MICROBIOLOGY

Cross Breeding for Better Antibiotics

➤ CROSS BREEDING may soon produce better antibiotics the same way it produces better race horses, if scientists can unravel the sex life of microorganisms.

The sexual modes of reproduction in certain microorganisms are now being studied by Dr. Waclaw Szybalski, Rutgers Institute of Microbiology, New Brunswick, N. J., who believes that cross breeding certain strains may lead to the production of new tailor-made antibiotics.

"Farmers and plant breeders have long recognized the importance of suitable crosses in the development of plants and farm animals possessing desirable properties such as high productivity, resistance to diseases, and high market value," Dr. Szybalski said.

But the antibiotic industry has not been able to use a similar approach because no one yet knows the sexuality and breeding requirements of the microorganisms, the scientist said.

From studies of the *Streptomyces,* microorganisms from which many antibiotics, including streptomycin and neomycin, have been isolated, Dr. Szybalski and his coworker, Donald H. Braendle, have found that the cells of streptomycin-producing and neomycin-producing strains can fuse together and exchange nuclei.

In the cells that produce neomycin, they have also found rare fusion of nuclei and recombination of genes. Antibiotic resistance and nutritional deficiencies were used as markers to identify mutants of the different strains.

"We now have sufficient information to believe that cross breeding of microorganisms can be controlled to the extent of producing new antibiotics, increasing the yields of antibiotics and combining in one strain several industrially desirable properties," Dr. Szybalski said.

Extended research in this area is being made possible by a $12,000 grant from the National Science Foundation.

Science News Letter, January 26, 1957

GENERAL SCIENCE

Double Research Money For "Greatest Bargain"

➤ DOUBLE the amount of money we now spend for scientific research and we can get back "the greatest bargain the American people have ever had." This is what Nobel Prize winner Dr. Glenn L. Seaborg of the University of California at Berkeley told the Society of Chemical Industry in New York.

On hand to receive the 51st impression of the Perkin medal, awarded to Dr. Seaborg by the Society in recognition of achievement in American industrial chemistry, the Nobel Laureate spoke of universities and basic scientific research.

Claiming in his acceptance address that universities now are and will remain "the natural center for basic research," Dr. Seaborg had these suggestions to offer:

1. Lump sums of money should be made available to the "general university budget" by outside sources for "administration in the manner traditional to university research, rather than disbursed piecemeal to small projects bearing specific titles."

2. Means must be found of attracting more people to the university who are capable of creative thinking.

3. Universities should try and gain financial support for creating more positions which "are comparable to that of professor, in freedom, prestige and tenure."

4. There is a drastic need for personnel to support investigators in their work, and for service facilities to aid the creative scientists on the campus.

Science News Letter, January 26, 1957

MEDICINE

Heart Death Rate Misleads Public

➤ THE PUBLIC has been greatly misled about the increasing death rate from heart disease, Edward A. Lew, Metropolitan Life Insurance Co., New York, reported to the New York Heart Association's conference on atherosclerosis and coronary heart disease in New York.

"Probably less than 15%" of the increase in the death rate from heart disease between 1940 and 1954 represents a real increase in mortality from this disease, he said.

Although the real increase has been relatively small, it has been blown up by new procedures for classifying deaths, broader concepts of what the disease is, and the "increasing resort to this diagnosis by coroners and medical examiners in cases of sudden death or where the deceased had not received medical attention," the statistician said.

Of the total amount of increase, about 30% could be accounted for by the greater proportion of older persons, 40% could be ascribed to the new methods of classification, and 15% or more represented the acceptance of a broader concept of the disease, better diagnosis, and increasing use of the term coronary artery disease in death certificates.

Married people have a much better chance against death from heart disease than do the unmarried, the statistics show.

Death rates are significantly higher for the widowed, the single and the divorced than they are for the married, Mr. Lew reported.

Geographically, the highly urbanized states had high rates while the mostly agricultural ones had the lower ones.

But a number of seemingly unrelated factors seem to be involved, he said.

"It is important to guard against the tendency to over-simplify and over-generalize in explaining the variations in the incidence of the disease in different groups, at different times, and in different places," he commented.

