

CHEMISTRY—CONSERVATION—SOCIOLOGY

Chemistry Able To Destroy Our European Civilization

But If the People Wish, Science Can Create Abundance And Free Man Mentally; Current From Coal Predicted

"CHEMISTRY can and perhaps will destroy our European civilization", Dr. Harold C. Urey, Nobel Prize chemist of Columbia University, warned the American Association for the Advancement of Science meeting at Ottawa.

In the war machines of today, he observed, the important agents are chemicals, explosives, incendiary mixtures or poison gases.

If the people desire, he said, a very different future of chemistry can be painted. Science can produce an abundance of valuable goods, contribute to man's knowledge of the universe, free him from superstition and error and bring him intellectual freedom.

Profound modification of our social and economic institutions is seen by Dr. Urey from the greatly increased productive capacity for material things that chemistry and other sciences make possible.

"There is little doubt but that much of the unrest of the civilized world for the past 25 years resulting in revolutions, new systems of government and worldwide depressions, are all rather closely related to this productive capacity largely brought about by science," he said.

The 1929 economic catastrophe brought about a drop in chemical production that did not fit into the normal way that a new great industry would be expected to grow. Dr. Urey charged that "the masters of industry" may not have realized the natural course of their production but instead stubbornly tried to make production follow a curve of scarcity.

"Cowardly"

The idea that the cure of present bad economic conditions lies in decreasing artificially our ability to produce was termed "cowardly" by Dr. Urey.

Since the World War, no country has arranged its internal affairs in such a way that anything approaching the maximum production of material goods for peaceful purposes has been accomplished, he continued. The United States and Canada have succeeded better than any

other country "due undoubtedly to a correct political philosophy, adequate resources, adequately trained men and freedom from threats of invasion." But there was some fatal defect that caused increasing unemployment and inability since 1929 to get production machinery going again.

If adequate chemical production for peace and not for war can be achieved, Dr. Urey foresees for the future:

Better clothes from better textiles, more beautifully dyed, produced with less effort. More wholesome food in greater variety and abundance, sufficient to support larger populations. Houses of materials as yet unknown, more durable, more beautiful and more easily constructed. Liquid fuels for autos and airplanes made from materials grown on farms. New medicines for disease.

Electricity From Coal

The inventor's dream of making electricity directly from the energy of the combustion of coal, without the present intermediary of steam, may be realized in the present generation, Marvin W. Smith, of the Westinghouse Electric and Manufacturing Company, forecast.

This revolution in power production would be accomplished if it were possible to use the electro-magnetic properties of the rapidly moving ionized products of combustion so that they may function properly with some electrical transforming device. The roundabout performance of burning coal, vaporizing water and whirling steam turbines, converting their mechanical energy into electricity by rotating electrical generators, would be rendered obsolete.

"Until very recently, these inventors' dreams remained very remote and seemed far from any practical realization," Mr. Smith explained. "However, with increasing knowledge of the fundamental properties of matter and a better understanding of the conduction of electricity in gases, recent calculations and experimental work indicate that this dream is not so hopeless as it once seemed, and that perhaps within the life of the present generation we may see static electrical devices extracting power from the kinetic energy of the gases of combustion without the intervention of rotating electrical machinery.

"Another very efficient method of producing electricity directly from fuel is by the use of the so-called 'gas cells', in which fuel, such as natural gas, is oxidized through electrolysis in such a way that the energy in the fuel is converted into electrical energy."

We may be able to live in a clean spring or fall atmosphere all the year around in any part of the earth, Mr. Smith predicted. Air would be cleaned and sterilized electrically, as well as controlled as to temperature and humidity



GROUND SLOTH AND GLYPTODONT

Mounted against a background partly painted, partly modeled in high relief, the skeletons of a ground sloth and a glyptodont, animals that lived during Pliocene times, before the latest great Ice Age, are displayed in a unique new exhibit in the Field Museum of Natural History. Their bones are well exposed for examination by scientists, yet their naturalistic poses and outlining prove interesting to the non-technical public.

as in ordinary present-day air conditioning.

Just as the kerosene lamp industry was rendered obsolete by the incandescent gas mantle, and gas lighting was laid on the shelf by the electric lamp, Mr. Smith foresees that the present incandescent lamp may be superseded by the more efficient gas discharge lamp.

Danger of Breakdown

Danger to modern civilization threatens on two fronts. There may be a quick collapse due to war, or a slow breakdown due to internal decay. The only way out is through a general rise in the standard of living of all the people.

