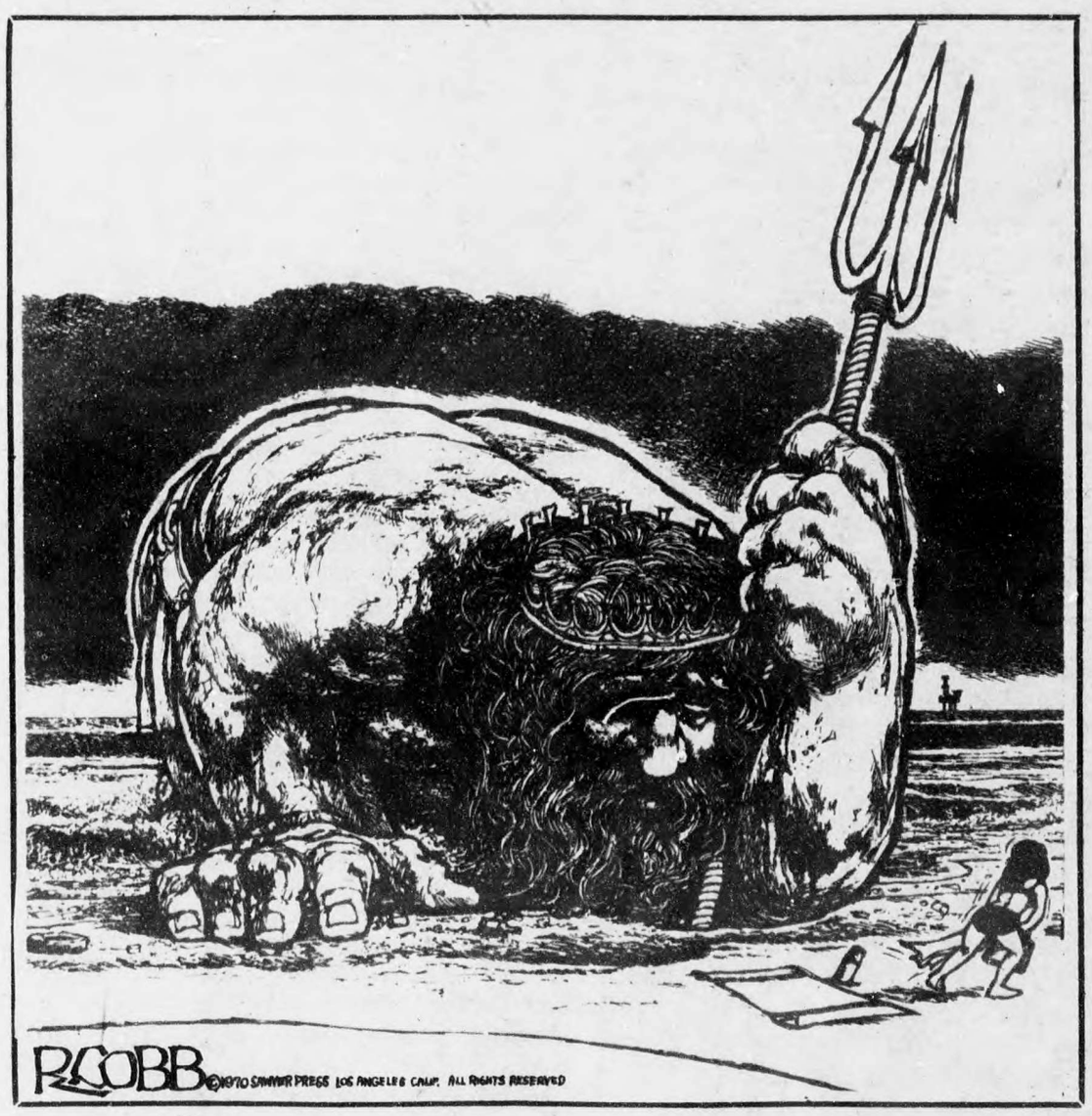
POLLUTION · SCIENCE CAN DO ANYTHING

"Science got us into this mess, and science will
:t us out. *Technology can cure the problems of chnology.*"

Unfortunately, America depending on tech-
ology to pull her out of the hole is like a
igh-pressured, over-anxious businessman ex-
:cting a few Tums to cure his ulcers after
noking and drinking coffee all day, and gulping
own big dinners of extra-spicy, artificially-
avored, preservative-laden food. You can't tack
solution onto a problem and expect it to work
you don't deal with the *cause* of that problem.

