

Sewage a Constant Menace in Cities

Medicine

Following are reported some of the interesting papers presented before the various societies that met recently in Washington in connection with the sessions of the Congress of American Physicians and Surgeons.

Large cities complacently viewing new waterworks, reservoirs and conduits and feeling secure in their endeavor to give their citizens pure water will be interested in warnings contained in the presidential address of Dr. Theobald Smith, pioneer American student of bacteriology, before the Congress of American Physicians and Surgeons.

"The sewage problem is unsolved," he said. "All we have done is to convert our water courses into open sewers with occasional explosive outbreaks of intestinal disease as the result. The time is coming when the intimate relation between water supply and sewage disposal will suddenly develop acute crises in the sanitary affairs of large communities."

Although civilization has widened the aseptic zone about the individual and through cleanliness has decreased many diseases, nevertheless, as Dr. Smith demonstrated, the great industrial concentrations of people have counteracted this advance to some extent. Colds, pneumonia, influenza, and other respiratory diseases will probably increase, he predicted.

Nor is mankind confronted with a static, known array of enemies in the germ world. New diseases are likely to appear. The virulence of disease organisms waxes and wanes, the microorganisms themselves undergo changes and learn how to attack those peoples and animals that have seemed to be immune to them.

Dr. Smith, head of the Rockefeller Institute's animal pathological laboratories near Princeton, N. J., considers the animal world as a great reservoir of potential human disease. Some animals play a damaging role in the cycle of dread maladies, such as the rat in the bubonic plague, but there are many other diseases, which human beings can contract, which lack only one link to make them a powerful menace to the race.

Had the early races of man discovered and used any method of rapid transportation, Dr. Smith said, it would have been highly destructive or fatal. Infections, fresh and active due to the animal surroundings of our early ancestors, were in the caveman days kept isolated by the lack of travel and the slow migrations. If in the present progressive

economic era the preventive work of medicine was stopped and the germs given free play, Dr. Smith would expect a world with stationary or backsliding population and economic situation.

Such statements from some could be disregarded and discounted, but it must be remembered that Dr. Smith, who made the first experiments on immunity, in 1886, has seen the modern science of medicine rise in the last forty-five years and has tended it with his own skilful hands.

Rheumatic Fever Still Puzzle

Good, old-fashioned "rheumatiz," that quite respectable disease that was more prevalent and more talked about in the turn of the century era, has taken on dignity in recent years, but rheumatic fever, as it is now known, is still a most baffling and pressing problem of medicine.

Physicians gathered for the Congress of American Physicians and Surgeons were presented with some of the latest developments in the fight against rheumatism.

A serum developed by Dr. J. C. Small of Philadelphia, has given promising results in the treatment of this disease. Some 270 cases have been subjected to treatment by this curative agent within the last year and some have recovered while many have improved. A type of streptococcus isolated by Dr. Small from cases of rheumatic fever was used in developing the serum, which in its present state of development must be used with care in order to prevent undesirable acute reaction. Further laboratory work is in progress in the hope of improving the serum and eliminating the dangers.

Although rheumatism does not occur in epidemics, most physicians are convinced of the infectious nature of the disease, Dr. M. J. Rosenau of Boston declared. In some localities there are houses that have a reputation for causing the disease, and Dr. Rosenau gave as the scientific basis for the existence of these "rheumatism houses" the idea that the prevalence of the disease is due to human carriers. Typhoid fever is known to be spread by apparently well persons who, because of an attack of the disease sometime in the past, harbor and pass on to others virulent germs of the disease. Children of twelve are most in danger of contracting rheumatism. It is not a

disease of old age as popularly supposed since only one in seven cases are over forty years of age. Fortunately, like scarlet fever, there seems to have been a downward trend in the world prevalence of the disease during the past twenty years. In addition to this actual decrease, some joint disorders and aches and pains that went by the name of rheumatism when we were young are now credited to their true cause, thus brightening somewhat the reputation of rheumatic fever.

Reduce Hundred Pounds a Year

The vogue for thinness is encouraged and aided by physicians when health will be improved by a loss of weight. A method of reduction by drastic diet that can remove seventy to a hundred pounds within a year was described by Dr. Frank A. Evans of Pittsburgh. The hoped for weight regulates the number of calories of food the patient is allowed each day. Fats are reduced to a minimum while proteins and carbohydrates are allowed in proportions similar to those in normal diets. After a few unpleasant days, the reducers usually like the regimen and stick to it until they reach optimum avoirdupois.

New Sense Predicted

A hitherto undiscovered animal sense, the power that allows the homing pigeon to locate its loft, the migrating bird its distant summer home, the animal its burrow, is on the verge of being revealed to science. At the sessions of the Congress of American Physicians and Surgeons Dr. Frederick Tilney, professor of neurology at Columbia University, mentioned experiments now in progress upon this new sense, which may prove to be the magnetic sense. The retina of the eye may prove to be the organ of the body in which the sense resides.

Mere men have long marveled at the ability of animals to find their way home through strange surroundings. Aviators need compasses and intricate instruments to navigate as efficiently as birds of the air. Such phenomena as these gave impetus to Dr. Tilney's researches.

