

turned. The leading scientist—pardon, magician—became the king of the new country. Emperor Ti paced the shores of China for three years seeking his expedition to what has since turned out to be Japan.

Thus ancient Chinese scientists helped found Japan. If present efficiency of operation is any indication, the descendants of those scientists are equally proficient in getting what they want.

Science News Letter, October 2, 1937

PUBLIC HEALTH

Military Activity in China Has Increased Neurosyphilis

NEUROSYPHILIS has increased in China as a result of the official and unofficial warfare that has disturbed that country for the past quarter century, Dr. J. L. Maxwell of the Henry Lester Institute of Medical Research in Shanghai reports. The institute has now completed its third year of work.

"During the last 25 years a licentious soldiery has overrun the countryside and has raised the incidence of neurosyphilis both by spreading infection and, according to Dr. Maxwell, by inducing a state of nervous strain in the rural population," states a resume of the report in the *Lancet* (Sept. 11).

Typhoid fever, a rarity among the Chinese population 30 years ago, has now become one of the commonest causes of admission to hospitals and at

the top of the list of deaths from infections. Medical and health authorities cannot explain why this disease should have increased so during the period in which cleanliness and water supplies have "vastly improved" along the coast and inland towns.

Appendicitis has also increased greatly, particularly among the wealthy city population. This, it is thought, may be due to changes in diet.

The medical institute has carried out studies of dietetic defects and nutritional diseases in the rural districts and among the factory workers in towns. More than half of the younger factory workers show signs of malnutrition, mainly "from lack of animal fats and first class protein in their diet."

Commenting on the work of the in-

stitute, the editor of the *Lancet* states:

"It seems tragic that such valuable work should receive a check. We are glad of an assurance that the institute has so far escaped damage and we may hope that Dr. H. G. Earle and his 30 assistants will soon be free to continue their work unmolested."

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SAFETY ENGINEERING

Grade-Crossing Accidents Hit Six-Year High

A NEW version of the "man-bites-dog" story is told in the account of last year's grade-crossing battle between road and rail.

The once popular sport of racing the locomotive has given away to crashing into the sides of sleepers or freight cars going by at night, accident figures reveal. More than four-fifths of accidents at grade crossings at night last year occurred in that fashion.

More than half of the accidents reported in Illinois occurred at crossings protected by gates, signals or watchmen. One railroad reports that heedless motorists crashed into more than 500 of its gates.

Deaths from grade crossing accidents reached the highest total in six years last year, when 3,792 grade crossing accidents, more than half of which occurred at night despite lighter traffic, took place.

Blame for the increase was placed on the fact that an automobile traveling at night at high speed cannot stop within the distance its headlamps light up. In many cases, even if motorists see the warning gate, the car cannot be stopped in time.

Directional floodlighting of grade crossings and the sides of slow-moving freight trains has been successfully tried by a midwestern railroad. The crack Chicago and Northwestern "400" train between Chicago and Minneapolis has been equipped with a powerful beam that flashes its warning 2,000 feet ahead.

Train-actuated barriers that rise out of the road have also been tried, it is reported. One device works as follows:

Five seconds after the warning lights flash, the barriers rise to a warning height of four inches. Should a motorist be too near to stop in time he can still safely pass over the barrier, which can be depressed once. Two seconds later, however, the barrier rises to a height of nine and a half inches and locks in place. A vehicle hitting the barrier,



PROTECTION

Motorists who persist in racing against the locomotive engineer and the Grim Reaper may find this life-saving device protecting them in spite of themselves. A barrier that can stand an impact of 3,000,000 pounds rises out of the road. It is operated automatically.

which can stand a force of 3,000,000 pounds, is thrown upward so that any occupants are not hurt by the shock.

Carelessness is apparently still responsible for grade crossing accidents, study

reveals. A check of 3,569 drivers showed that while approaching grade crossings 2,907 failed to look in either direction, while 602 looked in only one direction.

Science News Letter, October 2, 1937

RADIOLOGY

Pneumonia May Be Caused By Sucking Oil Into Lungs

Physicians Warn Against Forcing Oil on Infants; Patients Wear Gas Masks; X-Rays Show Lead Poisoning

PNEUMONIA due to oily substances being drawn into the lungs is "not uncommon," Drs. Ralph S. Bromer and Irving J. Wolman of the University of Pennsylvania said at the Fifth International Congress of Radiology, Chicago.

