

THE SCIENCE NEWS-LETTER

A Weekly Summary of Current Science

ISSUED BY WATSON BRYAN

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Vol. III, No. 117

Saturday, July 7, 1923

PROHIBITION KEEPS REDUCE INSANITY ALIENIST SAYS SCIENCE NEWS-LETTER

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Aside from the restricted 117 - 142 sale of liquor, the principal cause according to reduce mental ailments was the increasing campaign against syphilis, Dr. Pollock stated. More than one admission in every eight to the New York State hospitals is now due to the effects of this one disease and if the scourge can be eradicated by the July - in December health may be made.

Insanity is more common in cities than in rural districts, and Dr. Pollock asserted that the drift of the 1923 nation to cities was one of the causes for the great increase in mental disease in recent years. Other causes are, in his opinion, the increase in longevity, since the rate of mental disease increases rapidly with advancing age; and the decline in the birth rate among the more stable elements of the population. Economic conditions also have an effect. Insanity declines in times of prosperity and increases in times of adversity. The tendency is toward better economic and social conditions in this country, so the economic outlook for mental health is good.

Unfortunately little is yet known about curative treatment and prevention of "madness," Dr. Pollock declared, "although recently much has been learned concerning the causes and nature of various abnormal mental conditions."

"Our present knowledge of mental disease may be likened to the knowledge of the infectious diseases of 1820. If some great research worker like Pasteur should come and tell us how to prevent the functional mental diseases, such as dementia praecox and manic-depressive insanity, the whole aspect of the problem would be changed. Means of research should be multiplied and the recently acquired knowledge of mental hygiene disseminated to every household. Unless some radical change in present trends occurs, mental will soon supersede physical disease as the paramount social problem."

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EDITED BY WATSON DAVIS

ISSUED BY
SCIENCE SERVICE

1115 Connecticut Avenue

WASHINGTON, D. C.

EDWIN E. SLOSSON, Director

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PROHIBITION HELPS REDUCE INSANITY ALIENIST SAYS

Restriction of the liquor traffic has reduced new cases of alcoholic insanity more than 60 per cent., Dr. Horatio M. Pollock, statistician of the New York State Hospital Commission, told members of the American Psychiatric Association in convention in Detroit recently. An increase in insanity may nevertheless be expected during the next two decades, he predicted, with the hope that by that time research might have developed some revolutionary remedy such as Pasteur's discovery of the bacterial nature of infectious diseases.

Aside from the restriction of the sale of liquor, the principal cause operating to reduce mental ailments was the increasing campaign against syphilis, Dr. Pollock stated. More than one admission in every eight to the New York state hospitals is now due to the effects of this one disease and if the scourge can be eradicated an enormous gain in mental health may be made.

Insanity is more common in cities than in rural districts, and Dr. Pollock asserted that the drift of the population to cities was one of the causes for the great increase in mental disease in recent years. Other causes are, in his opinion, the increase in longevity, since the rate of mental disease increases rapidly with advancing age; and the decline in the birth rate among the more stable elements of the population. Economic conditions also have an effect. Insanity declines in times of prosperity and increases in times of adversity. As the tendency is toward better economic and social conditions in this country, the economic outlook for mental health is good.

"Comparatively little is yet known about curative treatment and prevention of insanity," Dr. Pollock declared, "although recently much has been learned concerning the causes and nature of various abnormal mental conditions.

"Our present knowledge of mental disease may be likened to the knowledge of the infectious diseases of 1880. If some great research worker like Pasteur should come and tell us how to prevent the functional mental diseases, such as dementia praecox and manic-depressive insanity, the whole aspect of the problem would be changed. Means of research should be multiplied and the recently acquired knowledge of mental hygiene disseminated to every household. Unless some marked change in present trends occurs, mental will soon supersede physical disease as the paramount social problem."

AGGRESSIVE MEDICINE A SOCIAL SCIENCE SAYS A.M.A. PRESIDENT

The conception of modern medicine as a constructive social force operating for the benefit not merely of individuals but of the whole community was emphasized by Dr. Ray Lyman Wilbur, president of Stanford University and of the American Medical Association, in his presidential address at the opening scientific session of its recent meeting. Medical science should be not merely defensive but aggressive as well, he told the physicians.

