

more so that a total of 750 splints could be sent out, 547 to Buffalo and the rest elsewhere.

Branch splint banks throughout the United States are now planned, and it

is hoped, Dr. Bennett said, "that before 1940 passes no child or adult stricken with infantile paralysis need wait for proper early splinting."

Science News Letter, January 20, 1940

PHYSIOLOGY—STATISTICS

Q and R Factors in Equations Betray Coming of Death

Gray Hair and Wrinkled Skin Not So Satisfactory As Warnings as Are These Statistical Clues

GRAY HAIR and wrinkled skin are not as satisfactory signs of old age and approaching death as Q and R. These letters are symbols of new equations devised by Dr. Henry S. Simms, College of Physicians and Surgeons, Columbia University, for shedding light on the aging processes. (*Science*, Jan. 5)

We do not grow old as a result of a random accumulation of degenerative changes, Dr. Simms' equations show, thus upsetting the present theory of the aging process.

"It is perhaps correct to say that there is an accumulation of degenerative changes," Dr. Simms states, "but that the process follows a definite mechanism such that the rate of change at any age depends upon the amount of accumulated change. Why this mechanism should be followed remains to be determined."

Q and R are functions which control the death rate after the age of 30 years. Q changes with age. There are indica-

tions, Dr. Simms states, that the change in Q affects mortality by increasing the death rate when disease is present, rather than by increasing the tendency to become diseased.

Changes in R may account for the faster increase in death probability of diseases of the blood vessels (heart and artery diseases) over the increase in death probability of certain infectious, digestive and nervous diseases. The nature of this R function is unknown, but Dr. Simms suggests that it may be some property of the blood vessel system such as arterial distensibility or capillary permeability.

A statistical correlation between senile debility and senile death rate has been found by Dr. Simms' mathematical studies. This suggests, he says, that the progressive debility in old age is caused by the same Q and R functions which control the death rate.

Science News Letter, January 20, 1940

ment. Heretofore physicians have tried to fight shock, first cause of death in extensive burns, by giving all the fluids the patient will take and urging him to take even more. This treatment, the Indianapolis physicians declare, may cause water intoxication severe enough to kill the patient.

An experience with this standard treatment in which the patient, a two-year-old baby girl, died led them to their new theory on burn treatment. Post-mortem examination of the child's body showed "a tremendous waterlogging of all tissues." Changes in the child's blood, including a striking deficiency of salt, also suggested that large quantities of fluid were harmful in treating burn shock.

The Indianapolis physicians were in the midst of animal studies of their new theory of burn shock treatment when a 15-year-old girl was brought to the hospital an hour after she had been badly burned when her evening dress caught fire from a lighted match thrown on the ballroom floor. Daringly, the physicians used the new system of treatment.

Morphine

Morphine, to relieve pain, removal of the charred remnants of her dress, and a one and one-half hour bath with salt water and green soap came first. About one pint of salt water with sugar was injected, and her drinking water, orange juice and the like were limited to about one quart a day. Meanwhile blood donors had been found and typed and eight hours after arrival at the hospital she was given the first transfusion of about one pint of blood with about one pint of salt water.

The young patient had a stormy illness. Her temperature was persistently high, and any manipulation caused chilling. She had altogether six large blood transfusions within four days, two of them consisting of blood plasma alone because tests showed an excess number of red cells in her blood. Because of her grave condition, the fifth transfusion was given "with considerable apprehension," the doctors report, and the sixth was given 24 hours later in spite of the fact that symptoms of reaction after the fifth one were growing worse. This was followed by a chill and rapid rise in temperature, and at this time the patient was not expected to live. She was placed in an oxygen tent and her condition slowly improved. Within one month she was able to go home and within two months her burns were completely healed and she was entirely well.

MEDICINE

Dramatic Success Reported With New Treatment of Burns

Transfusions of Large Amounts of Blood and Reduction In Amount of Fluids Given Patients Are Chief Points

THE DRAMATIC recovery of a young girl from severe burns following the first trial of a new transfusion treatment daringly given in the face of impending death is reported by Drs. H. M. Trusler, H. L. Egbert and H. S. Williams, of Indianapolis. (*Journal, American Medical Association*, Dec. 16)

Even though the girl was so gravely ill by the fourth day of treatment that

"all who saw her were convinced she would die," the physicians did not lose faith in their new system of treating severe burns. Their courageous persistence was rewarded by their pretty young patient's complete recovery.

Transfusions of large amounts of blood and reduction in the amount of water and other fluids given the patient are the chief points of the new burn treat-