

## SCIENCE NEWS

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## THE STUDY OF INFLUENZA

THE epidemiological and statistical side is the most promising and in fact the only side from which influenza can at present be discussed with any degree of knowledge or sureness, was stated by Dr. William H. Welch, of the Johns Hopkins University Medical School, at the conference on influenza called by the Surgeon-General of the U. S. Public Health Service. Surgeon-General H. S. Cumming was unable to be present as he himself is suffering from an attack of influenza, but he sent a message, read by Assistant-Surgeon-General Draper, reviewing the present epidemic and pointing out the necessity for a conference to determine the best means of studying and fighting the disease.

Pandemicity, the universal spread over wide area and all classes, is the essential factor in diagnosis of influenza, said Dr. Welch. As a working hypothesis he suggested that the cause of influenza is an unknown virus which has the extraordinary effect of reducing resistance so that any organism may invade the respiratory organs and produce acute respiratory disease. This is especially true of the organism of pneumonia. No definite conclusions of the bacteriological studies begun toward the close of the 1918 epidemic have been reached. The present situation affords a good opportunity for continuing those studies in the effort to find what bacillus or bacterium, if any, is responsible for the disease. The present conference is particularly valuable because it gives health officers and scientists a picture of conditions and opinions in other parts of the country than their own.

An example of this was seen in the two striking reports from health officers of Los Angeles and St. Louis. Dr. Parrish, of Los Angeles, deplored the attitude taken by business interests and newspapers in his city which suppressed or minimized news of the epidemic, thus making it impossible for him to check the outbreak by teaching the people what to do to avoid influenza. "The greater the publicity, the fewer the casualties," is Dr. Parrish's opinion.

On the other hand, physicians of St. Louis and not business interests, are hindering health officials in that city, according to the report of Dr. Stocklauf, city health officer for thirty-five years. St. Louis doctors are not recognizing the outbreak as influenza and are not reporting it. This has been found to be the case in localities other than St. Louis and obscures the entire picture of the epidemic. Because of different opinions as to what constitutes influenza and difficulties of making accurate diagnoses, the state of New York does not require reporting of this disease. Reports of influenza cases have no scientific value, Dr. Mathias Nicholls, Jr., New York State health officer, reported as the official medical opinion of the state. However, local health officers are required to report any unusual prevalence of respiratory diseases. Such reports are now being received in large numbers.

Dr. A. M. Stimson announced that a statement and analysis of current prevalence of the disease, based on census material, will shortly be published for the use of health officers, as part of the U. S. Public Health Service's contribution to the study of this disease. The Public Health Service will also repeat the 1918 studies of influenza in several cities of the country. These observations are made by house-to-house survey among groups of about 10,000 people in the cities studied. They will furnish the basis of comparison with the results of the 1918 study and thus enlarge the statistical and epidemiological knowledge which Dr. Welch and Professor E. O. Jordan, of the University of Chicago, both declared to be our chief point of attack on influenza at present. Dr. Stimson also announced that the Public Health Service hopes the conference will suggest more lines of study for the service to follow.

## PELLAGRA—PREVENTING FOODS

THE search for more foods containing the pellagra-preventing substances, sometimes called vitamin P-P, continues, although Dr. Joseph Goldberger, of the U. S. Public Health Service, who first discovered the cause of and the means of curing this disease is still seriously ill at the Naval Hospital at Washington. No cause has yet been discovered for the anemia from which he is suffering.

The latest studies on pellagra are being made to determine the quantities of pellagra-preventive in certain foods. Canned salmon, egg yolk and canned tomato were found to contain some of this substance. But "it probably requires two pounds of tomatoes, equivalent to about one quart of canned tomato juice, to produce about the same preventive effect as a quart of buttermilk or as about half a pound of lean meat, or as one ounce of powdered yeast," said Dr. Goldberger in a recent report.

Some other vegetables and fruits contain the preventive substance in very small amounts, so that they alone can not be counted on to prevent or to cure the disease. Dried yeast, lean meat, especially beef and milk, are the best known preventives and cures of the disease. However, these substances must be present in large enough amounts to be of value. The preventive substance is probably present in nearly all natural foods except the oils and fats, but in greatly varying amounts. Where the foods richest in the preventive are not available it is important to know how much of other foods must be eaten to prevent the disease.

"It may be said that pellagra results from a deficiency in the diet of a pellagra-preventing dietary essential or vitamin, which has been named vitamin P-P," defined Dr. Goldberger. "This deficiency arises when the diet does not include enough of the foods which carry the vitamin P-P to supply the needs of the body for this food factor. This does not mean that the diet that leads to pellagra is entirely devoid of this essential vitamin. On the contrary, it is probable that what may be called

a pellagra-producing diet always contains some but not enough for the nutritive needs of some or all of those living on it."

