

MEDICINE

Girls Lose Finger Nails At Bottle Washing Job

THE JOB of washing catsup bottles in a factory caused the rare condition of onycholysis, or loosening of the finger nails, in five of the girl bottle washers, Dr. H. J. Templeton of Oakland, Calif., told members of the American Medical Association in Philadelphia last week.

The five girls all noticed within 48 hours after starting work in the factory that blue spots appeared under their nails. There was no pain but the spots spread rapidly and within a week the nails were loosened from the nailbeds. The girls' work consisted of washing the filled catsup bottles to remove excess paste after they had been labeled. No soap or chemicals were used in the washing.

Working conditions at the factory were good and there were no special irritants, Dr. Templeton found. No other workers suffered from the trouble. The girls who had it said they had never had trouble with their nails or skin before.

In spite of this, Dr. Templeton felt that some undiscovered personal sensitiveness must account for the condition. The only other factors that could be held accountable were softening of the tissues around the nails by the prolonged immersion in water, and possible bruising of the finger tips.

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SEISMOLOGY

Quake Stations Needed In Midwest and Caribbean

THE great central valley of this continent and the West Indies region are the two areas most in need of further development of seismological stations, Capt. N. H. Heck, earthquake expert of the U. S. Coast and Geodetic Survey, told his hearers at the meeting of the eastern section of the Seismological Society of America in Columbia, S. C., last week. The parts of the country best equipped for earthquake study are the Atlantic and Pacific coasts.

Along the Atlantic coast there is a string of stations all the way from Maine to South Carolina. Two outstanding stations in this string are those of Fordham University in New York and Georgetown University in Washington. These are equipped with the latest instruments

for detecting the minute up-and-down movements of the earth caused by distant quakes, as well as the east-west and north-south movements.

This line of stations is advantageously situated for the study of earthquakes originating in the Caribbean region and on the west coast of South America, Capt. Heck said. The recently modernized station of the U. S. Coast and Geodetic Survey at San Juan, Porto Rico, and the new station of the Carnegie Institution of Washington at Huancayo, Peru, serve as valuable southward extensions of this chain, particularly with reference to earthquakes that might affect the Panama Canal and the projected Nicaragua Canal. Capt. Heck suggested the desirability of new equipment for the seismological station at Balboa, in the Canal Zone.

Outstanding work in the central region of this country is being done by the Jesuit Seismological Association, with headquarters at St. Louis University, and branches in Jesuit educational institutions all the way from Canisius College, Buffalo, N. Y., to Regis College in Denver. Another prominent station is that of the University of Chicago, operated under joint arrangement with the U. S. Coast and Geodetic Survey.

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MEDICINE

New Appendix Disease Reported to Doctors

APPENDICOSIS, a new disease of the appendix which differs from the familiar and once fashionable appendicitis, was reported to the American Medical Association at Philadelphia by Dr. Bernhard Steinberg of Toledo, Ohio.

The two conditions are distinguished by the presence and absence of inflammation. In appendicitis, inflammation is present and when the appendix is removed by operation it is found to harbor virulent disease germs. In appendicosis, there is no inflammation and the organisms found in the appendix are not harmful disease germs.

Appendicosis, in contrast to appendicitis, is characterized by attacks off and on. There is continuous discomfort with dull pain, little nausea, no fever and local soreness from the onset of the attack. There is no danger of peritonitis in appendicosis, although this is frequently a fatal complication of appendicitis. Both conditions are relieved by removal of the appendix.

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IN SCIEN

ASTRONOMY

Distance and Size of Huge Nebula Found

THE GREAT NEBULA in the constellation of Orion is three times farther away than was formerly supposed, Dr. Robert J. Trumpler of the Lick Observatory, Mount Hamilton, Calif., announced before the meeting of the Astronomical Society of the Pacific at Pasadena. Three different methods lead to the conclusion that this brilliant nebula is distant from the earth some 1800 light years, a light year being the distance travelled in a year by a beam of light which covers 186,000 miles a second.

Knowing the distance it is easy to calculate the size of the nebula. It is so big that light takes 26 years to cross it. Compared with other diffuse nebulae of the Milky Way, however, the Orion nebula ranks among the smaller.

Although the matter of the nebula is highly rarefied it has an appreciable effect on the light passing through it, rendering it slightly reddish. The stars in the midst of the nebula are found to be somewhat more reddish than astronomers expected.

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PHYSIOLOGY

How Nerves Make A Muscle Contract

THE MECHANISM by which a nerve impulse can be converted into a chemical stimulus is indicated in studies reported by Prof. Walter B. Cannon of Harvard Medical School. The newly discovered hormone, sympathin, is found very generally in smooth muscle tissue. It is probably the same as adrenalin, the stimulating secretion of part of the adrenal glands. The action of the two substances is apparently very similar. The discovery of sympathin is expected to have great practical importance. Secretion of sympathin from a muscle cell upon stimulation by a nervous impulse may be the way in which the nerve impulse can cause activity of tissues.