"Medicine is as old as man," said Dr. Wilbur. "Its history begins in magic and ends in the roentgen-ray laboratory. Its aims have always been relief of human suffering and the release of human power from physical and mental handicaps. It began and still is primarily personal in its activities; but, with time and the growth of civilization, it has become more and more interwoven in the whole fabric of human society. No modern community could stand today without using the benefits of the art and science of medicine as practically applied in community life.

"Much of the competition in modern industrial life has in it the same aspects as are presented by war. As war is now a war of peoples, so industrial success, in a world growing smaller each year with improvements in communication and transportation, demands the maximum of health and achievement consistent with that sound health requisite for production. Every sick worker, every injured workman, every demand for expenditure of energy or goods in caring for unnecessary incapacity of human industrial units, is a handicap.

"More general dissemination of the facts of medicine and life will lead to sounder development and, at the same time, will show the public the help it can receive from the medical profession as the only group trained in such matters.

"When every student in school receives some training in biology, the quack, the 'patent medicine' cheat, the aggrandized rubber and manipulator, and the knotted string faddist will have a less fertile soil for their mushroom activities. Since we are alive we need to be able to think biologically about our individual and mass problems if we are to avoid deception and danger.

"Medicine, in its foundations and in its applications, is based on research. The most sacred heritages of medicine have come through the transcendent genius of a comparatively few men applied to human woes. The protection and advancement of research is our greatest opportunity, but it is as important to apply the results of research as to foster it. All dealing with life is relative, and will be so until we can know more of the unknown. For the present we can only expect to get high percentage results in the application of medicine. Every time we learn a new fact, the structure of medicine becomes firmer and more dependable. Near facts must fall before facts. There can be no present finality. Dogma has no place in medicine today. Facts and not authority control.

"With minds open and unafraid and with a growing appreciation of all human values, our profession faces the days ahead ready to give to our race that full service which it is our privilege and glory to render."

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Science Service,
1115 Conn. Ave.,
Washington, D.C.

WATER CURE HELPS IN MANY DISEASES

Water was extolled as a potent remedy in many diseases by Prof. J. M. Anders of the University of Pennsylvania in a talk to members of the American Medical Association, in annual session in San Francisco.

Both hot and cold water applications to the surface of the body have definite effects which can be used in the treatment of disease he asserted. Cold baths help to reduce temperature; warm baths may be useful in Bright's disease, rheumatism, and joint inflammation, through assistance in elimination of poisons from the blood.

But unregulated bathing in public bathing places has its dangers as Dr. H. M. Taylor of Jacksonville, Fla., pointed out. Doctors have accumulated much evidence, he said, showing the dangers of ear infection following bathing in swimming pools and in the sea. Sanitarians have given much attention to disinfecting the water by the use of chlorine and other methods, but there remain other factors aside from contaminated water which may have an influence in producing disturbances of hearing, and Dr. Taylor recommended a study of them.

Infectious jaundice is becoming more common throughout the country, Dr. George Blumer, formerly professor of medicine at Yale university, told the convention. Since other diseases cause the yellow color of the skin and the fever which accompany this disease its diagnosis is sometimes difficult, and it is necessary for doctors to exercise some skill to distinguish it and to provide appropriate treatment.

Surgical removal of the tonsils was declared to be generally the best method of curing infections of them and preventing general infections of the body. Doctors M. W. Clift and B. E. Shurley of Michigan said that although there had been much development of electrical, X-ray, and radium treatments in recent years and although these methods all had their appropriate fields they were not yet sufficient to replace the more perfect results said to be accomplished by removal.

Dr. Edwin E. Slosson

CHATS ON SCIENCE

THE CHEMISTRY OF A SKYSCRAPER

The first thing that attracts the attention of the newcomer as he sails up New York Bay is the imposing group of tall buildings, unequalled elsewhere in the world. As he looks up at one of these strange structures he thinks of the architect who planned it and of the builder who constructed it.