One of the more recent studies made by Dr. Goldberger and his associates proved that blacktongue, a disease of dogs, is identical with human pellagra. It is caused by the same dietary deficiencies and cured or prevented by the same foods. Sixteen foodstuffs were found to prevent blacktongue, of which number eleven were known to be pellagra preventives. The other five are now being studied for their pellagra-preventive properties.

### THE LEVEL OF THE GREAT LAKES

OFFERS of the City of Chicago to build compensating works to restore the levels of the Great Lakes system, affected by the withdrawal from Lake Michigan of 8,500 cubic feet per second, are feasible according to the report of Special Master Hughes, who was appointed by the U. S. Supreme Court to take the testimony, and whose report is now expected to be upheld by the court in a decision due almost any day.

Mr. Hughes has recommended that the suits of six northern states asking for injunctions against Chicago for this withdrawal, be dismissed. Chicago is taking 8,500 cubic feet per second, on permit from the Secretary of War. Mr. Hughes says that a review of legal aspects of the case convince him that a war department permit authorizing the diversion is a legal exercise of power delegated by congress.

Chicago's plans for compensating works have been the subject of study by a special board of engineers and by the Board of Engineers for Rivers and Harbors.

Wing walls or other methods of narrowing the channels at the head of each of the St. Lawrence Rapids, a long submerged rock weir about the rapids at Niagara Falls, and a series of such weirs near the head of the Niagara River and in the upper reaches of the St. Clair River would be part of these plans. To effect the required deepening in Lake St. Clair and at the head of the Detroit River, engineers have concluded that dredging would be most satisfactory.

The board of engineers for rivers and harbors in the War Department have stated that a set of five weirs at the head of the Niagara River abreast of Squaw Island, would cost about \$2,000,000 and would raise Lake Erie 1.27 feet, Lake St. Clair about 0.55 foot, and Lakes Huron and Michigan 0.16 foot, leaving 0.28 foot to be compensated by dredging in Lake St. Clair.

The second set of about 11 weirs, spaced about one third of a mile apart in the St. Clair River, would, it is estimated, cost about \$1,500,000 and would raise Lakes Huron and Michigan 0.60 foot more.

The report concludes:

"The levels of these three lakes and the connecting rivers between them would, at a total cost of about \$3,660,000, be not only fully restored, but provision made for the lowering that would be caused by some additional diversion, the margin on Lake Erie being 0.51 foot and on Lakes Huron and Michigan 0.29 foot. These submerged weirs would leave the natural oscillation of Lakes

Erie and Huron undisturbed. They would reduce the discharge capacity of the St. Clair and Niagara Rivers to what it was before any diversions or other artificial changes were made and permit the lakes to fluctuate between such levels as would have resulted from purely natural causes, such as changes in precipitation, evaporation, etc. To design the weirs correctly, proper model experiments would be desirable and also prolonged gauge observation. In other respects, the weirs are a sound and workable solution of the problem of improving navigable depths, in some respects preferable at the time they were recommended to any other plan."

One of Chicago's arguments in defending the diversion is that the present large amount of water is necessary to carry away the sewage. Mr. Hughes has supported this contention with the statement that a "pestilential condition" was likely if the diversion were to be cut down.

Chicago built her drainage canal 30 years ago for a triple service. This canal literally made a river run uphill. The Chicago River, instead of draining into Lake Michigan, now drains from Lake Michigan, and, guided by locks, it carries about 8,500 cubic feet per second out of the lake through the Chicago river, through the Desplaines and Illinois Rivers down into the Mississippi. In addition to helping out on navigation and furnishing sewage facilities, the Chicago canal furnishes the city with electric power.

The six states protesting the Chicago diversion contend that Chicago should have her own sewage plant to take care of city wastes. Chicago is building such a plant, but Hughes has reported to the U. S. Supreme Court that it can not be finished in less than five to ten years.

### THE CALIFORNIA BIG TREES

THE ancient Big Trees of California are reproducing vigorously under the protection afforded them in their last retreat on the western slope of the Sierra Nevada range, according to the National Park Service. William C. Godfrey states that many young sequoia trees, ranging in age from one to about thirty years and in height from four inches to five feet, are to be found in among the younger forests on both sides of the road through Yosemite's famous Mariposa Grove of Big Trees. While many young pines are to be found in this area, the reproduction of the sequoia greatly outnumbers the other species.

On the east side of the Lower Grove is a typical pine forest of a few scattering trees that seem to have survived a severe forest fire a number of years ago. Throughout this forest for a distance of about half a mile a cover of manzanita has grown to a thick brush forest, through which pine and fir trees have extended their tops. Among them, and so numerous as to conceal them, are the prominent tops of young sequoia which appear to have reached a greater height than their neighbors. These young sequoia vary in height from eight to about thirty feet, and in more favored marshy localities have attained a greater height. They are to be found nearly half a mile from an evident seed tree.

