SOCIOLOGY

Birth Control Debate To Rival Evolution Fight

WHETHER scientists should offer counsel to the world on the limitation of population through birth control may become a public controversy as outstanding as the theory of evolution a century ago, Dr. John R. Platt, professor of physics, University of Chicago, indicated to an Edison Foundation Conference at Washington, D. C.

Many people will not approve of scientists offering their scientific knowledge and counsel on human affairs, Dr. Platt declared in discussing the sweep of science and the excitement it creates in the world today.

The impending debate on population is only one of the impacts upon the public that he foresees.

The effectiveness of reason in understanding nature and developing new knowledge is the paramount scientific achievement, he explained. Science is not mathematics but reasoning. It is not equipment but inquiry.

Science is the greatest of detective stories and one of the great thrills that can be experienced is "the following out of a chain of reasoning for yourself," he said. "The scientific laboratories will be crowded," he said, "as soon as young people discover that scientists and baseball players are the only people who are paid for doing exactly what they like."

Outstanding developments in the field of biophysics and molecular biology will result from understanding the transfer of light energy between neighboring biological molecules. This is probably the first step in vision, in photosynthesis and in damaging tissue cells by nuclear radiation.

The evolutionary power contained in man, the creator, is more powerful, Dr. Platt said, than the technical achievements of modern science.

Science News Letter, November 21, 1959

DENTISTRY

Saliva and Diet Protect Teeth Against Erosion

IF YOU ARE more than 40, watch out for dental erosion.

Actually four steps are probably involved in dental erosion—the gradual wearing away of the tooth surface—Dr. Reidar F. Sognnaes of the Harvard School of Dental Medicine reported.

Speaking to dental scientists at the annual meeting of the American Institute of Oral Biology at Palm Springs, Calif., Dr. Sognnaes outlined the following steps:

1. Malfunctioning salivary glands that means the absence of protective salivary coating on the tooth surface.
2. Decalcifying agent present in the mouth that drains vital minerals, especially calcium, from the tooth.
3. Changes in the nature and habits of eating and drinking.
4. Mechanical friction by lip, cheek, tongue, food or toothbrush as well as biochemical and biophysical influences can destroy the superficially softened tooth substance.

This process of tooth wearing-away is most prevalent after the 40's are reached, Dr. Sognnaes explained. However, it is sometimes found in younger persons. The type of patient most prone to dental erosion seems to be the "live-wire type" or a member of the "better class," he said. The reasons for this are poorly understood, but possibly changes in saliva are responsible, he reported.

Although it is difficult to detect in its early stages, Dr. Sognnaes described a refined method of microradiography which makes possible accurate X-rays of thin sections of teeth. Applications of fluoride, which reduces the solubility of the tooth surface, and night-time use of shields over the affected teeth in cases of severe erosion, were among the preventive or control measures recommended in addition to sound eating and drinking habits and proper oral care.

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VIROLOGY

Cow Virus Similar To Human Adenovirus

A VIRUS has been found in a cow that looks like and reacts like one of the viruses believed responsible for colds and respiratory diseases in man.

If it is identical with a human adenovirus, a team of researchers at Temple University School of Medicine, Philadelphia, may have pinpointed an important virus reservoir in cattle.

Another possibility is the development of a vaccine against respiratory diseases, Drs. Morton Klein, Elizabeth Earley and Joseph Zellat report in the *Proceedings of the Society for Experimental Biology and Medicine* (Oct.). If the cow virus is related to a human adenovirus in the same way cowpox virus is related to smallpox virus, there is a "vaccine potential," they explain. The human adenovirus to which the cow virus appears to be related is not yet identified.

Other cow adenoviruses—there are at least 18 in the group found in humans—may also exist, the researchers say. They have found evidence indicating the presence of yet another adenovirus type in cattle.

The isolation of the adenovirus from apparently normal cows supports the theory that cattle may also have polioviruses or their antigenic relatives, the scientists conclude.

