

New methods of screening for carcinogens revealed

By TIM PADMORE
Sun Staff Reporter

MEXICO CITY — Nearly 200 chemicals are known to cause cancer in animals but, because testing suspect chemicals on humans is morally unacceptable, only a handful of synthetic materials have been found guilty of causing the disease in man.

Monday, at the First Chemical Congress of the North American Continent, biologist Barry Commoner described a new method of screening for cancer-causing substances which he said could lead to a way out of the dilemma.

In a plenary address to this first joint meeting of the chemical societies of Canada, U.S. and Mexico, Commoner said the first step would be to use the technique to identify potential carcinogens in the environment.

Then the urine of humans — particularly of those exposed to chemicals identified in the first stage — would be analysed for cancer-causing substances.

The technique, developed by biologist Bruce Ames at the University of California at Berkeley and elaborated on by Commoner's team at the University of Washington in St. Louis, Mo., exploits a close connection between cancer and genetic mutations.

Instead of administering a suspect substance to laboratory animals — a tedious and elaborate procedure costing, typically, \$150,000 per substance — a substance is added to a culture of *Salmonella* bacteria. (*Salmonella* organisms are responsible for one type of food poisoning).

A strain bred by Ames is special because it requires a chemical called histidine to grow. If a culture is started without histidine, colonies will grow only if some of the bacteria mutate.

About 20 colonies will grow on a typical plate because of spontaneous mutation. But if a carcinogen is present there may be thousands of colonies. The test is cheap and quick, Commoner said.

But are there carcinogens that do not cause mutations?

Early experiments indicated that there

are lots but, said Commoner, it now appears that most of the supposed exceptions were not, in fact, cancer-causing themselves but were transformed in the body into cancer-and-mutation-causing substitutes.

An example is a material called AAF which invariably causes tumors in rats, but never in guinea pigs. The reason, he said, is that enzymes in the rat's liver convert AAF into seven-hydroxy-AAF, which is mutagenic and causes cancer in both rats and guinea pigs.

The reason the guinea pigs are immune to AAF is that they do not have the crucial enzyme.

To pick up things like AAF in the screening, Commoner added extracts from liver and six other types of rat tissue to his cultures.

He speculated that similar differences in the metabolisms also account for any differences in susceptibility to cancer between men and rats. The obvious thing to do, he said, is to look at urine samples, where the end products of metabolism are found.

If extracts from a person's urine caused mutations in the bacteria, it would mean the person was in danger.

If the deadly end product showed up in the urine of most exposed people, the case against the environmental contaminant would be proved.

Commoner said in a press interview that the Washington University group tested the urines of a few dozen people over the past year "just to get our hands in this area" and found six with "abnormal" levels of mutagens.

The only fly in the ointment is that, to prove the theory it will be necessary to follow people with positive urine tests and see if they really get cancer. That raises a large "ethical problem," said Commoner, who added that people involved in the experiment were given an elaborate written explanation of the project and reassured that — at this stage anyway — a positive result did not mean they were going to get cancer.

CHEMIST CONFIRMS DANGER TO OZONE

Sun Staff Reporter

MEXICO CITY — The pendulum of concern over the threat to the earth's protective ozone layer from spray can propellants took another swing here Monday.

Mario Molina, a chemist at the University of California at Irvine and co-author of the scientific paper that drew the threat to the world's attention last year, announced at the first Chemical Congress of the North American Continent the results of experiments showing that the danger is almost exactly as he originally predicted.

That means that, at present rates of production, 10 per cent of the ozone will be gone in 15 years leading to a 20- to 30-per cent increase in skin cancer in

humans and possibly more severe effects on global ecology and weather. And, if production continues to increase at the same rate as in the past, the effects could be "catastrophic," he said at a press conference.

Opponents of the theory worked out by Molina and chemist F. S. Rowland have argued that chlorine atoms, produced by the action of sunlight on the fluorocarbon propellants, would be lost from the atmosphere before destroying significant quantities of ozone.

And, more recently, workers at the U.S. National Bureau of Standards found an indication that cold temperatures in the stratosphere could reduce the probability of forming the chlorine atoms.

'Tasty microbes' used as flavoring

Sun Staff Reporter

MEXICO CITY—As world food supplies become tighter, people are being forced to eat less tasty foods, and chemists are turning to microbes as sources of flavor, a food company chemist said here Monday.

William Marshall of General Foods Corp. told other food chemists attending the First Chemical Congress of the North American Continent:

"We must seize every opportunity to increase the palatability of nutritious food."

Enzymes that break down protein can be used to eliminate the "beany flavor" that comes from adding high protein soybean derivatives to breakfast cereals, he said.

And dog food with limited meat content can be made more palatable to dogs by adding an enzyme which breaks down some of the fat.