But he does not think of the chemist who is behind them all and without whom it would be impossible to erect and equip a skyscraper. He made the ink and paper with which the architect drew his plans and he made most of the materials that the builders use. For even what seems to be natural material will be found on closer examination to have passed through the hands of the chemist. The doors and casements may be grained to look like wood but tap them and you find them steel. There may be a coating of natural stone on the side facing the street, but this is a mere concession to conventionality, for the building is mostly composed of cement, concrete, brick, mortar, plaster, terra cotta, tiles and glass, all of which are manufactured by chemical processes. The skeleton of the skyscraper is of steel, something not found in nature. The furnishings and electrical equipment are made largely of brass, bronze, tin, aluminum, rubber, celluloid and the like, all chemical products. So are all the paints and enamels that adorn and preserve the walls and metal work.

In the skyscraper work goes on by night as well as by day for rooms are lighted by electric currents flowing through wires of a new metal, tungsten, enclosed in glass bulbs from which the air has been exhausted and perhaps replaced by some inert gas. The chemist not only provides for fire in the form of matches, but he also furnishes the means of putting out fire if it gets out of bounds. In the halls you will see a fire-extinguisher ready, at the turning of a tap, to throw out a stream of water and quenching gases.

If you look into a shop window on the lower floor you will see gay garments, colored with dyes prepared from coal-tar and in many cases made from artificial fiber that rivals silk in sheen and beauty. In the corner drug-store many of the medicines are also prepared from this same coal-tar which once was thrown away or burned up as good for nothing. The chemist provides the weapons with which the doctor wards off the attack of microscopic enemies of mankind, the microbes.

The roots of the skyscraper go down deep in the ground and are embedded in the solid rock. But it would not have been possible for the building to have been dug so deep if the chemist had not provided explosives. The nitrogen gas which he extracted from the air and fixed in the form of dynamite or gunpowder returns to freedom with such violence as to rend the rocks.

In the top-story of the skyscraper there is probably a restaurant, to take advantage of the lofty view, and there too the chemist plays an essential part. Cooking is a chemical process and so also is cooling, which is almost as important to the modern chef. The foreign fruits and perishable meats have been

preserved by artificial refrigeration by means of ammonia made from the nitrogen of the air. The china, the glass, the cutlery and the kitchen utensils are all chemical manufactures. The vegetables are grown by the aid of chemical fertilizers, containing potassium, phosphorus, nitrogen and lime. The foods and drinks are analyzed in the market so as to see that they contain no dangerous impurities or adulterants. The water supply of a great city has to be watched from day to day lest it should be visited by some deadly epidemic. If the old saying is right that "Cleanliness is next to godliness", then the chemist stands next to the preacher for he invented soap many centuries ago and has now added more powerful agents of purification, such as chlorine.

The automobiles which wait in front of the building are propelled by gasoline and oiled by lubricants manufactured from crude petroleum, and their wheels are tired with rubber vulcanized by the chemist.

In some large hall of the building you may very likely see motion pictures of events that happened far away and long ago, caught, preserved, and displayed on celluloid film, made from gun-cotton and camphor, and developed by coal-tar chemicals. You may also hear music from unseen singers and players, permanently recorded for the pleasure of posterity, on disks of synthetic resin. The radio apparatus on the roof, almost entirely composed of chemical products, receives messages and music from a thousand miles away through trackless space.

So science short-circuits both time and space, bringing the past into the present and enabling us to chat with distant people as though they were in the room. And the chemist has a hand in all the achievements of science because he possesses the peculiar power of transforming matter into strange and useful forms. From colorless, odorless air and water he can make substances harder than marble, colors more brilliant than natural dyes, flavors rivaling the fruit, and perfumes as sweet as the flowers. For the chemist deals with the minutest things in nature. He can control the atoms, and even the electrical particles of which the atoms are made, and by combining these in various ways he can construct new things, unknown in nature, and contributing to the comfort and convenience of modern life in innumerable and unrecognized ways.

RICH, SWEET ICE CREAM PUBLIC'S FIRST CHOICE

They like it rich and creamy, they like it sweet, and they like it firm even if it be necessary to put in gelatin to make it so. Such are conclusions as to the public's taste in ice cream interpreted by O. E. Williams and G. R. Campbell of the U. S. Department of Agriculture, and based on a study of the preferences of a group of about 50 daily purchasers who were unaware they were the subjects of experiment.

