

Against pollution

Antipollution is becoming as sacred as motherhood. Last week the House and Senate, by unanimous voice votes, approved the clean air bill that came out of conference little changed from the stiff version earlier reported out of Sen. Edmund Muskie's (D-Me.) air and water pollution subcommittee (SN: 9/26, p. 271). And although President Nixon is under pressure from the automobile and other industries to veto the bill, bets on Capitol Hill are that he has to sign it. The bill will establish air quality standards "protective of public health." Anyone who wants to argue with that will have to turn some contorted somersaults.

The provision of the bill that got most attention was the one that would require a 90 percent reduction in new car emissions by 1975 (instead of 1980, as earlier required by the National Air Pollution Control Administration). But the bill contains some other, less-noticed provisions that could have even more significant long-range effects.

It would, for example, require the adoption of strict national ambient air standards—as opposed to the earlier suggested "criteria" released by NAPCA—which would be so stiff that many states will have no choice but to make major reductions in automobile traffic within cities.

Another section makes it likely that the standards will be met. It stipulates that if citizens or citizen groups believe NAPCA is not doing the job, they have the right to sue the administrator of the Environmental Protection Agency to require enforcement. □

GULLIBLE SKEPTICS

The case of vitamin C

A number of the profession's more sophisticated medical reporters, brought together for the meeting of the American Medical Association in Boston (SN: 12/12, p. 446), were discussing informally the phenomenon of Dr. Linus Pauling and his theory that large doses of vitamin C will prevent colds. The general consensus was a good blend of journalistic skepticism and tolerance: It was felt that a man with two Nobel Prizes to his credit (one for Chemistry, the other for Peace) was entitled to make a fool of himself.

The image was marred, however, by the fact that some of the reporters were later observed in the hotel drugstore stocking up on vitamin C.

The incident is typical of the ambivalent attitude prevalent in America toward both vitamins and science. Decades of rampant hucksterism have trum-



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Pauling: Scientist as vitamin promoter.

peted the virtues of vitamins for action against everything from beriberi to fleabite; while the advertising overkill has resulted in the usual healthy skepticism toward overblown claims, the brainwashed subconscious apparently waits only the proper stimulus to spring into action as a consumer.

Similarly, scientific evidence has been cited so often with so little regard to qualification or restriction that there is much popular resistance to far-out claims—a resistance exemplified a few years ago by the title of a book, "How to Lie with Statistics." But when an authoritative figure cites scientific evidence, skepticism is often overcome.

The result of these factors was that a few weeks after Dr. Pauling's book, "Vitamin C and the Common Cold," hit the stands, the nation's drug shelves were stripped of vitamin C, and Food and Drug Administrator Charles E. Edwards was waspishly lamenting the fad as a waste of money by those who succumbed to it.

Dr. Pauling's case for vitamin C's activity in preventing colds has three legs:

- He claims that since starting a regimen of heavy doses of the vitamin he and his wife have noticed "a striking decrease in the number of colds that we caught, and in their severity."

- He cites a catalogue of studies in which subjects receiving vitamin C appeared to be less susceptible to colds than control subjects. Some of these same studies have been used by other authorities to debunk the vitamin C theory. (Dr. Pauling also cites studies that indicate the vitamin helps heal wounds, prevents back trouble, guards against some types of bladder cancer and increases, if not intelligence, at least mental alertness.)

- He suggests, admittedly without any evidence, that vitamin C may act against cold viruses by stimulating the production of the body's universal antiviral agent, interferon (SN: 8/29, p. 163).

Critics of the vitamin C idea, besides attacking the validity of the studies cited by Dr. Pauling, also express uneasiness about the safety of taking abnormally large dosages of the vitamin over long periods. Although vitamin C is not known to have any adverse effects, the high-dosage long-term regimen has not been studied.

Dr. Pauling's enthusiasm will probably be translated into more, and more rigorous, experimentation on the activity of his wonder chemical. In the meantime, druggists are probably chewing their nails wondering how long the current vitamin C fad will last. □

OPTICAL MEMORY

All at a glance

The operation of memory elements in computers and related devices depends on the possibility of making some alteration in the electric or magnetic properties of the element that will remain for a reasonable amount of time. A most common way is to impress a particular direction on the orientation of magnetic domains in a magnetic tape or metal chip. The information thus stored can later be read out by a sensing device.

Light can alter the electrical properties of certain materials in a more or less lasting way, and the use of optical effects to store information could be more advantageous than magnetic means. An optical memory element could instantly take up an entire picture or an optical display containing many thousands of bits of information and play it back instantly. Other types of memory devices tend to record bits of information in sequence, as a TV camera takes pictures by scanning them in horizontal lines and recording spots of darkness or light, one by one. An optical element could take all the spots at once. This could greatly speed data processing and computation rates. An optical memory element must be both photosensitive, that is, capable of recording the light that strikes it, and electro-optic, capable of altering a read-out light beam in such a way that it can give back the information.

A number of approaches have been tried in which one substance is used as the photosensitive part and another as the electro-optic. This method, says Dr. D. S. Oliver of Itek Corp. in Lexington, Mass., encounters problems: It must bond together two dissimilar substances and make them cooperate in the working of the device. He and a group working with him have produced an optical memory element that uses only one substance for both functions, and he says it is not only easier to fabricate and operate but also more efficient than previously reported approaches.