Voicing this Jeremiah-vision, Stuart A. Rice of the U. S. Central Statistical Board addressed the meeting. He said:

"There is a real possibility either of general breakdown in social organization as a result of another world war or of a slow decay of social organization arising from more subtle forces of disintegration within the social structure itself."

The danger of breakdown through military pressure, Mr. Rice declared, is due to a change in the nature of war in modern times. War in the past has often served as a force for social unification and progress, but its character has so changed that destruction of social organization is a major military objective.

Plenty for Everybody

The earth's resources are sufficient, even abundant, for any imaginable human needs, if only they are wisely developed and their products equitably distributed. This was indicated in a survey presented by Frank E. Lathe of the National Council of Canada.

Immense supplies of the commoner metals, especially iron, aluminum, magnesium and a few others are within easy reach, the speaker said. A few important metals, like tin, copper, zinc, and lead, face an "obscure" future, Mr. Lathe admitted, but the present supplies are readily available.

There need never be lack of food, clothing, and shelter, he continued. There are food supplies enough in sight now for all the earth's population, and production can be greatly increased through scientific application of fertilizers. Nor is there any visible limit to the possible resources in fiber for clothing and materials for housing. And sources of energy for heat and power are practically unlimited. The real problems facing the world are those of distribution and cooperation.

Science News Letter, July 9, 1938

AERONAUTICS—GEOGRAPHY—ASTRONOMY

Comfortable Week-End Cruises To North Pole are Foreseen

Sikorsky Predicts Service in 100-Ton Boats; Peary Hit Pole Exactly; Find Ancient Chinese Pictures

COMFORTABLE week-end cruises to the North Pole or one-week cruises around the world in 100-ton flying boats within a few years were predicted before the American Association for the Advancement of Science in Ottawa by Igor I. Sikorsky, noted aeronautical engineer and designer of two widely used types of clipper ship.

These flying boats, which will bring Liverpool within 12 or 15 hours of Quebec or India and Australia within three days of America, will appear like zeppelins with a wing on the upper surface, he declared.

Crews of future clippers that will ply the oceans will have their living quarters aboard the planes, in much the same fashion as the crews of today's ocean steamers.

Greater Efficiency

All these things are made possible by the relative efficiency of the large flying boat design. "It appears that above the sizes of 50 or 100 tons, the flying boat will become the most efficient and also the most practical type of heavier-than-air machine," Mr. Sikorsky asserted.

The Sikorsky S-42, the flying clipper used by Pan-American Airways between New York and Bermuda and on other runs, is in important respects more efficient than its smaller and older brother, the S-40, the first clipper-type ship brought out for Pan-American Airways and still in use on many runs in the Caribbean and to South America.

Uses Less Fuel

The newer, larger plane actually uses less fuel and oil for a thousand-mile trip than its smaller predecessor, even though the former carries a payload more than double that of the latter. The newer ship, while carrying 8,363 pounds of payload, requires only 6,692 pounds of gasoline and oil, as against 7,800 pounds of gas and oil for the older ship, which on this same 1,000-mile journey is carrying only 3,200 pounds of payload.

Expressed in a figure used by the avi-

ation industry to describe economic efficiency of an airplane, the newer airplane gets 4.25 ton-miles per gallon as against 1.35 ton-miles per gallon.

Peary Scored Bull's-Eye

Admiral Robert E. Peary, first man to reach the North Pole, scored a bull's-eye on the Pole, Dr. Heber D. Curtis of the University of Michigan, told the Association.

America's Number One Man of the North came within three-quarters of a mile of the center of rotation of the earth on his famous dash north in 1908, a check on his observations by Dr. Curtis reveals.

Peary's own observations were a little bit in error because of a strange prank that a position very close to the Pole frequently plays upon navigators. An observation he thought he was making at noon he actually made at 6; his "midnight" shot was made at 1 and other shots were likewise taken at a different time than Peary himself believed, he pointed out. The errors did not, however, result in any important errors in Peary's observation that he had reached the roof of the world.

"Demon Star"

The hitherto unrecorded spectrum of Algol C, third of three companion stars known together as the "Demon Star" because of the marked eclipse undergone at regular intervals, has been photographed by Dr. J. A. Pearce of the Dominion Astrophysical Observatory at Victoria, B. C., Dr. W. E. Harper, director of the observatory, announced.

Algol, which fades away every 2 days, 20 hours, 49 minutes, was being studied by Dr. Pearce to clear up certain disagreements between theory and observation. The spectrum was recorded in the course of making 58 spectrographic plates of the system. Reason for the triple-star system's fading behavior is that one of the companions is a dying dark star, causing the whole to fade in appearance when the dark star is nearest the earth. The spectrograph is a means of analyzing the light from the star,