

higher than that of the incandescent lamp, one type of the new lamp producing 60 lumens of light per watt in the 30-watt size, while the equivalent standard bulb produces only three-tenths of a lumen per watt.

Ward Harrison, of General Electric Company, and S. G. Hibben, of the Westinghouse Manufacturing Company, described the lamps at the meeting.

One of the new lamps, Mr. Harrison claimed, produces the nearest approach to natural daylight ever achieved by any artificial illuminant.

Chemical powders coating the walls of the bulbs contain the secret of the new means of lighting. Mercury vapor at low pressure, when an electric current is passed through it, produces invisible ultraviolet radiation with a high degree of efficiency. The ultraviolet radiation, bombarding the chemical powders, is re-radiated as visible light, its color depending upon the particular chemicals used. This transfer is also extremely efficient. The great heat losses of the present type of incandescent lamp are avoided.

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GEOLOGY

Continents Did Not Drift, Fossil Evidence Shows

Distribution of Fossil Land Animals Indicates Migration Was From the North, Not By Southern Seas

DRIFTING continents and great transoceanic land bridges were not necessary to explain the distribution of life during the earth's past ages when coal was forming, Dr. Charles L. Camp, University of California geologist, has concluded.

Distribution of fossil land animals does not support the theory of continental drift, but strengthens the idea that the continents have always been land and the oceans always full of water.

To explain the distribution of plants and animals of past ages, geologists have evolved a number of theories.

1. That in early times there was only one continental land mass, which broke up. The fragments, gradually evolving into our present continents, drifted slowly around the earth, carrying with them the primal animals, ancestors of some of our present forms.

2. That there were great land bridges extending across the South Atlantic, over which animals and plants migrated from continent to continent. These bridges, according to theory, foundered into the oceans not so many millions of years ago.

3. That the continents have always had about their present shape and distribution, with occasional submergence of some low-lying areas, and upraising of shallow sea floors to become land.

Discussing his evidence, gained from a study of the fossil land animals of the continental areas, Dr. Camp finds that

they probably migrated from Eurasia to America over northern land connections, and that neither drifting continents nor land bridges in areas that are now deep sea are needed to explain their distribution.

Using only large land animals, which cannot swim long distances or be carried by birds or wind, as evidence, Dr. Camp solves the problem of conflicting evidence. Long ago it was shown that the plant and water-animal life of Africa greatly resembled similar life forms in South America, and on this resemblance many geologists contended for continental drifting and land bridges. Other geologists pointed out that birds can carry plant seeds, winds carry fern spores, and that water animals generally travel by swimming, needing no land bridges or drifting continents to explain their presence in Africa and South America.

Southern amphibians and reptiles, according to Dr. Camp's interpretation of the fossil evidence, came to the southern continents from the north, which, throughout much of geologic history, was an interconnected series of continents. Southern fossil types, then, came from the same place—the north—suggests Dr. Camp, and did not cross over from one continent to another on land bridges, or drift across the Atlantic on a "foot-loose" continent.

Science News Letter, May 21, 1938

Artificial rubber can be made from tomatoes, according to an Italian report.

SOCIOLOGY

World's Giant Cities Seen "On Downward Path"

THE WORLD's greatest cities are on the downward path. Far from being good and wonderful in proportion to size, they are mechanized and expensive giants, crushing rather than serving the millions within their grasp.

This is the warning sounded by Lewis Mumford, sociologist, in a startling new volume, "The Culture of Cities." In a sweeping survey of city life from the tenth century onwards, he finds that vaunted improvements have been mainly for the worse. Our most pressing task, perhaps, he says, is "to cast off the dead-form of the metropolitan order."

Sticking pins in the balloon of modern pride, he says in substance:

Medieval towns were more livable than any built since.

Renaissance towns were made elegant for the gentleman. As much as one-fourth of a city's people, by estimate, were casuals or beggars.

The machine age brought industrial towns in which even upper classes lived in slum-like congestion, with houses lacking proper light and ventilation.

The metropolis offers what the sociologist calls a ghost-like existence, in which people know about many things but have vital acquaintance with so little. Passive crowds know life by reading, looking, listening. He says, "they are bordering on a pathological state."

Subways he calls traveling prisons, in which people spend vast amounts of time "upon an activity that has flatly no value in itself."

The tremendous water supplies needed by a giant city are seen as a wartime danger: "Should an enemy disorganize the water supply of the metropolis for as much as three days, the result would be a far more horrible loss of life than the worst conceivable vomit of poison gas from the skies."

The downward cycle of city evolution, if unchecked, leads toward over-expansion of industry and questionable speculations, followed by depressions. Cities are dominated by their worst traits, including graft, privilege-seeking, all forms of grab-and-get, moral apathy, fear, uncertainty, "rise of gangster-dictators (Hitler, Mussolini) with active consent of the bourgeoisie and systematic terrorism by pretorian guards." This stage ends in a deliberate cult of savagery, barbarian invasions from within and without, and beginning of exodus from the cities.

After that, the sociologist can see one worse picture: war, famine, and disease racking both city and countryside, and the cities go down in ruin like Nineveh and Babylon.

Regional planning is seen by Mr. Mumford as promising relief for metro-

politan conditions. Cities must be rebuilt from within. Man is at last in a position, he avers, to rise above machines and to create a new environment to offer a good life not to the strong and lucky alone, but to all who work together for this end.