Several of these young trees died as a result of recent road construction and were cut down. One of them, on which 16 annual rings were counted, had reached a height of 28 inches and had produced a seed cone well toward the top. Its stunted growth was due to the fact that it grew in a shady spot where it was unable to obtain sufficient light to stimulate average growth.

From the conditions observed in Mariposa Grove, it would seem that the sequoias may be expected to hold their own in their present restricted range. Many of the older trees of this grove have lived several thousands of years.

### THE MUSICAL ABILITY OF NEGROES

THE popular theory that Negroes have greater musical ability than whites does not hold when put to scientific test, reports Yale S. Nathanson, of the department of psychology of the University of Pennsylvania, in the current issue of the *Annals* of the American Academy of Political and Social Science, which is devoted to a study of the American Negro. The only respect in which Negroes show a racial advantage in music over whites is in vocal ability. This is due to anatomical differences in the vocal organs of the two races and does not reflect a superior musicality. Even in rhythm no difference was found between the two races.

Guy B. Johnson, of the University of North Carolina, recently investigated the musical ability of more than 3,500 persons in the graded schools and colleges of North Carolina, South Carolina and Virginia. The specific musical abilities tested were pitch, intensity, time, rhythm and tonal memory. Only in tonal memory was there any marked difference and in this the Negro groups ranked a little below the white groups. In the tests the Negroes showed more very high and also more very low scores than the whites.

These tests were purely sensory and had to do with the individual's reaction to outside stimulus. The musicality exhibited in creation and composition depends on motivation and training. This phase of musical ability is harder to measure. The Negro's greatest musical contribution is in the field of American folk song. "These songs are relatively simple, with a highly restricted musical span, endless repetition, devoid of specific theme, childish, unfinished."

The fact that great lasting music which should have resulted from the hardships of slavery does not exist is chiefly due to the Negro's happy-go-lucky attitude. While the handicaps of the Negro race have deprived the group of the training that might have developed artistic production, there have always been philanthropic people ready to lend a helping hand to talented Negroes. In fact, there has even been a great tendency to overrate some of rather ordinary ability.

"The Negro song contribution is of the song-fest type, the easy, pleasing expression of a peaceful people. Other than these generalized facts, which are probably cultural rather than biological in nature, we do not emerge from a study of the problem with any significant findings."

### ITEMS

ON the planet Jupiter, now shining brightly in the southern evening sky, within the last few months there has appeared a peculiar row of dark spots, strung like beads on a dark thin line. They have been observed by E. C. Slipher, of the Lowell Observatory at Flagstaff, Arizona. These marks on Jupiter, he said, are indications of some immense turbulence on the planet. The most amazing thing about them, he said, was that they did not remain in the same place on the planet, but lagged behind the rest of the visible surface, so that their longitude was continually changing. The photographs made by Dr. Slipher were taken through various colored filters, so that some were made in red and some in violet light. Unlike Mars, the same details are shown in the blue photographs as in those made with red light, so that he expressed the belief that these markings are all high above Jupiter and near the outside of the atmosphere.

GUIDES and hunters in New Brunswick this fall will be in less danger from the bullets of over-enthusiastic fellow-Nimrods out after moose, for a new regulation now requires all hunters to count ten before shooting. And the ten they count must be reckoned in points on the antlers of their quarry, for it is now illegal to kill a moose in New Brunswick with antlers of less than ten points. The previous regulation permitted the shooting of six-point bulls.

PEOPLE in Florida, southern California and Cuba will now be able to get a little more sunburned than they could a few months ago, for the ultraviolet rays of the sun, which cause sunburn, are now increasing. So reported Dr. Edison Pettit to the American Astronomical Society meeting in New York. At the Mt. Wilson Observatory in California, Dr. Pettit has been making observations of the intensity of ultraviolet light for four years. The method is by comparing the radiation that penetrates a thin gold screen with that penetrating a thin one of silver. Since the first observations were made in June, 1924, the monthly average intensities have on two occasions been half again as great as they were in that month. These were in October, 1925, and February, 1927. In no month since June, 1924, has the value been as low as it was then, though in September last it was only about 12 per cent. greater than at that time. The variation closely follows the number of sun-spots, Dr. Pettit announced, and now seems to be increasing.

PAPER made from corn-stalks will be used in the printing of a book on farm products in industry soon to be issued. The author, Dr. George M. Rommel, agricultural expert, investigated the problem of waste materials in agriculture. As a demonstration of the use of the most plentiful of farm by-products he conceived the idea of printing his book on a new paper made from corn-stalks which are usually wasted.