SCIENTIST MAKES JUICE IN WHICH CELLS WILL GROW

The process of cell multiplication, or growth, does not require the presence of a specific gland substance or hormone, declares Dr. Alexis Carrel, of the Rockefeller Institute, but only proper nutrient materials.

New light on how the nutrition of the body actually takes place is a potential result of research undertaken at the Rockefeller Institute for Medical Research by Dr. Carrel and Dr. Lillian E. Baker.

For fourteen years the famous medical scientist has kept growing in the laboratory colonies of a strain of tissue cells, which doubled their number every 48 hours as long as they were cultivated in a medium of blood plasma and embryonic tissue juice. The liquid which furnishes nourishment for the growth of an embryo seemed to be the only substance that would foster the unlimited increase of cell division, since all attempts to get the cells to grow in any artificially prepared solutions failed.

The investigators at length observed that the material in the embryonic juice that was chiefly used by the growing cells was the protein element it contained. Accordingly they attempted to prepare a protein product that could be substituted for it. Success attended their efforts, and they have now found that cells will increase and multiply merrily at their normal rate in a medium composed of the class of proteins known as proteoses, which correspond roughly to protein material that is part way through the process of digestion.

Drs. Carrel and Baker state that at last the actual chemical nature of the protein substance used by tissue cells in theprocess of multiplication has been discovered.

DAILY PINT OF MILK DOUBLES BOYS' YEARLY GAIN IN WEIGHT

Milk for growing boys and girls is a universal slogan but actual experiments to prove its value have produced figures that astound even the medical authorities.

Dr. H. C. C. Mann has reported to the British Medical Research Council the results of one of the most extensive nutritional experiments ever undertaken that lasted four years and involved over 500 boys. This investigation has demonstrated that the addition of a pint of milk a day to a diet that satisfied even a growing boy's appetite brought up the yearly average gain in weight from 3.85 pounds to 6.98 pounds and increased the gain in height from 1.84 to 2.63 inches.

The boys used as subjects for the experiment, mostly foundlings who had previously been examined to exclude the possibility of disease, were housed in cottages in a suburb outside of the city. Living conditions and discipline were excellent, according to Dr. Mann, while short vacations and absences assured almost continuous observation throughout the whole period.

The boys were divided into different groups, one of which received only the basal diet that was planned to meet the demands of the child of school age. This

dormitory fare was judged by physicians to be equal and even slightly better than that customary in working class homes, while periodic physical examination of the boys in this group showed them to be in good physical condition.

To find out what classes of food would produce the most increase in height and weight, other groups were each given extra rations of sugar, fresh butter with a high vitamin content, fresh cow's milk, vitamin deficient margarine and concentrated protein equal in food value to the meat in the regular diet.

The milk and butter groups were found to make the largest gains, the boys who had the pint of milk being way in the lead with an average gain of nearly seven pounds a year and over two and a half inches in height. Casual visitors easily picked them out as "being obviously more fit than the others ". The whole group enjoyed exemption from illness, Dr. Mann stated, when sickness in the other houses was more prevalent than usual.

LIGHT ALLOYS MAY BE METALS OF FUTURE

America leads the world in thepractical development of light tough alloys for structural purposes, Francis C. Frary of New Kensington, Pa., told the American Chemical Society. There are only two light metals, aluminum and magnesium, which seem to face an increasing demand in the future, Mr. Frary said. Other light metals are chiefly used as chemical reagents, but not for alloys.

Magnesium-rich alloys are being perfected and their use in aviation and other fields where lightness is the main consideration and cost relatively unimportant, is increasing. Aluminum alloys on the other hand are competing with brass and steel, especially in the transportation field. Sheet, castings, forgings, and structural shapes made of these alloys, have the strength of mild steel and only one-third its weight, Mr. Frary said, and their use will rapidly increase.

COTTON FROM WOOD IS HOPE OF CHEMISTS

The boll weevil, the bane of southern planters and northern congressmen alike, will be out of a job andhave no place to go if the efforts of scientists to make a soft downy cotton from hard fibers of wood are attended by success in the future. Gustavus J. Esselen of Boston told the recent meeting of the American Chemical Society of the efforts of chemists in their search for new sources of cellulose raw materials and of the possibility of obtaining from wood a cellulose similar to that of cotton. Untold possibilities in the future development of the textile trade may result, Mr. Esselen said, from the application of cellulose chemistry to the industry.
