SEISMOLOGY

World's Earthquake Factory

By NICHOLAS H. HECK

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Earthquakes have occurred in nearly every part of the earth but in only a few regions have they occurred frequently. In these regions, earth shocks—all the way from minor tremors to the kind which cause disaster—have been of almost monotonous regularity.

Japan, for example, has suffered heavy loss in its great earthquake disasters and probably greater losses since its partial adoption of the indus trial civilization of the western world. Fortunately, the Japanese people are well qualified to undertake scientific earthquake investigation and the pressure of population has made such investigation absolutely vital.

If it be an advantage to a country to be an "earthquake factory," then Japan is especially blessed. This is illustrated by a remark by Dr. Tanakadate, a leading Japanese scientist. An American delegate to the recent Pan-Pacific Science Congress in Tokyo was discussing the desirability of erecting various types of model buildings in an earthquake region to analyze the effects of an earthquake upon them. "If some one will provide the buildings," said Dr. Tanakadate, "Japan will furnish the earthquakes."

Scientific earthquake investigation has been going on in Japan for years. After the opening of the islands to western civilization, a group of European scientists began the work, and today an organized and well conceived plan of study is in progress.

It might seem, at first glance, that this study has been fruitless, since earthquakes have continued to occur. Earthquakes will probably always occur, at intervals, and doubtless will continue to cause some loss of life and property, especially in thickly populated areas. No amount of scientific study can ever prevent Mother Earth from easing up the accumulated strain on geologic strata occasionally, with a resultant shaking up of the structures dotting her broad bosom. There are very definite possibilities, however, of materially reducing losses in life and property.

Economic conditions, at present, prevent the adoption of some of the ideas thus far developed. Then, too, a lack of knowledge and, often, blind fear on the part of the general public tends to produce a paralyzing apathy which hinders scientific progress materially.

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MEDICINE

Infantile Paralysis Waxing

Are we on the verge of another infantile paralysis epidemic like that of 1916?

Late summer and early fall are the times when this little understood disease is most prevalent, but the number of cases reported to the U. S. Public Health Service in the last few weeks have shown a decided gain over those reported for the same period last year.

The figures for the week ending August 6 show 180 cases as opposed to only 66 for the corresponding week for 1926. Ohio reports 79 widely scattered cases, while California has 56 for this last week alone.

Like influenza, *poliomyelitis,* as infantile paralysis is known to medical men, is one of the unfinished problems on which scientists are still hard at work. It is believed to be caused by a filterable virus which is spread by contact with articles that have been touched by the infected person. From the way in which epidemics have spread in the past it is thought that it must be transferred either by animals or human carriers, but at this time little has been definitely established on this point.

In the big epidemic in New York City that occurred eleven years ago it was clearly shown that prompt hospitalization of the cases that could be safely moved checked the spread of the disease more effectively than any other measure. Another outstanding point that emerged from this experience was the fact that isolation of groups of children from contact with other children or adults, even when carried out in the midst of areas where the disease was prevalent, sufficed to protect almost absolutely from infection.

At the Rockefeller Institute for Medical Research attempts have been made to immunize monkeys to *poliomyelitis* but the results were too variable to be useful.

French workers have tried to use pieces of the dried spinal cord after the same procedure as that followed in rabies treatment but the results were too uncertain to be practical. Dr. E. C. Rosenow of the Mayo Clinic has used an antistreptococcus serum to treat acute cases but this is a recent development that has not received any general application.

An Italian ship fitted out as a floating fair to exhibit Italian manufactures recently visited ports of South Africa.

CHEMISTRY—PSYCHOLOGY

Tongue Test for Ice Cream

The human tongue is a better scientific instrument than it is usually credited with being, at least so far as the great American dish, ice cream, is concerned. Recent experiments made by the U. S. Department of Agriculture indicate a rather close correspondence between the "taste test" of a large number of people and the more precise determinations of quality made by instrumental means.

The first test involved three ice creams of varying butter fat content. These, containing 18, 15 and 12 per cent., were fed to 50 daily purchasers for a period of 10 days. In each instance freezing and hardening conditions were alike, the consumer changing his choice at will. The result was that 82 per cent. of the samplers favored the ice cream of 18 per cent. butter fat content.

The second test proposed to show whether or not sugar strongly affects the palatability of ice cream. An experiment was made with mixes containing 19, 16 and 13 per cent. of cane sugar. About 90 per cent. of the consumers preferred the 16 per cent. composition.