Science News Letter, May 21, 1938

MEDICINE

Cancer Cannot be Bred Out of the Human Race

As An Old Age Disease, Cancer Does Not Strike Until Child-Bearing Period Is Over; May Strike Any

CANCER cannot be bred out of the human race, Dr. Madge Thurlow Macklin, of the University of Western Ontario Medical School, declared at the meeting of the American Association for Cancer Research in Atlantic City.

Dr. Macklin believes cancer is dependent on inherited factors. She cited human family records showing what she believes is evidence for the inheritance of cancer tendency. One kind of skin cancer seems to depend on a single recessive hereditary factor, for it tends to appear in one-fourth of the children although the parents are unaffected. Other kinds of cancers and tumors have other types of heredity, some of which have not yet been clearly worked out.

Even if the manner of inheritance could be learned for every kind of cancer, it would be impossible to breed it out of the human race, Dr. Macklin explained, because of the age at which cancer develops.

Too Late

"Since practically all children are born before their mothers are 40, and before their fathers are 50," Dr. Macklin said, "the race has been perpetuated before we know that the parents possess the cancer factor."

"Since women at least must reproduce while they are still young, before the age at which they will develop cancer, all women would have to stop having children in order to see if they themselves were cancerous until it was too late to have them. By the time they discovered they were supposedly cancer free, they would be dead, and even then had they lived a few years longer they might have developed a tumor."

Even if cancer could be bred out of the race, Dr. Macklin believes it would

be inadvisable because it afflicts so large a percentage of mankind that breeding it out would mean depriving the race of many persons who can contribute much before succumbing to cancer.

"This does not preclude our justifiable attempts to cure cancer," she added, "or to hunt for something to prevent it."

Tandem Chemicals for Control

Cancer may be controlled in mice, at least, by the use of two chemicals, tandem fashion so that the action of one reinforces that of the other, Dr. Leonell C. Strong of Yale University School of

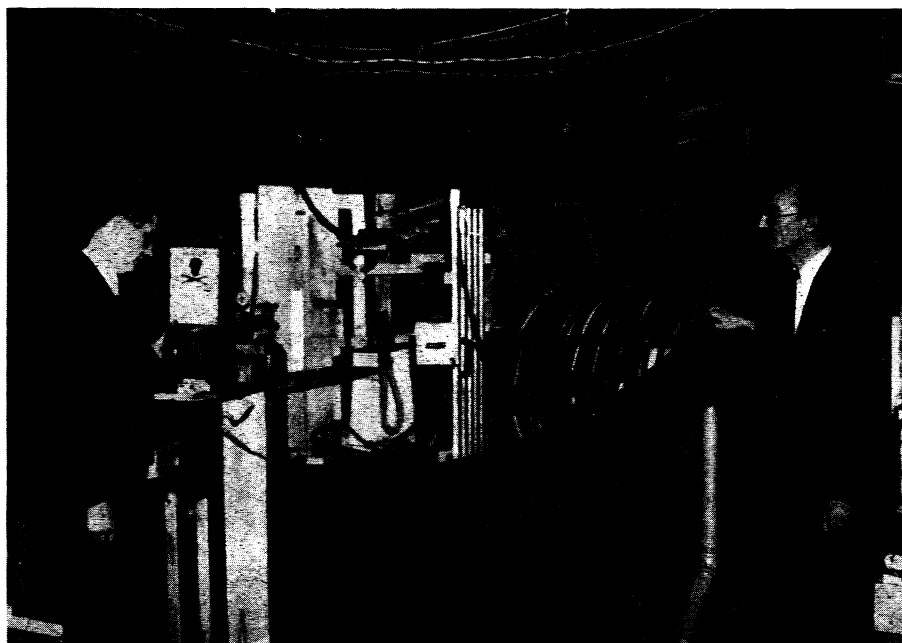
Medicine reported on the basis of his more than eight years of research in this direction. His work does not in any sense involve a "cure" for human cancer, he pointed out. It is, however, the first time that "the mechanism or mechanisms controlling the origin and survival of a spontaneous tumor have, under experimental conditions, been significantly influenced."

From oil of wintergreen Dr. Strong has obtained two chemicals which cause liquefying and disappearance of spontaneous mouse cancers with consequent survival of the mice. One of these chemicals is heptyl aldehyde. The other is methyl salicylate. Heptyl aldehyde, fed or injected into the mice, will do the trick alone, but its action is reinforced by the use of the second chemical.

Mice with spontaneous breast cancers have recovered and lived as long as 163 days after treatment with heptyl aldehyde, with an average survival time of 72 days. Untreated cancerous mice of the same strain lived on the average only 55 days.

The chemistry involved in this treatment of cancer is not yet known, but Dr. Strong believes that further research along these lines will eventually "lead to the control of spontaneous tumors of the mammary gland (and other organs), at least, in mice."

Science News Letter, May 21, 1938



RECORDS COSMIC RAYS

Dr. Edward C. Stevenson, left, and Prof. Jabez C. Street of Harvard University, Cambridge, Mass., with their automatic cosmic ray recorder. The large circular metal piece is a giant magnet between whose poles is a cloud chamber.