The most decided preference shown was for the old-fashioned rich, creamy, ice cream. Eighty-two per cent of the purchasers preferred that containing 18 per cent, of butter fat, or approximately that of good standard cream. Only 8 per cent, preferred a fat content as low as 12 per cent.

The sweet tooth of the American public was evident in the preference for cream containing 19 per cent sugar by 60 per cent. of the patrons. Only 10 per cent, chose a product with as little as 13 per cent. of sugar.

More than half of the ice-cream eaters like plenty of milk solids not fat in it. Twelve per cent. was the favored amount.

Nearly two-thirds of them, 63 per cent. preferred ice cream with one per cent. of gelatin to give it firmness; only 25 per cent. liked it best without any gelatin whatever.

The assertion that persons will not eat so much of a rich, creamy, ice cream was not supported by these experiments, except in cases where the cream was very rich. There was little difference in the quantities of ice cream eaten containing 10 per cent. and 13 per cent. fat.

ETNA ERUPTION NOT RELATED TO OTHERS

The recent eruption of Mt. Etna was a purely individual exhibition and not connected with the activities of any other volcano, not even with the eruptions of the nearby Vesuvius and Stromboli. Such is the opinion of Dr. Henry S. Washington, volcanologist at the Geophysical Laboratory of the Carnegie Institution.

Etna erupts with a sort of irregular regularity, Dr. Washington said, and it sometimes happens that these eruptions correspond with those of Vesuvius. But Etna is isolated while Vesuvius belongs to a whole group of volcanoes extending along the Alban Hills. The other members of this family are now dead, Vesuvius being the only survivor. The difference in the family relationship of Etna and Vesuvius is shown in the different chemical composition of the lava and gases emitted. Stromboli is another isolated individual, and being in moderate eruption at all times naturally does so simultaneously with Vesuvius and Etna.

Etna is older than the glacial period and has been periodically erupting since that time. A wide, deep valley down the southeastern slopes was formed by some tremendous eruption in prehistoric times. The first historic eruption occurred in 693 B.C., and was referred to by Aristotle and early Greek and Roman historians. Since then eruptions have been known to occur at fairly frequent intervals although during the Middle Ages few records were kept.

Since the eruption of 1669 which was one of the greatest of record, it is estimated that the volcano has poured out a cubic mile of lava. Some eruptions, notably those of 1169, 1669, and 1693, have caused great loss of life as owing to the great fertility of the disintegrated lava the lower slopes of the volcano are among the most densely populated regions of the earth.

Volcanic activity in the Mediterranean has no relation with present eruptions of Pacific volcanoes or with earthquakes in Persia and other parts of the world, Dr. Washington declared. While not much is known about volcanoes it is certain, he said, that each draws its stores of lava from nearby, probably not more than 10 miles beneath the earth's surface; while earthquakes, although

frequently accompanying volcanic eruptions, occur usually from causes entirely different from those to which eruptions are due.

READING REFERENCES.- Russell, Israel C. Volcanoes of North America, New York MacMillan Company, 1910. Davison, Charles. The origin of earthquakes, New York MacMillan Company, 1912.

DOCTOR SAYS AUTO GASES ARE DEADLY MENACE

Chronic carbon monoxide poisoning is one of the perils of twentieth century civilization. The danger from this deadly gas, a product of incomplete combustion, which in very moderate concentration has caused the death of many automobile and garage workers, was pointed out in an address by Dr. Anfin Egdahl of Grand Forks, N.D., before the section on the practice of medicine of the American Medical Association, at its recent meeting.

Dr. Egdahl related experiments which showed that although when the gas was present in the proportion of only one part to 2,000 of air many objectionable symptoms might be noticed, a concentration as high as one part in 500 had been found in a large garage where no motor had been running for six hours.

Gasoline motors are not the only sources of the gas. The presence of it in quantities large enough to affect the health was related by Dr. Egdahl in boiler rooms, forge shops, and even in an ordinary chemical laboratory with many Bunsen burners in action.

But the automobile motor is the chief source of danger, and Dr. Egdahl asserted it was a menace in the streets of large cities where motor traffic was heavy, especially if the streets were bordered by tall buildings, making natural ventilation difficult.