The third experiment tested the effect of non-fat milk solids on the palatability of ice cream. For a period of six weeks three mixes of 12, 9 and 6 per cent. non-fat milk

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Automobile Cancer Cause?

The automobile is faced with charge of being an indirect cause of cancer. Dr. Chevalier Jackson, well-known bronchoscopist of Philadelphia, is inclined to believe that the inhalation of gasoline fumes and small particles of tar in the air may be implicated in the surprising increase in cancers of the lungs that has taken place in the last ten to fifteen years.

Dr. Jackson's suggestions relating to the cause of cancer of the lung receive support from an analysis of a number of cases recently reported to the British medical journal, *Lancet,* by Dr. J. B. Duguid, of the Welsh National School of Medicine. A remarkably large proportion of these cases which all came from Manchester, one of the industrial centers of northern England, were occupied in one way or another with road traffic.

Most of them were carters and drivers, said Dr. Duguid, who were daily exposed to gasoline fumes and oil particles from passing motors as well as the tar used on the road.

Ice Cream Test

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solids were sold. More than 80 per cent. of the 1,185 sales showed a preference for a 9 per cent. non-fat milk solid rather than the commercial ice cream with but 6 per cent.

A debated point among ice cream magnates concerns the popularity of ice cream containing gelatin. For years it was used much as a stabilizer, that is, to prevent the ready formation of ice crystals. Nowadays iceless refrigeration eliminates that possibility, so many manufacturers do without gelatin altogether.

Yet some persons prefer the smooth taste gelatin gives to ice cream. Indeed, experiment four showed that some 63 per cent. of 394 purchasers preferred ice cream with 1 per cent. gelatin. Twenty-three per cent. wanted ice cream entirely without it, and the others insisted on a content of 0.5 per cent.

Contrary to popular belief, the fat content of ice cream has little effect on the quantity a person will eat. A test was made with two common grades of ice cream, one containing 10 per cent. fat and the other 15 per cent. It was found that the average person can consume 1.2 pints of the 10 per cent. and 1.12 pints of the 15 per cent. cream.

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California uses more lumber than any other state in the Union.

Improper horseshoeing is the cause of a large proportion of horse diseases.

The daughter of the famous Egyptian ruler, Cheops, had light, bobbed hair.

An elephant's foot swells when he puts weight on it, and contracts when it is lifted.

The United States is using 70 million pounds of artificial silk made from wood each year.

Great peat bogs in northern Japan are fast disappearing owing to reclamation of the land.

A Greek library of the fifth century B. C. consisted of rolls of papyrus kept in rows of baskets.

The entire Sierra Nevada range, extending over some 400 miles, is geologically a single mountain.

The oldest Egyptian medical records show that they used adhesive tape and splints in surgical operations.

MEMORANDUM

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Earthquake Factory

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People are prone to blame earthquakes for disasters for which the earthquakes themselves are not responsible. The terrific loss of life and property in the Tokyo-Yokohama earthquake, for instance, was partly due to the great typhoon which accompanied it. When fire broke out in the stricken areas, the typhoon fanned the flames to such intensity that nothing could resist them.

The earthquake problem is primarily an engineering one. The problem concerns the construction of engineering structures in such a way as to resist disturbances of the earth's surface. Bridges, buildings, water mains, sewerage systems, and pipe and conduit lines of all kinds must be studied. At the present time, a building is being erected in Tokyo designed to resist both earthquake and fire. Only time, of course, can determine the success of this experiment, but it is a step toward saving of life and property through scientific building construction.

In studying the earthquake problem, the attention of scientists is centered largely in Japan, simply because Japan is the world's "earthquake factory." In the United States, several agencies are at work. Back of them is the Federal Government, doing part of the work and giving encouragement to the other agencies. The work is of immense practical importance, nationally as well as internationally. We should not forget that the United States has experienced severe earthquakes in five distinct regions in the last 150 years.

The U. S. Coast and Geodetic Survey is in charge of earthquake investigation in the United States and its possessions. This Bureau has started an earthquake census, so that the architect, the engineer, the insurance man, and the public generally may have exact knowledge of all earth shocks occurring in the United States and its territories. The Bureau is operating seismographs, to record earthquake shocks, at six widely scattered observatories from Porto Rico to the Hawaiian Islands and is aiding in the interpretation of seismograph records from a number of universities.

The total of seismological work in the United States, by all organizations, is considerable, but still far from adequate. We will never need the intense effort of Japan, but we should at least carry on the work with a proportionate amount of effort corresponding to our rather fortunate position on this unstable globe.

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