"We may note in passing that 45% of bacterial, fungal and parasitic infections of animals are shared by man," they say, "and if we accept this figure as one that will be valid for viruses we must conclude that a large number of human viruses or their antigenic relatives will ultimately be isolated from animals."

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IN SCIENC

GENERAL SCIENCE

Vatican Library Guards Its Manuscript Treasures

FROM THE very beginning of the famous Vatican Library, created in 1369 when the seat of the Catholic Church was moved from Avignon to Rome, extreme precautions were taken to safeguard and preserve the hundreds of priceless official books, including religious books and those on other subjects.

In those early years the records were transcribed and copies sent to the Vatican, the Right Reverend Anselm M. Albareda, head of the Vatican Library, told the American Philosophical Society meeting in Philadelphia.

Today the Vatican Library uses every method of modern photography, especially microfilm. In the past few years about 40,000,000 pages of manuscript have been placed on microfilm and both private individuals and public institutions may obtain without difficulty reproductions of any manuscript.

In the 14th century the Vatican humanists used cedar and cypress resin and oils to preserve manuscripts. In the 16th century verdigris or copper sulfate was used as a preservative in the glue for bookbinding.

The 16th century library paid special attention to light and ventilation. Lithography was used in the 19th century to publish the Homer and Virgil manuscripts.

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PSYCHIATRY

More Psychiatrists Today But Still Only 1 to 16,400

ALTHOUGH the total number of psychiatrists in the United States has increased 21% in the last three years, there are still very few in proportion to the population, especially in remote regions away from the big cities.

The man with a sore throat or an earache has a better chance of finding a specialist to treat him, it was announced by the National Association for Mental Health, New York. The U. S. now has on an average one psychiatrist for every 16,400 persons. But in North Dakota there is only one for every 72,000 persons.

South Carolina and Alabama also have ratios of more than 65,000 persons to each psychiatrist.

The psychiatrists in the U. S., few in number though they are, do not devote all their time to treating patients, the Association reported. Only 15% are engaged solely in private practice. Others must devote part of their time to other occupations including teaching, research, hospital work and clinic work.

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E FIELDS

SOCIOLOGY

Dueling and Bastards Unrecorded in Old Rome

ROME IN the last age of the republic did not exhibit either the practice of dueling or the presence of bastards of good birth prominent in war and government, Sir Ronald Syme, professor of ancient history at the University of Oxford, England, told the American Philosophical Society meeting in Philadelphia.

Why mention of bastards is lacking in the Roman records is a challenge to curiosity, Sir Ronald observed, in view of the extreme license of political invective, the sexual behavior of the upper order and complaisant freedwomen and the distant sojourns of provincial governors.

Among the reasons for the paucity of bastards, Sir Ronald suggested the following:

1. Class structure and class feeling, insistent on dignity, would discountenance the open legitimation of bastards.
2. Adoption was a standard practice to perpetuate a family. Natural sons or the products of adultery may have been smuggled in.
3. The ease and frequency of divorce may have covered up a certain amount of irregular conduct.

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CHEMISTRY

Non-Curling Glue Looks Like Paper

GLUES ARE getting a "new look."

Some new glues even look like paper.

The National Bureau of Standards has been studying selected new types of glue, for possible use on postage stamps, at the request of the Bureau of Engraving and Printing. The Post Office wants a glue for stamps that will not get sticky in a humid climate. It also wants a glue that will not curl tightly in an arid climate. Stamps with a tight, pre-lick curl do not stick well.

The answer to the stamp problem may lie in new glues that are soluble either in water or an organic solvent. These can be spread over paper while dissolved in an organic solvent that does not wet the paper. They dry to a non-glossy surface that looks like paper. When licked, however, the glue gets sticky and ready for its job.

In one such glue, dextrin is pulverized and mixed with a binder of polyvinyl methyl ether and an organic solvent of toluol. The toluol dissolves the binder, but not the dextrin. Spread on paper, the mixture dries to an opaque adhesive layer of powdery dextrin held together by the polyvinyl methyl ether. When moistened, the dextrin gets sticky.