Science News Letter, January 26, 1957

IN SCIEN

GERIATRICS

Boredom and Poor Diets Shortening Man's Life

➤ BOREDOM and poor diets are making us old before our time, Dr. Edward L. Bortz, Jefferson Medical College, Philadelphia, told a conference on constructive medicine in aging, sponsored by the Wm. S. Merrell Co., in Cincinnati.

When these two problems are conquered, people can expect to live to be a hundred years old within the next 25 years, the medical professor said.

The major dilemma of today's "young man of 65" is that he becomes old because he is bored. Retirement and social security have robbed him of activity at a time when he needs to maintain "positive energy" and a high motivation for living.

The other great problem of today's aging population has been created by the "diseases of over-abundancy or prosperity," said Dr. Bortz.

"Diseases could be cut 50% if communities were put on proper diets," he reported, adding that cancer, for instance, occurs three times more often in "fat" people.

Dr. Bortz also called for a different approach to heart disease in the aging, with the emphasis on the normal circulation instead of the abnormal. This positive point of view would concentrate on the man who has the disease rather than the disease itself.

Science News Letter, January 26, 1957

TECHNOLOGY

Smog Harms Clothes And Other Fabrics

➤ SMOG HARMS CLOTHES and other fabrics, research at the University of California at Los Angeles by textile expert Rita Landry indicates.

She reports that smog, the Los Angeles variety at least, makes fabrics lose their strength, causes dye colors to fade and sometimes changes the color of the fabric.

Miss Landry tested 17 different fabrics at two exposure stations, one located in a "heavy" smog area at the city's edge. Fabrics were also tested in an artificial smog chamber.

She found there seems to be a definite relationship between smog's effect on clothing and the density of air pollution as measured by Los Angeles County's air pollution control district.

Color evaluations made after exposures of 72 hours, 112 hours, and 152 hours showed a general and gradual color loss with increased exposure time and with increased atmospheric pollution.

Fabrics were shielded from the sun.

Science News Letter, December 29, 1956

CE FIELDS

ENGINEERING

Atom-Auto Not In Sight

➤ THERE is no atom-powered automobile in sight for the American motorist. It would take a completely new and revolutionary scientific principle to produce one, the Society of Automotive Engineers learned in Detroit, Mich.

Nuclear power plants today, and for some time to come, are just too heavy, C. R. Lewis of the engineering division, Chrysler Corporation, told the Society.

One optimistic estimate shows that a 3,000-pound automobile would need an atom power plant weighing 80,000 pounds to propel it along the highway.

"Such a vehicle," Mr. Lewis said, "might be welcomed by the rubber industry but would certainly not be in favor with our local highway department."

The only hope for an atom-powered car, Mr. Lewis stated, would be if an efficient means of storing energy were to be invented. This indirect propulsion of automobiles from nuclear generated power would be very attractive. "Such an invention," he said, "would, in all probability, completely change the automobile and allied industries as we know them today."

The automotive engineer lamented the fact that atom-powered automobiles were not seemingly on the way, stating that it seems a pity "because there is a made-to-order name for such a vehicle, 'atomobile'."

In another discussion of the atom and the automobile, Michael Ference Jr. of the scientific laboratory, Ford Motor Company, reported that atomic radiation can produce significant changes in the properties of materials. Cautioning that there is no economic advantage to irradiating metals at present, he told the society that much more study of the problem is needed.

Science News Letter, January 26, 1957

METEOROLOGY

Tests to Find if Seeding Effective

➤ CLOUD seeding experiments, the first of their kind, will be conducted in Santa Barbara county, Calif., beginning this year and running through 1959, a University of California scientist reported in Washington.

Dr. J. Neyman of the Statistical Laboratory, Berkeley, said the three years of tests are designed to answer, with more accuracy than previously possible, the question of whether or not cloud seeding produces significant increases in rainfall. He called for aid from other interested groups to make the experiments even more complete than now planned.

