SCIENCE NEWS

Science Service, Washington, D. C.

THE HEAT OF KILAUEA

A NEW method of ascertaining the temperature of volcanic fires is being undertaken by Dr. T. A. Jaggar, director of the Hawaii Volcano Observatory, in the crater of Kilauea. Borings ten feet deep and one thousand feet apart are being made in the solid rock floor of the crater and as each boring is completed, the temperature at the bottom is taken and recorded, following which the top of the hole is capped with a metal ring in order to preserve it for future readings. It is expected by means of these borings to solve a problem which has baffled scientists ever since their attention was first directed to a study of volcanoes and earthquakes.

Dr. Jaggar has three objects in boring into the crater of Kilauea: He wishes to ascertain the relation of increase in temperature to increase in depth, to discover if there is any difference between the temperatures in the different holes at the same depth and to see to what extent heat is produced by slow oxidation in the lava.

Lava cools very slowly. This is evidenced by the fact that although Mauna Iki flowed in 1920, there are cracks in the lava hot enough to-day to burn anything thrown into them.

Dr. Jaggar is as yet uncertain just what results will be worked out from data obtained through these borings. He thinks it quite possible that some of the holes may show a seasonal or tidal heating or cooling. Volcanic eruption might even be forecast by the sudden rise in temperature in these holes.

Dr. Jaggar is devoting his life to volcanic research. In order to be in touch with the activities of Hawaii's volcano day and night, he has established his home almost directly on the edge of its crater where he can watch its constantly varying moods through the seismographic instruments, as well as by personal observation of its interior.

CHINESE JADE

SOPHISTICATED jade earrings that are a necessary decoration of sleek evening coiffures are a modern symptom of the jade madness that has possessed China for centuries. The taste for the green quartz of Asia has become so keen that a celebrated firm in London recently started working its own jade quarry in Burma.

Though its home is in northern Burma and Turkestan jade is called Chinese because the grinding and carving is all done in China. The Chinese are the only masters of this industry because jade has always been esteemed by them as the "quintessence of heaven and earth," the most precious of precious stones.

The earliest use of jade was almost purely ritualistic and symbolical, according to R. L. Hobson, curator of the department of ceramics and ethnography at the British Museum. It was a royal stone and kings were wont to exchange cities or towns for a single piece. It was one of the oldest commodities of trade and for this reason the best has never been exported but is reserved for the trade in China itself.

Many of the finest pieces have been taken from tombs while the badges of princes of royal blood were always jade. Gold was the material used for those of officers of only the third and fourth rank. The artists of China have long lavished full play of their decorative fancy on the translucent stone which was also administered in powdered form by Chinese physicians to their patients.

It is first mentioned in English history when Sir Walter Raleigh brought what was called a kidney stone from the West Indies, from its supposed properties for curing disorders of the kidneys. It is conjectured that this piece of jade reached the Western world by way of Spaniards who probably had it from the East.

BAND-TAILED PIGEONS IN SOUTHERN CALIFORNIA

THOUSANDS of pigeons that have recently flocked to the San Fernando Valley in Southern California to feed on acorns from live-oak trees in the canyons are enjoying perfect freedom from fear. There is a penalty of $5,000 for disturbing them. Their slate-blue color and iridescent neck, an appearance somewhat similar to the extinct passenger pigeon, led some old settlers to hope that the species had survived after all, but Professor Joseph Grinnell, of the University of California, has definitely decided otherwise.

"There is, of course, not the faintest doubt that the wild pigeon reported from the San Fernando Valley is the band-tailed pigeon," he says. "The true passenger pigeon was an entirely different species, now altogether extinct everywhere, which never did reach California as far as evidence and testimony show."

The presence of the band-tailed pigeon in numbers is almost as interesting as if the species had indeed been the passenger pigeon, says Professor Grinnell, who was instrumental in rescuing this second threatened species from extermination a few years ago. The birds were being mercilessly slaughtered and at the rate they were then going would not have lasted five years. Only one young is produced a year, the slowest propagation among game birds, and with one hunter alone shipping at one time 2,000 birds to market there would have been no chance for the species unless there was immediate legislation.

Fortunately Professor Grinnell's plea was heard, and he now reports that the band-tailed pigeon is again prevalent in practically its original range.

THE INFLUENZA EPIDEMIC IN EUROPE

WORD of what may be an important step toward the solution of the influenza problem has just been received at the surgeon-general's office of the U. S. Public Health Service from Dr. Ludwih Rajchman, medical director of the health section of the League of Nations.

Health authorities all over Europe have been asked to work on the preparation of a report for the League of Nations on the course of the present epidemic in each country, just as soon as the epidemic has subsided to the

point where such research is practicable. It is hoped that by the prompt tabulation of this information the medical world will have some useful data to use in putting up defenses against the next epidemic.