Thus as humidity changes, and the glue absorbs or releases moisture disproportionately to the paper, the expanding or contracting powdery glue particles do not cause the paper to curl.

If the binder and dextrin are mixed with water, both dissolve and the result is a glossy, transparent, continuous film which, even after careful manufacturing, causes paper-curl when humidity changes.

This type glue is now being used in a series of science books for the layman published by Nelson Doubleday in cooperation with SCIENCE SERVICE. The glue is applied to sheets of perforated color pictures, found in the center of the books, which the reader separates, moistens and sticks into the text at indicated spots.

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FOOD TECHNOLOGY

Algae Flavor Improved By Bleaching With Light

SCIENTISTS can now burn the bad taste out of algae.

This plant food, that grows as scum on top of ponds, is under study as a quick-growing food for manned space flight. But one drawback has been its taste—reported to be similar to that of tea leaves.

A scientist at the Boeing Airplane Company in Seattle, Dr. Romney H. Lowry, is reported to have greatly improved the palatability of this potential space food by exposing it to overdoses of light. This in effect stops the photosynthesis process and removes the green chlorophyll. Thus it leaves the algae white instead of green. Removing the plant's chlorophyll also removes much of its undesirable taste, Col. L. M. Hursh, chief, medical research branch, U. S. Army Medical Research and Development Command, Office of the Surgeon General, told SCIENCE SERVICE.

Chlorophyll constitutes between five and six percent of the content of algae, a considerable amount, he explained. For comparison, it has been estimated that spinach contains less than one percent.

This bleached algae can be more easily seasoned and flavored, because the white form has a bland taste, Col. Hursh explained at the Military Surgeons meeting in Washington. The plant food itself is still the most popular food being considered for space flights.

This treatment of algae is relatively simple, Col. Hursh pointed out. One practical use of such a food would occur if soil became contaminated beyond safe limits. Civilians could grow algae in pans of water on rooftops, he suggested. Just before harvesting, the "crop" could then be exposed to a heavy dose of fluorescent light to improve its palatability.

The Army researcher doubted that any nutritional loss would occur as a result of the bleaching technique.

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OPTICS

Mirrors Affect Value For Speed of Light

THE MIRRORS used in optical experiments may affect the value found for the velocity of light.

Two scientists suggest this to account for the difference in the velocity of light, a fundamental quantity of physics, when determined by optical as against radio frequency methods.

The lower values found optically are too large to be due to experimental errors, with the result that Drs. Richard A. Miller and Adolfo Lopez of the Manila Observatory in the Philippines suggest that the difference results from the time taken by reflection at the mirror surfaces used in optical methods.

Drs. Miller and Lopez attempted to calculate the delay of visible light during reflection from silver and found that it accounted for the difference between the early optical and recent microwave determination of light's velocity, which is about 186,000 miles a second. Their suggestion is outlined in the *Journal of the Optical Society of America* (Sept.).

Science News Letter, November 21, 1959

PHYSICS

Propose Way to Test Single Particle Behavior

A METHOD for testing how a single atomic particle, the tiny electron, behaves and thus showing whether the universe is ruled by chance has been outlined to the American Physical Society.

Dr. P. R. Ryason of the California Research Corporation, Richmond, Calif, reports the proposed experiment can be done with equipment now available.

How a single particle behaves is the key to what is known as the Heisenberg uncertainty principle. This theory states that it is impossible to determine simultaneously both the exact position and the exact motion of an electron, since the very act of measuring one or the other affects the other factor.

Because of this uncertainty, many physicists today believe that the probability laws covering an electron's behavior must also apply to the universe.

However, the late Prof. Albert Einstein and some other scientists believe there is underlying order in the universe, that the tiny world of the atom and the vast reaches of star-filled space can be explained by a single theory not involving probability.

Dr. Ryason's method for a direct test of the uncertainty principle uses the field ion microscope, which permits the observation of single particles. The removal of a particle from a fine tungsten tip kept at very low temperatures and viewed with such a microscope could be measured, Dr. Ryason reports in the *Physical Review* (Aug. 15).

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