Besides, you just can't say that "technology"
the cause of pollution. Someone controls that
chnology and uses it for specific purposes. If
ou don't consider these things, then "pollution



ntrol" won't even get off the ground. Basic
vs of nature see to that.

One of the fundamental principles of science is
at disorder tends to increase. In other words,
aking a mess is much easier than cleaning one
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Oil spills are a good example. Remember the
ctures of Santa Barbara? The massive drilling
gs out in the water symbolized the compli-
ated, ingenious technology that had been devel-
ped to bring oil up from under hundreds of
eet of rock and water.

But when that technology broke down and
nade a big spill, what was the only way to clean
ne oil off the beaches? *With straw!*

And when the oil companies tried to use more
ophisticated methods to break up the oil—by
ropping detergents on it—they only ended up
loing greater harm. People may have been con-
inced that things were better because the messy
il goo was no longer visible, but the detergents
vere even more poisonous to sea life.

Another basic principle of science makes the problem a little sharper: matter cannot be destroyed, only transformed. There are three states of matter, and we suffer from three types of pollution: too much garbage (solid), water pollution (liquid), and air pollution (gas). When we try to deal with one, we tend to make the others worse.

Take garbage, for example. If you try to burn it, you've got air pollution. So you develop special incinerators that cut down air pollution, but then you get dirty filters and residues—more solids. If you dump that stuff in the water, you've got water pollution.

It's the same story with dirty water. With advanced methods, water can be considerably cleansed, but one by-product is tons of sludge (solid). Getting rid of the sludge brings in all the problems of garbage disposal.

And controlling air pollution, as just mentioned, produces solid wastes, often very poisonous, that are hard to deal with.

The only possible solution includes something called recycling. This means finding ways to use waste products over again. The metal, paper and plastic components of garbage, for example, could be separated and re-used. The rest of the rubbish could be converted to compost, which is nothing more than natural fertilizer.

But recycling requires total economic planning. In America, big companies sell millions of dollars worth of chemical fertilizer, and they will fight any program which sees city and state governments putting organic fertilizer on the market. In this country total economic planning for the best overall results is not possible.

The same goes for water and air pollution. Most by-products which could be recycled are already being produced very profitably by other companies. American corporations make more money digging additional resources out of the ground than recycling them. They're not about to sacrifice these profits just because recycling makes better ecological sense.

To make matters worse, many new products are made to be super-disposable. As a result, they are harder to recycle.

Plastic beer cans, for example, have been developed to replace metal ones. But the only way to get rid of them once you've used them is to burn them—and then you end up breathing beer cans.

Behind all these difficulties is the sheer problem of energy. Most of our electrical power is generated by plants that burn coal or oil. This is why electric utility companies like Con Ed in New York or PG&E in California are always among the worst air polluters. Their air pollution is very visible, so they talk up atomic generating plants.

Atomic plants, however, also pollute. They need immense amounts of water to cool the reactors, and this water, when discharged back into the rivers, is very hot. This creates something called thermal pollution: hot water changes the balance of life and kills off many fish; rivers and lakes lose their ability to clean themselves and become much more polluted.

So atomic generating plants merely replace air pollution with water pollution. Technology takes us out of the frying pan and into the fire.

This leads to the most basic problems of all: in America, as things are now, certain kinds of pollution are ***totally unpreventable.*** As long as the American economy turns out immense quantities of missiles, cars, steel skyscrapers, spaceships, and pointless appliances, then there must be an immense amount of combustion to produce and run these things. As far as we know now only combustion technology—the burning of fuel (mostly coal, also oil)—can provide the tremendous, concentrated energy needed.

But combustion consumes oxygen and releases staggering amounts of carbon dioxide into the atmosphere. The CO_2 is building up, especially as more and more plant life (which converts CO_2 back to oxygen) is destroyed. All this CO_2 in the air is beginning to cause something known as the "greenhouse effect": the light rays from the sun can get in, but when they reach the earth and turn into heat rays, the heat rays can't get out. This tends to heat up the lower levels of the atmosphere. Nobody really knows what this is going to do, but most scientists are positive that it will be something very bad.

Science—the hope

What it really comes down to, and what you rarely hear about, is that on the whole, anti-pollution devices can only *slow down* the rate at which things are getting worse. Being poisoned a little more slowly is hardly a cure.

Fighting pollution with gadgets is like treating cancer by lopping off the most obvious tumors. While expensive devices can make a few processes less harmful, every year more factories send their stacks into the sky and run their culverts into the rivers. Bulldozers clear off