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CE FIELDS

PHYSICS

Huge Electro-Magnet Installed at Leiden

See Front Cover

A HUGE electro-magnet weighing 14 tons, about two-thirds as much as a street car, just erected at Leiden, Holland, by the Siemens Halske Company of Berlin, will enable scientists to wrench atoms apart as never before. This marks the realization of a dream of the late Dr. H. Kammerlingh Onnes, the first man to liquefy helium, who designed the magnet.

The joint action of intense magnetic force with intense cold is likely to yield new secrets about atoms, is the belief of Prof. Onnes' successor, Prof. W. J. Haas, who completed the work. Dr. Peter Kapitza of the University of Cambridge, England, has recently constructed a similar magnet for use at extremely low temperatures, with the same hope in mind.

Possible disruption of the windings, endangering the lives of investigators using the super-magnet, has been carefully guarded against by protective automatic switches. This danger arises when the 80-kilowatt current is suddenly decreased. A rapid lowering of the current produces a sudden removal of the magnetic field and this in turn creates very high induced voltages in the coils of the magnet. Visible and audible signals indicate the operation of the automatic switches.

The huge magnet can be rotated horizontally or tilted vertically with great ease and the great magnetic force made by it can be concentrated in a space of a few inches.

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PHYSICS-PHYSIOLOGY

Gamma Rays and X-Rays Have Different Effects

MORE EXACT knowledge of the differing biological effects of radiations used in treating tumors and other diseased conditions was urged upon medical experimenters and practitioners by Dr. G. Failla and Dr. P. S. Henshaw of Memorial Hospital, New

York City, who spoke before the American Association for the Advancement of Science at Pasadena.

The two New York scientists described a series of experiments in which they tested the effects on various living things of equal-energy doses of X-rays and gamma rays from radium. Gamma rays are radiations similar to X-rays, but of shorter wave-length and more penetrating. The effects tested included the extent of slowing-down of wheat seedlings, percentage of killing in insect eggs, and degree of skin reddening or erythema.

In one series of "shots" it was found that parallel doses of X-rays and of gamma rays slowing down the growth of the shoot of wheat seedlings to the same extent had different slowing effects on other parts of the plant and on other objects. The gamma rays were 29 per cent. more effective than the X-rays in slowing down root growth and 36 per cent. more deadly to insect eggs; but they were 57 per cent. less effective in causing artificial sunburn.

This latter point is of some importance in practical medicine, for the effectiveness of a given dose of radiation on a tumor or other tissue under treatment is usually judged by the redness of the overlying skin. But in the experiment the more destructive rays had the lower skin-reddening power, showing that unless the quality of radiation is taken into account the skin-reddening effect cannot be very closely relied on as an index to its other effects.

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ASTRONOMY

Older Stars on Edge Of Distant Nebulae

THE COLOR of the "island universes" outside of our own has been shown to be bluer along their outer spiral arms than at their center. This discovery was reported to the American Association for the Advancement of Science by Dr. Edwin F. Carpenter of the Steward Observatory of the University of Arizona.

This recent observation made with special color filters in connection with a camera, confirms the theory of Sir James Jeans that the outer parts contain the older stars of the nebula. His idea is that the spiral arms were the first to condense into the droplets we know as stars. It is known from other facts that younger stars are bluer in color and older ones more reddish.

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OCEANOGRAPHY

Only Fifteen Icebergs Year's Whole Crop

FIFTEEN icebergs, instead of the usual scores or even hundreds, represent the total crop of 1931 in the waters off the northern coast of North America to date. Dr. Olav Mosby, Norwegian oceanographer now cruising on the U. S. S. General Greene to study icebergs in the waters off Newfoundland, has wired Science Service that during May only thirteen icebergs had been seen south of Newfoundland, and only one during each of the preceding two months.

None of this scanty crop of floating ice-mountains got as far south as the usual steamer tracks. The farthest south was the forty-sixth parallel of latitude, which is fully three degrees north of the normal limit for this time of year. Dr. Mosby found also that the Labrador current is still weak and has brought down less than the normal quantity of cold water.

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ASTRONOMY

Study of Variable Stars To be Aided by Fund

STUDY of the variable stars that regularly change in brightness, like flashing electric signs in the sky, will be aided by a fund of \$100,000, established at the Harvard College Observatory here as a memorial to the late Dr. Edward C. Pickering. For many years director of the Harvard Observatory, at the time of his death in 1919, Dr. Pickering was recognized as one of the world's greatest astronomers. He was one of the pioneers in the study of these changing stars.

According to Dr. Harlow Shapley, Dr. Pickering's successor, the fund has been established by the American Association of Variable Star Observers, assisted by the Rockefeller Foundation and Harvard University. The former organization is a group of amateur astronomers scattered throughout the world. In its early days it was guided by Prof. Pickering, and ever since its headquarters have been at the Harvard Observatory. Its members regularly watch the variable stars, and keep track of their changes, thus relieving the professional astronomers of a great deal of work.

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