The trials will provide an "unusual opportunity," he said, for studying the effects of silver iodide smoke, produced by ground generators, on storms passing over mountain areas. The new and important feature is that what storms will be seeded and what ones will not is to be decided at random, as by the toss of a coin, after a weather forecaster has decided the conditions look promising.

Only two other randomized cloud seeding tests have been made, and they involved throwing chemicals from airplanes, not from the ground.

Weathermen have long argued that the claims made by some commercial cloud seeders concerning rainfall increases produced by their activities are either unduly optimistic or not justified.

The problem is that there is no reliable way now known of telling how much rain would have fallen if the storm clouds had not been seeded. Random seeding over a sufficiently long time should give a "definite conclusion regarding the effectiveness of seeding," Dr. Neyman reported in the journal, *Science* (Jan. 11).

The Santa Barbara experiment is a cooperative program, with financial support from the county. Actual cloud seeding will be performed by the North American Weather Consultants, and the California State Department of Water Resources will collect data on rainfall using automatic gages lent by the U. S. Weather Bureau. The Statistical Laboratory of the University of California has set up the experiment and will evaluate the results.

Science News Letter, January 26, 1957

ICHTHYOLOGY

Fish Travel Best When "Soused"

➤ LIVE ALBACORE, a species of tuna, can be transported in a "drunk tank," recent experiments in California show.

It is not likely that such fish will ever become addicts, but alcohol (of a variety heavier than the beverage type) is proving effective as sedation during transport.

William McFarland and Kenneth Norris, ichthyologists from the University of California at Los Angeles, have been experimenting with such techniques at Marineland, a southern California aquarium.

When albacore are caught and placed in a tank to be transported, they swim about wildly and may thrash themselves to death against the sides of the tank. If they survive this rampage, their violent movements use up vital oxygen in the crowded tanks, which poses another hazard. This is also true of many other rapidly swimming fishes.

Sedation with the heavy alcohol quiets the fish down considerably, say the UCLA researchers, thus improving chances of safe transport.

Sodium amytal and other barbiturates have been used as sedatives for fresh water fish but so far have not proven effective on marine fish.

Science News Letter, January 26, 1957

PUBLIC SAFETY

Lighting Highways Would Save Lives

NIGHTTIME is killer time on the American highway, a Conference on Night Traffic Safety learned in New York.

More than one-half the number of persons killed in highway accidents last year were victims of darkness driving. This was despite the fact that two-thirds of the driving done in the United States in 1956 was during daylight, Newman E. Argraves, Commissioner, Connecticut State Highway Department, said.

Commissioner Argraves reported that in an effort to cut the nighttime death toll, Connecticut has decided to light a continuous 53-mile stretch of the Connecticut Turnpike.

The Conference, sponsored by the Street and Highway Safety Lighting Bureau, also learned that adequate lighting of highways would save 10,000 lives, prevent injury to 270,000 persons and cut the accident economic loss by $1,000,000,000 each year.

Science News Letter, January 26, 1957

GENERAL SCIENCE

Jobs Sought for Hungarian Scientists

➤ THE GOVERNMENT is querying the nation's scientists and some industries in an attempt to properly place more than 1,000 Hungarian scientists who have arrived at Camp Kilmer, N. J.

An announcement and questionnaire from the National Academy of Sciences are being mailed to its members and associated organizations asking for information which will help to match job openings with the Hungarian scientists' backgrounds.

Immediate emphasis is being placed on those Hungarian refugees of Ph.D. level, of which NAS reports, there are "a fair number." Those refugee scientists with lesser degrees of education are also being screened and evaluated.

The National Academy of Sciences, in cooperation with the President's Committee for Hungarian Refugee Relief, has set up a special office at Camp Kilmer for handling the professional people among the thousands of refugees who have come to the United States.

The big problem right now, NAS officials say, is to try and learn what jobs are available in scientific fields and then to match up the requirements with the backgrounds of the Hungarian scientists. It is a complicated picture, however, which in some cases involves security regulations and classified work.

However, it is hoped by the Academy that the scientists, who will help somewhat to alleviate the current shortage of trained personnel in this country, can be put to work using their education and experience to the best possible ends and to their own satisfaction.

Science News Letter, January 26, 1957