The health officials will have their hands full checking up on all the details that are wanted concerning the intangible enemy. It is particularly desirable to know the geographical distribution of the disease, the time order in which it appeared in different districts, and the movement of contagion from week to week. Description of the clinical types of the disease at different periods and the kind and frequency of complications as well as the ages of the fatal cases are other points on which information is desired. Last, but far from least, will be a comparison of the bacteriological findings from cases in the different countries and the measures that the health officials have found the most successful in controlling the disease.

In spite of the vast amount of bacteriological work that has been done on the subject, medical science is still in the dark as to the cause of influenza. The complications like bronchitis and pneumonia that frequently follow have rendered the isolation of the germ causing primary influenza particularly difficult. The various vaccines that have been tried out have met with almost as much failure as success. Leaders in the medical profession admit that should a visitation of influenza assume the proportions and virulence of 1918, we should be as impotent to deal with it as we were then.

What Europe has learned that is new from her recent experiences with this much-dreaded disease will be made available to the rest of the world with the publication of this report. In the meantime it is well to remember that the best preventive measure where influenza is concerned, that we now know, is to keep in the best possible physical condition and to stay out of crowds whenever an epidemic is prevalent.

A PROPOSED DIKE FOR NEW JERSEY

THE peaceful, benevolent, milk-giving Jersey cow will replace the vicious, malicious, blood-sucking New Jersey mosquito in the now largely useless "mosquito country," according to William T. Donnelly, New York engineer, who addressed the New Jersey Mosquito Extermination Association at its annual meeting. Engineering, declared Mr. Donnelly, can turn the trick, and make rich agricultural land out of all the marshy territory that now breeds only biting pests.

He proposes to turn the edge of New Jersey into a sort of American Holland. The marshy strip is wet and pestiferous now mainly because of the periodic invasion of the highest sea tides, and if these could be stopped by a great dike sweeping along the whole coast, with suitable cross dikes running back from it to subdivide the land, the impounded country could be cleared of its water at relatively small expense. The mosquito pools would then disappear, and the now semi-inundated land, which is naturally very rich, would become a garden and dairy region to supply the great industrial cities that lie in a ring around New Jersey.

The main dike which he proposes could be constructed in such a way as to serve a triple end. It could be thrown up by means of a giant dredge, which would work along in a channel of its own making on the landward side of the embankment. The top of the dike could serve as a highroad for motor transport, and the channel could be given permanent form as a canal for slower and cheaper water-borne traffic.

The cost of the undertaking need not be prohibitive, he claimed, pointing to the examples of Egypt, China and Holland, who have succeeded in similar works with much more primitive means than are at the command of present-day engineering.

THE WAGES OF PRISONERS

CONVICTS in American prisons should be paid a living wage for their work, such as they could earn in the outside world; and their financial affairs should be so directed that they would leave prison with a better understanding of how to live on a working man's wages and how to apportion their money sensibly.

This solution of the nation-wide problem of payment of prison labor is suggested by Dr. Charles S. Hyneman, of Indiana University, reported in the forthcoming issue of the *Journal of Criminal Law and Criminology*.

Dr. Hyneman advocates giving prisoners an incentive to work by paying each one according to the quality and quantity of the work he turns out. The state, he says, should deduct from the wage an arbitrary amount intended to very nearly equal the living costs of the average free laborer engaged in the same occupation as the prisoner. The prisoner should then be given a certain part of his earnings as spending money. And of the remainder of his wages, he should be compelled to contribute to the support of his dependents. If any money is left, it would be saved for the prisoner's own use after he has been released. This scheme will increase production in our prison workshops more than enough to offset the amount paid in wages.

The laws in different states providing payment for prison work vary widely. Thirteen states pay no wage whatever. Some pay four or five cents a day. In a few cases it is possible for a convict occasionally to earn as much as $45 a month.

"By refusing to pay a money wage to the prisoner, society has made it impossible for him to accumulate a fund to support himself after his release from prison while he fits himself into the working and earning world. In so doing the state has not merely increased the obstacles in the way of the convict who is determined to go right, but has forced many of them to return to the paths which first landed them behind the bars."

Dr. Hyneman opposes the plan of paying a prisoner according to the number of his dependents or according to his willingness to work. If the prisoner is taught during his incarceration to expect as much as other prisoners, even though he is disabled in some way or is unable to do a standard amount of work, when he is freed he will be discontented if he finds himself unable to make as much as other stronger men in the industrial field. "He

must go out of the prison in a state of mind which will insure as much as possible his contentment with the working and wage conditions which he will meet in the outside world,'' this sociologist states. ''The prison must be made to a large extent an industrial training school.''