JIVE—FOXTROT—HUSTLE—WALTZ—POLKA—
FINAL WEEK
DANCE BEFORE
"CHRISTMAS"
15 HRS.
ONLY
\$15.00
• 3 Pte. Hrs.
• 5 Class Hrs.
• 5 Social Prac.
Sessions
Penguins DANCE CITY
• Vancouver's Largest Dance School
• Features — NO — Contracts
• Pay for dance lessons NOT franchise fees
CALL 685-4381
New Students Only
JIVE—FOXTROT—HUSTLE—WALTZ—POLKA—

Thanks for the memories.

Remember those stirring promises that heralded the coming of The Insurance Corporation of British Columbia? The promise that the "profits" made by ICBC would remain in the province? The boast that ICBC would be self-supporting? That subsidies would never be required?

That was before Autoplan actually got into operation ... and in less than two years these promises have dissolved into pipedreams.

Remember the \$36 million deficit?

"This plan will stand as a beacon to the sound business management of the NDP." So said the Hon. Robert Strachan, the Minister responsible for ICBC, when he introduced Autoplan. The beacon has since faded fast. In its first year of operation, ICBC reported a deficit of \$36 million. But remember that \$36 million deficit figure. All the forecasts are that it will look good compared with what ICBC will drop in its second year.



And all the high hopes that Autoplan would never be subsidized? Just another pipedream. In June the government proposed that a subsidy of up to 10 cents a gallon on the gasoline tax could be used to support auto insurance. One way or the other, the taxpayer has to pay.

Remember the ICBC strike?

In May 1,800 employees of The Insurance Corporation of British Columbia went on strike. This strike lasted 15 weeks. There were an estimated 100,000 claims still awaiting settlement when the strike began. Another 100,000 new damage claims occurred during the strike itself. About 350,000 driver certificate renewals had to be ignored. The



monopoly was immobilized for more than 100 days. If you were in an accident and wanted action — tough.

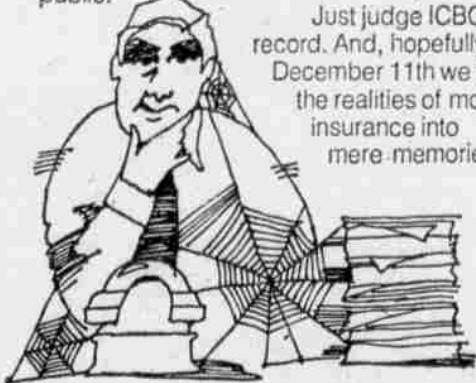
Remember the fun of dealing with a government bureaucracy?

The Insurance Corporation of B.C. spent \$32 million on capital expenditures and another \$19 million on start-up costs. Just to create another government bureaucracy.

And has it been fun dealing with yet another government monopoly? The feeling that you had to take or leave whatever was offered? The frustration that came with the realization that you had been robbed of the ultimate defence of consumers everywhere — the right to take your business elsewhere.

All the opposition parties in this election recognize that the public good will not be served if ICBC remains a monopoly. They all say Autoplan should have to compete with the private insurance companies. After all, if the private companies are inefficient or cannot match the service or rate offered by ICBC, they'll be the losers — not the public.

Just judge ICBC on its record. And, hopefully, on December 11th we turn the realities of monopoly insurance into mere memories.



This advertisement paid for by private insurance companies operating in B.C.

SAFeway This Week's National Brands SPECIAL OFFERS at Safeway

General Mills
Whistles
• Betcha Bacon
• Cheez Willikers
• Bugles
Your Choice
Min. 4.5 oz. Pkg. **69¢**

Monarch Sponge
Puddings
• Chocolate • Lemon
• Cherry
• Rum and Butter
9 oz. Package **49¢**

Kellogg's
Bran Flakes
Breakfast
Cereal
21 oz. Package **83¢**

Cloverleaf
Tuna Fish
Solid White
Albacore
7 oz. tin **85¢**

Shredded Wheat
Nabisco. Serve
with Milk.
20 oz. Package **85¢**

Sugar Crisps
Post Brand.
13 oz. Package **95¢**

Best Foods
Mayonnaise
Serve in salads
or sandwiches
16 fl. oz. Jar **95¢**

Robin Hood
Quick Oats
Quick and
Easy to
Prepare **5 lb. \$1.29**
Bag

Nestle's
Quik
2 lb. Tin \$2.05

Colgate P-300
Bath Soap
Anti
Bacterial
Deodorant
5 oz. size **2 for 89¢**

G.E. Shadow Ban
Light Bulbs
25
40, 60,
or 100
watt
Pkg. of ... **2 bulbs 69¢**

Purina Brand
Cat Food
Tender Vittles
• Tuna • Beef
• Gourmet
500 gm. Box **93¢**

Prices effective **Tues. to Sat. Dec. 2nd to 6th.**

In Greater Vancouver & Lower Mainland
Regular Safeway Stores up to and
including Chilliwack. Sales in Retail
Quantities only.

SAFeway
CANADA SAFeway LIMITED