PHYSICS-MEDICINE

Brother Research Team Back Together Again

THE last passenger off the sinking *Athenia* into a life boat was Dr. John Lawrence, the physician-brother of University of California's Prof. Ernest O. Lawrence, inventor of the atom-smashing cyclotron. Brother John, M.D., reported to the war-dispersed British Association for the Advancement of Science at Dundee, his pioneering experimenting upon attacking cancer with neutron rays and other biological effects of the most intense man-made radiation. While Brother Ernest worried mightily, Brother John was picked up by a British destroyer and was so long in getting back to England that his name never appeared on official survivor lists. But the brothers are now working together again.

Science News Letter, November 11, 1939

PSYCHOLOGY

Skill of Plastic Surgeon Heals Personality, Too

A THOUSAND men without faces, victims of the last World War, gave rise to the science and art of plastic surgery. First concern of the few great surgeons, who met this emergency by developing new skills, was restoration of function.

These men without faces could not chew. They could not swallow. They could not speak. Other men could not bring themselves to look upon such a horrible result of "man's inhumanity to man."

It was necessary to give the victims jaw bones, teeth, noses, throats, skin. It was a work of mercy to add artificial eyes, beards, pleasing contours. Imagination came into use, for mothers, in many cases, could not even supply photographs.

Psychological values of the repair work received scant attention at that time. Yet the healing of the spirit by the plastic surgeon is as remarkable as the wonders he performs on external appearance.

The least vain among humans has a natural horror of looking repulsive to his fellows. A physical deformity is a great handicap in keeping a job, winning a sweetheart, making friends, finding happiness. Warped personalities naturally result from twisted bodies.

Dr. Henry J. Schireson, plastic surgeon of Philadelphia, tells of the great joy expressed by his patients who had been restored to natural appearance or given new beauty in the surgery. One of the most appreciative was a nun, victim of a Chinese plague, who asked his aid because she "frightened little children."

The present war will bring its ghastly ranks of mutilated victims.

But war is not the only deformer of men. Americans, Dr. Schireson said, bring the disfiguring lines of age into their faces prematurely through an extreme intensity of living, through exciting sports. They are mutilated by the automobile, the airplane, the parachute, burns and falls.

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CHEMISTRY

Wool and Plastics Can Be Made of Zein from Corn

AMERICAN corn fields potentially can produce fibers with wool-like properties, it appears from research reported by L. C. Swallen, chemist of the Corn Products Refining Co.

From a bushel of corn a pound of zein, a byproduct of corn processing, can be obtained. Zein is a protein with uses, in many cases, like those of casein derived from cow's milk. Zein can be made into plastics, into waterproof wrappers, quick drying printing inks and into films and fibers.

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ENGINEERING

25,000,000 Candlepower Robot Searchlight Developed

A NEW rival for the time-honored carbon-arc searchlights has appeared in a 25,000,000 candlepower searchlight, using three tiny water-cooled mercury arcs, which has been developed by the General Electric Company.

While present-day searchlights need an attendant to adjust the carbons for best illumination, the new searchlight does not wear out, needs no adjustment and is designed for lights in inaccessible places.

Ninety gallons of water an hour are pumped through the cooling containers of the mercury arcs and then passed to an automobile-type radiator where the fluid is cooled for recirculation.

Though more convenient, the new searchlight is still below the present high-intensity searchlights in beam candlepower and effectiveness, admit G.E. engineers.

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IN SCIENC

PUBLIC HEALTH

Vitamin B_2 Used on Rats As Weapon Against Cooties

SOLDIERS in the present war may be spared at least one major discomfort that plagued their older brothers in 1914-1918, if the results obtained with vitamin B_2 on rats in the laboratories of Nobelist A. Szent-Gyorgyi at Budapest, Hungary, can be duplicated in human beings. He gave heavy feedings of the vitamin to rats badly infested with lice. The insects promptly left the rats.

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ENTOMOLOGY

Mosquito Eggs Apparently Survive Without Water

MOSQUITO eggs apparently are able to survive through the tropical dry season without water, Drs. Wm. S. Stone and Francois H. K. Reynolds of the Army Medical Research Board, with headquarters at Ancon, Canal Zone, report. (*Science,* Oct. 20.)

Drs. Stone and Reynolds had noticed very sudden increases in mosquito numbers a week or ten days after the onset of the rainy season. Egg-producing capacities of the few surviving mosquitoes did not seem to account for this.

They studied the last eggs laid by mosquitoes before the coming of the dry season, and found them larger than average, and much slower to hatch. This hinted at an adaptation to secure survival through a period of hard times.

The two doctors then secured earth and debris from dried-out seeps that are pools during the wet season. They covered these with water in sterile screened containers, and in two days had numbers of mosquito larvae belonging to several different species.

Drs. Stone and Reynolds admit that their experiments up to the present are not absolutely conclusive, but consider that they at least suggest a mechanism of survival for mosquitoes through dry seasons. They state that they will make further careful observations and tests prior to and during the dry season of 1940.

