■ New sources of protein for food.

FROM CRUDE PETROLEUM

Synthetic foods that taste like meat and fish are being developed experimentally from crude petroleum oil to meet the world's mounting food needs, a French scientist reported.

Dr. Alfred Champagnat, of Courbevoie, France, reported on research with crude oil at a symposium during the 150th national meeting of the American Chemical society. Two other scientists told of other food producing processes using bacteria and fungi.

Champagnat said microorganisms produced from crude petroleum contain more than 50 per cent usable protein that can be converted into products tasting like fish and meat.

"Potential protein production by the petroleum industry could reach twenty million tons a year — half the anticipated protein requirements for the world's food needs in 1980," he said. "A pound of petroleum will produce a pound of protein."

Champagnat said the petroleum-produced protein concentrates probably will first be used to supplement cereals fed to cattle. Later, depending on the outcome of tests on animals, its use could be extended.

He noted that the production of proteins through this method would be less expensive than by current methods.

Dr. William Gray of Southern Illinois university told the symposium that fungi—such as mushrooms, mildews and molds—could be used as efficient "protein factories" to feed billions.

"The fungi could significantly multiply the protein-producing capacity of several food staples, including rice, sugar cane and manioc," he said.

Gray said when the plants are ground or minced and added to a liquid medium containing fungi and inorganic fertilizers, the fungi convert the plant's carbohydrates into protein. The protein-containing fungi are then dried and made into flour, flakes or pellets.

The fungal conversion process could increase the protein yield from manioc from three to six times the amount produced normally on farm acreage," he added. "Even a tripling of yield could provide enough protein for the total annual protein requirements of 434 million people."

Gray said if rice were used instead of manioc, the fungal conversal process could manufacture enough protein to meet the needs of another 1.8 billion people. Using sugar cane and beets, it could meet the protein requirements of another 581 million people.

Another researcher, Dr. Stephen R. Tannenbaum of the Massachusetts Institute of Technology, discussed the production of protein from bacteria.

He said cells of bacteria grown in culture on various complex carbon sources can be processed to yield a 60 to 70 per cent protein concentrate with a composition similar to that of cow's milk protein. — *UPI*

CONSTITUTIONAL JUSTICE

How absurd an ambition for a people to attempt, by a written constitution, to "establish justice"! It is an ambition to make lawyers laugh and philosophers weep. — *D. W. Brogan in The American Character.*