Cod liver oil, mineral oil or liquid petrolatum, poppy seed oil, olive oil, sesame oil and even cream are among the oily substances which have caused the condition, known as lipoid pneumonia. The oil may get into the lungs from the nose, or from the throat if the child does not swallow properly, especially if he is resisting it. The mild vegetable oils caused the least reaction while cod liver oil, lard and other animal fats caused sudden, violent reaction in the lungs with bleeding and tissue destruction. Liquid petrolatum or mineral oil caused proliferative pneumonia.

Serial Pictures Needed

X-ray diagnosis can be made in severe cases, Drs. Bromer and Wolman found, but in moderate and mild cases serial X-ray pictures and an accurate history of the case are needed for positive diagnosis. The need for serial X-ray pictures was emphasized. In a series of 27 cases at the Children's Hospital, Philadelphia, 16 patients had had X-ray pictures made but the diagnosis of lipoid pneumonia was made in only one case. Twenty-two of the 27 died.

Infants and children who are small, weak, physically under par or suffering from nervous disorders seem particularly susceptible to the disease. It is not wise, the Philadelphia doctors warned, to give such a child liquid petrolatum as nose drops. Cod liver oil or mineral oil should never be forced.

Enlargement of the thymus gland in the chest, a dangerous condition found in some new-born babies, can apparently

be prevented to a large extent if the child's mother has sufficient iodine in her food and drinking water.

X-ray examination of the chests of nearly 1,500 infants, which suggest this conclusion, were reported by Drs. S. W. Donaldson and H. A. Towsley of Ann Arbor, Mich.

Because of the prevalence of goiter, a thyroid gland disease, in Michigan and other Great Lakes states and the relation of goiter to lack of iodine, the Michigan State Department of Health 13 years ago encouraged the use of iodized salt to make up for the deficiency of this essential element in the food and water of the state. At that time over a third of the school children had enlarged thyroid glands, a survey of 65,000 indicated. This has since dropped to less than one-tenth.

Before the introduction of iodized salt the babies were born with enlarged thymus glands, surveys indicated. In the series examined since 1930 by Drs. Donaldson and Towsley, less than one-fifth had enlarged thymuses.

Silicosis Diagnosis Unsound

X-ray diagnosis of silicosis is "not on a sound basis," Drs. A. E. Barclay, K. J. Franklin and R. S. Macbeth of Oxford, England, told members of the Congress.

They base this opinion on the fact that X-ray diagnosis of the disease which affects thousands of workers in the dusty trades depends on detecting fibrotic changes in the lungs. These changes, however, are not a disease form but the evidence of nature's attempt at healing.

Bearing out this opinion is the observation that the degree of fibrosis seen in X-ray pictures does not correspond with the condition of the patients.

"In extreme cases," the British scientist said, "we find men with marked

fibrotic lung changes who suffer little or no disability and are even sometimes quite fit for their strenuous work, while on the other hand we find men who are obviously completely incapacitated who show relatively little or even no definite fibrosis in the lungs and who cannot obtain compensation, for this depends on the roentgenological picture and not on the disability."

The irritating dust, usually silica, may not be the only factor in causing the disease, it was suggested. Anything that interferes with nature's mechanism for protecting the air passages from obstruction might pave the way for the deposition of the irritating silica dust. Studies of animals showed that the lungs of healthy animals can eject large quantities not only of inert dust but also dusts that are chemically comparable to those associated with silicosis. This action can be interfered with, however, and the results may be the retention of dusts in the lungs over a prolonged period.

Detect Metals in Poisoning

X-rays may prove useful in detecting small amounts of metals in the organs of the body in cases of poisoning, it appears from studies reported by Dr. L. Grebe of Bonn, Germany. The method would be equally useful in cases of poisoning due to industrial processes or in other types of poisoning.

Lead, mercury, gold, silver, copper, zinc, nickel and cobalt were among the metals which Dr. Grebe was able to detect by this method, which combines the X-ray and the spectograph.

He was able to detect the metals in the kidney, liver, heart, skin, muscle, intestinal wall, gall bladder, stomach wall, stomach contents, blood, spleen, spinal cord, brain, adrenal glands and uterus.

Patients Wear Gas Masks

Gas masks for patients during X-ray treatments will prevent radiation sickness in 98 out of every 100 cases, Drs. Harry F. Friedman and Phillip Drinker of Boston reported to the Fifth International Congress of Radiology.

Radiation sickness is a serious problem, often proving an obstacle to thorough treatment. The patient feels both sick and fatigued and may become anemic.

Breathing electrically charged air while X-rays are penetrating the body is what makes the patient sick, the Boston investigators found. The mask prevents this by de-ionizing the air or removing its electrical charge.

Various types of masks were used,