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LETTERS

Benefits from space research

DEAR SIR:

In reply to R. Norris Shreve's letter (C&EN, Nov. 25, 1968, page 7), as a fellow scientist and ACS member I must take exception to both his suggestions and philosophy. Dr. Shreve apparently has failed to keep abreast of the rapid technological advances we enjoy due to government-sponsored research and space program spinoff. To show what I mean let me list but a few of these:

- Manipulator arms and teleoperators which can extend and amplify human beings' capabilities—they can be used in exploring ocean depths, increasing industry production, and aiding physically handicapped persons.
- Contamination control and clean room technology derived from the space programs has led to knowledge of better hospital conditions. These result in cleaner operating rooms and less cross-contamination of surgical patients—possibly reducing the number of postoperative "staph" infections.
- Nearly every probe sent into space has carried some kind of advanced analytical instruments. Thus these NASA improvements in ultraviolet and infrared spectrophotometry, x-ray spectroscopy, alpha-particle scattering, neutron activation, mass spectrometry, gas chromatography, and life detection techniques have been of future benefit to all of us.
- New aids to measuring blood pressure, sensing external manifestations of cardiovascular forces, and attaching of electrodes to the human body have been developed with these NASA-controlled government expenditures using the know-how of American industry.
- Manufacture of adhesives, sealants, and gaskets has been improved to withstand adverse environments as needed in space exploration—thereby resulting in better on-earth products.
- Thermal insulation systems have been developed from the lightweight blanket materials to the improved fireproof glass fiber Beta cloth garments.
- Many aerospace contributions to structural design know-how are applicable to buildings and other structures that do not fly.
- Sensors and data transmission and recording devices such as are used in space can be adapted to common medical work. Biotelemetry enables a doctor or nurse to observe a living person without being nearby. It permits constant monitoring of numerous pa-
The Government in fact is each and every governmental research with a specific goal, as in the Apollo program, or would it be preferable to abandon the early 1900's defense research which Dr. Shreve would suggest we eliminate. I am sure that if Dr. Shreve tried he could publish a sequel to his "The Chemical Process Industries" on the technologies and knowledge derived from government-sponsored and space research. The Government in fact is each and all of us. Is it not better to engage in governmental research with a specific goal, as in the Apollo program, or would it be preferable to abandon all governmental efforts and enter the isolation of the early 1900's?

HERBERT M. GOLDSTEIN
Massapequa, N.Y.

Bring back ACs

DEAR SIR:

Because of a recent cut in funds, the Advisory Council on College Chemistry has been forced to curtail operations. ACS members who were familiar with their operations will agree, I think, that they were a source of innovation, synthesis, and stimulation to teachers of chemistry. Considering the central role of education in the purposes of the ACS, it is hard to think of a more useful and forward-looking act for our Society than to step in where federal subsidy has failed, and provide at least partial support for continuation of the AC.

THOMAS R. BLACKBURN
Geneva, N.Y.

Tariffs and dyes

DEAR SIR:

Congratulations on Earl V. Anderson's article "ASP: The little giant" (C&EN, Jan. 6, page 66). This is the clearest and most complete treatment of this controversial and complex tariff subject that I have seen in the public press.

I think, however, that a little further refinement of Mr. Anderson's analysis would indicate that, while dyestuffs are a very small portion of the total benzenoid chemical group, the unfortunate results of the Kennedy round reductions fall most heavily on this limited segment.

The technical implication of the profit squeeze on American dyestuff manufacturers is a problem which the chemical industry, and even Mr. Anderson's fine article, have not sufficiently emphasized. The dyestuff area has historically provided the impetus which started the U.S. chemical industry on the road to its present level of sophistication.

From this area of benzenoid chemical research there continues to flow a stream of new compounds which have applications not at all related to color, from agriculture to pharmacy to national defense. If the research and development effort which backs dyestuff work and the manufacturing know-how which is involved were to be seriously curtailed, which is beginning to happen, our country will lose a vital part of its scientific health.

Mr. Anderson repeats Mr. Roth's oft-quoted statement that the talks would have collapsed without a change in ASP. How do we know this? The trouble with successful brinkmanship is that the other side not only doesn't know it has been had, but then feels that it must defend its former opponent's course of action to justify its own capitulation.

Moreover, it should be noted that American benzenoid chemical manufacturers, who played no part in the negotiations, are all extremely unhappy with the results, while European producers, who played a vital role on their side, are all delighted. If one assumes equal intelligence, something must be wrong for us.

JESSE WERNER
Chairman and President, GAF Corp., New York, N.Y.

Waste disposal wells

DEAR SIR:

Re the article on water pollution (C&EN, Jan. 6, page 17) which indicated that disposal wells are not the answer: I think in a few areas of this great country of ours they are not the answer but in most areas they are feasible and can solve many of our pollution problems.

I do not advocate indiscriminately drilling disposal wells and injecting all types of waste, but I do advocate disposal wells where prior geological studies indicate the waste can be confined.

If geological conditions indicate subsurface disposal is feasible, proper engineering should go into the design of a disposal well along with laboratory analysis of the chemical composition of the waste to be injected.

I would like to point out that the utility companies have been successfully storing gas in brine-saturated aquifers for a number of years.

C. J. HENNESSY
Evansville, Ind.