He warned the doctors to be on the lookout for gas as a possible source of ill health when patients reported ill-defined symptoms not easily referred to other causes. Among the symptoms of long-continued exposure to very dilute concentrations of the gas are headache, thirst, nervous irritability, nausea, and difficult breathing.

DOCTORS URGE OBLIGATION OF PREVENTIVE MEDICINE

Preventive medicine was the main topic of discussion at one of the sessions of the American Medical Association at its recent meeting.

"Health", said Dr. Oscar Dowling, State Health officer of Louisiana, "implies right conditions for the growth and development of the child, proper heredity, prenatal care of the mother, recreational direction, and ideal environment. In securing these results every part of the body politic bears reciprocal responsibility."

A plea for more efficiency and less spectacular advertising in public health work on the part of volunteer organizations was made by Dr. Frederick D. Stricker of Portland, Ore. "There is need for some sort of regulation to prevent 'blue sky' health propaganda," he said in demanding that the public be informed just how the money contributed for public health is expended by volunteer agencies.

Constructive health activities were urged in the public schools by Dr. John Sundwall of the University of Michigan. "School children should be taught in-eradicable health habits," he said, "and should be instilled with a keen appreciation of the fact that maintenance of healthy bodies and their proper development are moral obligations they owe to society and to their country."

Babies catch cold because their parents and friends have colds for them to catch, Dr. W. T. Winholt and Prof. E. O. Jordan of the University of Chicago told the delegates. They had made a study of babies with and without colds which showed such to be the case. Colds were more dangerous to babies than to grown-ups, the doctors said, as they tended to derange the digestion and other bodily functions.

An appeal to mothers to nurse their babies was made by Dr. M. L. Turner of Des Moines, Iowa. "Animals nurse their young as they have done for centuries," he declared, "only the genus Homo has gone astray." Dr. Turner urged physicians to tell mothers that the good of their babies and the good of the race demanded that they give their infants their natural food which no artificial product could equal.

The case of a 19-year old girl who reverted for one month to a period in her life corresponding to the age of four years was described. She showed for this time nothing but childish traits and lost all memory of recent happenings. Later she recovered and remained normal for five years. A severe recurrence ending in death followed. An autopsy showed no apparent abnormal condition other than a general inflammation of the membrane covering the brain.

An infection of the human eye by the eggs of the sheep-bot, a common sheep parasite of the southwest, was described by Dr. H. H. Stark of El Paso, Texas. This is the first case of its kind recorded in the United States. The patient was a 16-year old girl who suffered from inflammation of the eyeball until the offending organisms were removed. An eye infection by the organism known as filaria, common in the tropics, was reported by Dr. J. W. Kimber of Kansas City, Mo. This is also very rare in this country, cases occurring commonly only in returned missionaries or others who have lived long in tropical countries.

READING REFERENCE.- Libby, Walter. The History of Medicine in its Salient Features, Boston and New York, Houghton Mifflin Company, 1922.

A number of human bones, several metal bracelets, a bead necklace, and the quills of a porcupine taken from the stomach of a single crocodile were recently exhibited in London.

SUN'S HEAT STILL BELOW THE NORMAL

Although the latest returns for the last few weeks are not available, the sun is apparently still loafing on its job.

The radiation received from our central furnace and luminary was reported to have declined four per cent. below normal by Dr. C. G. Abbot of the Smithsonian Institution at the meeting of the National Academy of Sciences in April, with detailed returns then in only until last September.

Dr. Abbot, who at that time called attention to unusual weather conditions occurring simultaneously with this temporary loss of heat on the part of the sun without offering any theory as to the connection between them, declined to be further quoted on the matter, except to say that the observed records of the sun's performance show a deficiency of heat of about two per cent. up until about eight weeks ago. Records are not yet available beyond that time.

At the time of his announcement to the National Academy, Dr. Abbot said that as a result of the sun's variation "we are not to look for anything so simple as a general drop in temperatures all over the world. Oceans, deserts, mountains, clouds and winds make up too complex a system for such simple reactions. Profound departures of some sort from normal conditions, however, we might expect." As a result of his astrophysical studies Dr. Abbot has also concluded that the temperature of the earth is profoundly dependent on the humidity of the air and to a less degree on the quantities of ozone and carbon dioxide which the air contains.