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E FIELDS

PSYCHOLOGY

Workers' Psychology Not Different From Others

WORKERS have no special emotions, desires, or different "psychology," Dr. Franklin Fearing of University of California at Los Angeles said in a recent symposium on industrial conflict.

"While it does not appear that professional psychologists have encouraged this view," he said, "yet there are books on workers' emotions, workers' attitudes and other special psychological characteristics, which at least implicitly convey the idea that, in some way, there is a peculiar worker psychology which is a cause of industrial unrest." The wants of workers, he indicated, are shared by all.

Another misconception, based on scientifically discredited but recently revived notions of "mob psychology," is the idea that groups are dangerous and debasing to the individual. Research by psychologists has demonstrated the contrary—decisions of a group, or problem solutions worked out by cooperating minds, are in general much more sound than those of the individual.

The word "conflict" itself may be misleading because psychiatric usage has given it a connotation of emotional instability or maladjustment.

Actually industrial conflict, Dr. Fearing declared, is a natural social phenomenon and may be creative by acting as a step toward the development of a new basis of understanding.

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PHYSICS

Candy, Cold as Liquid Air, Emits Flash of Light Rays

ORDINARY ice and crystalline candy wafers emit a faint glow of light called triboluminescence, at liquid air temperatures, it was reported to the Optical Society of America at Lake Placid by Dr. Frances G. Wick, Vassar College physicist.

The new report confirms and extends prior work described recently by Prof. E. Newton Harvey of Princeton University, who showed that grinding such candy wafers in a chemical mortar produced similar light effects. Dr. Wick has found also that ice, cooled to liquid air temperature, emits light when ground.

The emission of the light, in part, depends on the flavor of the candy, wintergreen being especially brilliant. Other flavoring oils studied were bergamot, lemon, lavender and peppermint.

By first irradiating the candies with the rays from an iron arc (ultraviolet radiation) the light emitted could be increased. It is probable that the effect is caused by the cracking of the candies in the severe chilling and consequent electric sparks produced. This excited luminescence in the flavoring oil.

Expensive equipment is not needed to demonstrate triboluminescence. Prof. Harvey has found that when adhesive tape or black electrician's tape is stripped off its roll in a dark room a faint emission of light can be seen.

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MEDICINE

Anti-Measles Vaccine Is Goal of New Virus Studies

AN ANTI-MEASLES vaccine is the goal of investigations just reported by Drs. Geoffrey Rake and Morris F. Shaffer, of the Squibb Institute for Medical Research (*Nature*).

The virus which causes measles can be cultivated in the fertile hen's egg, they announced. Chick embryos or fertile hen's eggs have been used for making smallpox vaccine and are being used in efforts to develop vaccines for protection against other human ailments, such as influenza.

In order to find out what happens to the measles virus after it has been grown in the chick embryos, monkeys have been inoculated. Typical measles developed in monkeys inoculated with material originally from measles patients which subsequently had been passed from egg to egg five times, but after many such transfers the monkeys developed only a rash without other symptoms.

This could mean that the measles virus had been changed in some way or it could mean that it was gradually disappearing. Which of these is true, the New Brunswick group of workers want to determine. In association with Drs. Joseph Stokes, Jr., and Gerald O'Neil, of the Children's Hospital in Philadelphia, cautious studies in children have been initiated.

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METEOROLOGY

Data of Decades Reveal Tides in the Atmosphere

BY "HARVESTING" 1,200 years of observations on barometric pressure with giant calculating machines, scientists now have clear evidence that vast tides exist in the earth's atmosphere just as they do in the earth's oceans.

These air tides, caused by the gravitational pull of the moon, rise and fall twice daily, Prof. S. Chapman of London's Imperial College of Science and Technology, said in his presidential address as president of the International Association of Meteorology.

"The enormous stores of barometric data, accumulated over the world for many decades, have been used to determine the minute lunar air-tide, by a process which may be compared with the extraction of rare metal from a great mass of crude ore," Prof. Chapman declared.

Over 5,000,000 observations are available for study and correlation which in the aggregate total more than 1,200 years of observing if they had been carried out at one weather station. Actually the enormous store of records was made during the 19th century at many stations.

The first evidence of lunar air tides came from observations in the tropics where the layer of air over the earth is thicker due to the centrifugal force created by the whirling earth. Back in 1918 the tides were known only at three tropical stations. Today more than 54 stations, throughout the world, have reliable results.

Prof. Chapman credited Prof. Julius Bartels of Potsdam, Germany, with major contributions to this study by improving techniques.

The average lunar tide is direct, appearing as a high tide when the moon is on or near the meridian.

The magnitude of the lunar tides is very small, amounting in latitudes of England and Germany only to the weight of two feet of air at normal density.

One of the earliest indications of the effect of lunar tides, Prof. Chapman said, was the report of Capt. Lefroy, who in 1842 as director of the Colonial Observatory on the island of St. Helena, found that his bihourly readings of the barometer showed cyclic changes with the moon's position on the basis of 17 months of observation.

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