THE CHINESE DEATH RATE

CHINA, with its swarming millions of people, is crowded streets and villages, has a very low rate of population increase in recent years, largely because of the great proportion of deaths. This fact is shown by a new study of Chinese censuses since 1741, made by a Chinese government statistician, Chang-heng Chen.

In 1741, the Chinese people numbered only about 25 millions more than the United States population of to-day, and in the 50 years following 1741 the population more than doubled, advancing at the rate of 15 per 1,000 people every year. In the next half century, the population increase slowed down to less than five additions a year to each 1,000 people. From 1849 down to 1923, the rate of addition has gone down to only .81 per thousand. This, Mr. Chang says, is lower than the rate of population advance in any other country except France.

''The rate of increase of nations of the white race since 1800 has been 11 per 1,000,'' he says. ''This means that the rate of increase of the Chinese population in modern times has been not quite one third as fast as that of other countries.''

The Chinese population reached the 400,000,000 mark back in 1835, according to the census figures. Since that time it has advanced only to 438,370,000, and the statistician believes that this extraordinarily slow rate of advance is due to high death rates rather than to low birth rates. China does not need any large increase of population at present, he adds, but high death rates are not healthy factors.

Census figures before 1741 in China were misleading because the head count included only males between 16 and 60 years and it was taken with the primary purpose of leveling taxes. These taxes were lower in sparsely settled communities. Hence, Chinese population figures were often strangely low. After 1741, both males and females of all ages were counted.

ITEMS

BULGARIA and Japan are now being overrun with waves from the influenza epidemic spreading over Europe and Asia, according to the latest cable received by the U. S. Public Health Service from the Health Section of the League of Nations. The increase is marked in the latter country but in London the epidemic has begun to subside. The mild form that has characterized the disease all along prevails and it is still pursuing a moderate course in Czecho-Slovakia, Hungary and Portugal, according to information issued from the surgeon-general's office. In Switzerland, where the epidemic has reached considerable proportions, the disease appears to be particularly contagious, the Geneva correspondent of the American Medical Association reports. The public schools have been closed and strict isolation of all cases has been ordered. At Basle auxiliary hospitals have been opened up to take care of the overflow from the city hospitals. Fortunately all of the cases have been of a relatively mild character.

THE methods by which the modern scientist can make sound waves appear before him and reveal their secrets was described by Carl E. Seashore, of the University of Iowa. Dr. Seashore, who addressed psychologists of the American Association for the Advancement of Science, said that photographic records of the sound waves that make up a song are far more faithful in detail than the message that the song carries even to the most musical ear. A visible record of a negro ''blues'' song as sung in a cornfield was exhibited and also an Indian song. Showing how these marks in black and white reveal much more definite information as to the pitch, vibrato and other qualities of the singer's voice than phonograph records can record, Dr. Seashore said that no collector of primitive music can now afford to collect with the phonograph alone. The factors that make music beautiful and appealing are being particularly studied by Dr. Seashore and others working at the psychological laboratory. The quivering vibrato is now recognized as being an important means of portraying emotion in music and in speech. Evidences of vibrato were found in 93 per cent. of the voices of well-trained and moderately-trained singers whose voices were photographed. This quality was also evident in 27 per cent. of the untrained adults. Another series of tests showed that vibrato is prevalent in ordinary speech when voices become emotional.

CHINA, with its swarming millions of people, its crowded growing pains as a result of renewed contact with Occidental ways of doing things, has had experiences of this kind before, stretching far back into the dawn of history, recent researches by German and Scandinavian archeologists in the Celestial Kingdom indicate. One expedition into the interior of China has found considerable numbers of beautifully worked pottery objects, mingled with stone weapons and tools, all dating back to about 3,000 B. C. Their pattern and workmanship is strongly suggestive of similar articles of New Stone Age date from eastern Russia and from the Persia-Mesopotamia region, which indicates an influx of western culture into China as far back as the end of neolithic times. There seems to have been no definite Bronze Age in China, or if there was one it was relatively brief, the finds indicate; for rough implements of iron are found in remains of about 2,000 B. C., a date apparently as remote as the earliest objects of copper and bronze in China.

CENSUS returns, just published, show that of the 40,730,000 total population of France, 2,500,000 are foreigners. In the department of the Seine which takes in all of Paris, the foreign proportion runs as high as 10 per cent. Economists, worried over the influx, insist that immigration should be limited and the artificial condition of the monetary exchange corrected without delay. In the future all applicants for naturalization in the department of the Seine will, according to a new regulation, have to submit to a medical examination.