The hot spell from which the eastern half of the United States suffered two or three weeks ago was due to stagnation and "scorching" of the atmosphere similar to that of a pudding that is not stirred often enough, according to Prof. W. J. Humphreys of the U. S. Weather Bureau. The progress of areas of warm and showery, and of clear and cool weather across the country were held up, probably by a strong area of high atmospheric pressure far out in the Atlantic ocean, he said. This resulted in stagnant conditions, and as the sun is now pouring the maximum amount of heat available upon the northern hemisphere the air gets daily hotter and hotter.

The ice patrol off the Grand Banks of Newfoundland reported June 20 that the cold Labrador current was of small volume and weak, but neither Prof. Humphreys nor Maj. E. H. Bowie, chief of the forecasting division of the Weather Bureau, thought that had much to do with the recent hot spell. Neither did Maj. Bowie think there was any ascertainable relation between the widespread warm weather in eastern North American and the unusually cold weather in the far west and in Europe.

The facts all agreed upon seem to be that the sun has for about a year been radiating less heat than normal, and that freaky weather has been observed in widely separated parts of the world; but to this the Weather Bureau officials add the qualifying statement derived from years of experience of meteorological fickleness, "the normal state of the weather is abnormal".

READING REFERENCES.— Abbot, Charles G., *The Sun*, New York, D. Appleton and Company, 1921. Ward, R. de C. *Climate*, considered especially in relation to man, New York, G. P. Putnam's Sons, 1918.

TABLOID BOOK REVIEW

A HISTORY OF MAGIC AND EXPERIMENTAL SCIENCE DURING THE FIRST THIRTEEN CENTURIES OF OUR ERA. By Lynn Thorndike, professor of history, Western Reserve University. MacMillan, 1923, 2 vol. \$10 per set.

To introduce medieval to modern people in the guise of real human beings is the accomplishment of Professor Thorndike's study of medieval scientific manuscripts. Leaving to one side the bloody welter of religious wars, controversies and persecutions which make up the usual history of the middle ages, minimizing the traditional see-saw movement of intellectual activity - Greece up, Rome down; Rome up, Byzantium down; Arabia up, Europe down; Europe up, Asia down - these two volumes show, through their own writings, a small but never failing group of men pegging away generation after generation at their imperative task of learning more about this world and all its creatures. Fit and logical ancestors, these, of the men who are conquering the laws of the universe today. But their work was different. Too many scholars have dipped into their works and been repelled by their "superstitious nonsense." Professor Thorndike's book shows the medieval experimenters painfully clearing away the jungle of superstition which burdened their primitive thought until the ground was cleared for the seed of systematic research which is in our own time just beginning to bear fruit abundantly.

Haruspices, Magi, practitioners of goetia, maleficia, and theurgy fall one by one from the lists of "experimenters", and the repute of the profession steadily rises. Astrologers and alchemists remain, to revise their hypotheses and aims as their knowledge grows.

Instruments were few and crude for exact experiments, but we find medieval scientists more and more turning a skeptical, appraising eye on the statements of their authorities. Indeed one fancies one can detect a faint regret in Professor Thorndike that these "modern scholars" of other centuries used their books so hard, adding marginal notes and comments, copying more information from other sources into their books, making more work for the researcher so many years after their freshest inspirations have turned to "quaint old notions".

By the thirteenth century we find men thinking very much as we do today. Although Petrus Hispanus in that century, himself an experimental scientist, handed on the current belief that hot water freezes quicker and harder than cold, he would no more have turned pale with fear at finding clippings from his finger nails stuck to his door with wax than you or I would, supposing any of us had an enemy superstitious enough to try to do harm by that magic. Very real progress in human thought had come about since the days of "classical" Rome. And if this same Petrus, who was also an active churchman and already well on his way to becoming Pope, startles us by his statement, on the good authority of Aristotle, that fish have no bones, let us, instead of deriding him, pause to consider on what good authority our traditional picture of the medieval mind rests. Any age would look dark through smoked glasses. H.M.D.

There are about five hundred species of green plants which eat insects.