One clue in the search that is now under way is the fact that animals are greatly disturbed by any change of direction of their surroundings. Mice or rats that (*Turn to next page*)

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are taught to run intricate mazes, a feat that is not dependent upon ordinary senses of sight and smell for instance, are completely baffled when the mazes are moved and oriented geographically in a different direction. They have to learn the mazes all over again.

Dr. Tilney was careful to tell the scientists that as yet his researches are in a very preliminary stage. Both his own laboratories and those of the department of psychology at Columbia University are at work.

If this magnetic sense is confirmed by his experiments, it will be the ninth sense. Five senses, sight, hearing, touch, taste and smell, which are the result of contact of the nervous system to environment, are familiar to everyone. Then there are what Dr. Tilney called the skeletal sense and the visceral sense, both of which originate in the body itself. As the eighth, Dr. Tilney lists what he calls the hurt or pain sense, which is protective instead of guiding like the others.

Man uses only about twenty per cent. of his brain power, Dr. Tilney declared in predicting that human evolution will proceed still further and make man, at present an unfinished product, a much more marvelous being than most of us now imagine. The realization that there is such a process as evolution will cause the human race consciously to speed its improvement.

Helen Keller he held up as an example of the possibilities of effectively utilizing the senses that we have. Miss Keller, deaf and blind, has no better senses than a normal person, but she has developed her sense of touch, for instance, nearly 100 per cent. making it serve where the ordinary person would use eyes and ears.

New Cancer Diagnosis

A method of diagnosis of cancer may develop from the work reported by Dr. William Lester Mattick of Buffalo. Now it is difficult to detect this disease in its early stages. Examining the blood of 100 cancer cases, Dr. Mattick found that for 85 of them the chemical compound, cholesterol, is present in greater quantities in the liquid portion of the blood than in the blood cells. In eighty normal individuals just the opposite condition was found to exist. The same relationship was found to hold in cancerous and normal mice. Further investigation of the effect of other diseases upon the cholesterol

ratio is planned and may allow the development of this ratio as a test for cancer.

Use Rickets Remedy With Care

Irradiated ergosterol, the potent new rickets remedy, one ounce of which will do the work of six tons of cod liver oil, is one of the most powerful specific substances which has thus far been isolated.

Dr. Alfred Hess of Bellevue Hospital, New York City, told the American Pediatric Society that one twenty-five thousandth of a milligram of this parent substance of vitamin D, an amount almost inconceivably small, is sufficient to protect a rat from rickets when added to his daily ration.

The curative effects of irradiated ergosterol were discovered about a year ago by the combined efforts of Dr. Hess and Prof. A. Windaus of the University of Goettingen in Germany. English investigators working independently also achieved the same results at about the same time.

Dr. Hess has been using the new remedy in his clinical work and reported that babies that receive from two to four milligrams a day are almost regularly cured of rickets.

"The question arises," declared Dr. Hess, "as to whether this substance may not to a large extent replace cod liver oil in view of the fact that it can be given in any desired potency and that it has the advantage of being tasteless and odorless. Subsequent clinical tests carried out during the past year have served only to emphasize the practical usefulness of this new remedy. It is an absolute specific for rickets as well as for tetany, disorders which are so often associated, and it brings about healing of the bones more quickly than any substance which has heretofore been used. The appetite and general condition of the child also show a marked improvement.

"A word of warning should be uttered in this connection. Irradiated ergosterol is so powerful that there is a temptation to use it in exceedingly large doses. It is being frequently prescribed in doses which are 100, or even 500 times greater than cod liver oil. Such amounts are quite unnecessary and may even be harmful. A remedy which is so potent for good may, when given in excess, bring about changes which are as yet unknown and unsuspected."

Poliomyelitis Epidemic

Another infantile paralysis outbreak in the summer and autumn of 1928 was a possibility forecast by Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research at the meeting of the Association of American Physicians. To prepare for this grave contingency, specialists of the research staff of the Institute are hard at work endeavoring to find the most effective method of combatting this dread disease with convalescent serum, the only specific known at the present time.

The blood of persons who have had infantile paralysis is known to possess the property of neutralizing to a certain extent the effect of the virus, and if administered early enough, will mitigate the paralytic after-effects that make this disease so alarming to the parents of young children. In anticipation of another epidemic, some of the states hard hit by the epidemic last summer, notably California, have instituted what Dr. Flexner termed "revolving funds" to be used for collecting blood for serum and to provide for its release to competent physicians. Donors, who have recovered from the disease, will be paid for their blood while the proceeds from the sale of the serum will be turned back into the fund.

The point of the infantile paralysis experiments which are being carried out in the Rockefeller Institute laboratories with monkeys, is to find out if it is sufficient to administer the serum directly into the cerebro-spinal fluid by lumbar puncture. The practice has been to inject it into the spinal cord and also into the veins or muscles. If the desired results can be obtained by using lumbar puncture alone, as the experiments at the present time seem to indicate, a great saving of the precious fluid will be effected by injecting it into the body system through only one avenue instead of two.

Convalescent serum was widely used by Dr. W. L. Aycock of Boston in treating infantile paralysis last summer. Though varying degrees of paralysis ensued in over half the cases, he stated, none were as severe as the cases observed in which serum was not used.

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A new kind of artificial ice tested in a German skating rink is said to remain solid at very warm temperatures.