

Liver Extract For Anemia

Beef liver may be the means by which science will eventually succeed in finding a cure for pernicious anemia, a disease that almost invariably terminates in death. Scientists at Harvard University have established that a diet rich in liver promptly increases the number of red blood corpuscles in patients with this disease and they are now endeavoring to isolate the active principle in liver. Lack of this principle apparently prevents patients with pernicious anemia from manufacturing red blood cells.

Last year Drs. George R. Minot and William P. Murphy of the Collis P. Huntington Memorial Hospital of Harvard University and the Peter Bent Brigham Hospital, reported the successful treatment of patients with a diet containing large amounts of liver. Over 50 patients have now been successfully treated for from 1 to 3 years with a diet containing approximately 200 grams of liver a day. Even though the individual with pernicious anemia knows that he is the gainer thereby, a daily diet of liver in the quantities necessary to replenish the blood with red corpuscles is difficult to take for a long time. Consequently a small dose of liver extract daily that does as much good as 300 grams or more of the whole liver represents a big advance in the treatment of this disease. The causes of this fairly common malady are unknown, though it is believed by some that a predisposition toward it is inheritable. This disease should not be confused with anemia due to common causes.

Dr. E. J. Cohn and his collaborators in the Department of Physical Chemistry in the Harvard Medical School have isolated a non-protein, non-fat containing fraction of liver that promptly produces young red blood cells, and permits the total number of red blood cells to increase. Drs. Minot and Murphy are determining the effectiveness of the clinical uses of the successively purified extracts that are being prepared.

The scientists report that the most concentrated preparation that has thus far been administered produced about four times its weight of erythrocytes, or red blood cells, within a fortnight. An effective daily dose amounts to about one-third of an ounce, or 10 grams. Nine patients with pernicious anemia have been fed the extract with entire success during the past months.

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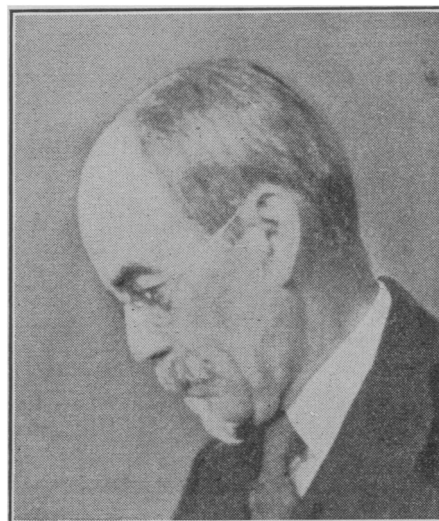
Electrical Rubber Castings

Inner tubes, water bags and other articles of pure rubber, stronger and more durable than rubber obtained by any other process, are now being made by electric moulding, essentially the same process that is used in electroplating silver ware and in making cuts for newspaper pictures, according to the Engineering Research Foundation. The process was worked out by two groups of researchers, one in America and one in Hungary, neither of whom knew that the other was engaged in the problem. The American workers were S. E. Sheppard and L. W. Eberlin of the Eastman Kodak Company, and the Hungarian group was led by Paul Klein and A. Szegvari.

"Both groups were practically interested in improvement of the quality of rubber goods," an official of the Engineering Research Foundation states. "They knew that when the solid dried crude rubber is worked upon a mixing mill in the rubber factory, the rubber substance was made softer and weaker. They knew that the less rubber was heated or worked, the better was its quality. They also knew that research of chemists in recent years had shown how vulcanization may be carried on at lower temperatures than formerly and the necessary sulphur combined with rubber with minimum of loss of quality. Certain substances known as accelerators possess the property of permitting vulcanization to be accomplished at relatively low temperatures. However, if these accelerators were incorporated on the usual mixing mill, the temperature would be sufficiently high to cause vulcanization during mixing and spoil the goods.

"These men conceived the plan of so depositing rubber on forms, from latex, that the rubber particle itself was not altered, and made the astonishing discovery that electro-deposited rubber had the highest quality ever observed. There were many problems to be solved before this was made practical. It was necessary to incorporate other substances to be deposited simultaneously, such as sulphur, zinc oxide and carbon black. These latter two substances are necessary in rubber goods to give toughness. A long investigation was carried out to find means

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JOHN JACOB ABEL

Crystallizer Of Insulin

A man no longer need be old when he reaches the biblical span of three-score years and ten, and Dr. Abel is a living example of this truth, for next Thursday, the nineteenth of May, he will celebrate his seventieth birthday. His latest researches have been among the most important that he has made, and on May 27 the American Chemical Society will bestow on him the highest honor in their power—the Willard Gibbs Medal.

It has only been a few years since insulin was discovered and gave sufferers from diabetes a new lease on life, but despite the success of insulin in medicine, it has been recognized that physicians were not using a pure product. Most chemical compounds, when they are really pure, can be induced to form regular crystals. A few months ago, for the first time, Dr. Abel succeeded in forming crystalline insulin, which shines like bits of uncut diamond when viewed through the microscope. One milligram of crystalline insulin, a piece about the size of a small grain of sand, has as much power to reduce blood sugar as a hundred units of insulin as ordinarily used in medical work.

The next step, and the one on which Professor Abel is now working, is to analyze the substance, and find just what elements, and in what arrangements, it contains. This done, it may then be possible to prepare the stuff synthetically, but with the true caution of a scientist, he makes no promise that he will do it.

This is not the first work that Dr. Abel has done on purifying secretions

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Insulin Crystallizer

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of the so-called ductless glands, for of four such gland extracts that have been purified, he has accounted for three.

A native of Cleveland, Ohio, Dr. Abel was born on May 19, 1857, and graduated from the University of Michigan in 1883. But before his graduation he had served as a high school principal, and as superintendent of schools, at La Porte, Indiana. Then he studied at Johns Hopkins, Leipzig, Strassburg, Heidelberg, Vienna, Berne, Wurzburg and Berlin, receiving the degree of M. D. from Strassburg in 1888. From 1891 to 1893 he returned to Michigan as a member of the faculty, but in 1893 he became professor of pharmacology at Johns Hopkins, the post which he still holds.

Science News-Letter, May 14, 1927

It used to be thought that heat was a fluid.

The fastest racing greyhounds have very large hearts.

Rats cost the British Isles 75 million dollars a year in damage.

Rubber Castings

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to disperse them in water, mixed with the latex particles, without coagulating the latex. A noteworthy achievement has been the discovery of means by which these rubber layers may be free from bubbles, for when an electric current is passed through a solution, bubbles of gas are formed on anode and cathode. So they hit upon the scheme of surrounding the anode with a porous clay diaphragm. The anode is therefore immersed in electrolyte inside a porous clay cell or dish and the rubber particles together with those of zinc oxide, sulphur, etc., are deposited upon this porous so-called anode diaphragm. Thus the rubber as it collects forms a continuous, homogeneous, tough covering of uniform thickness. Any thickness up to an inch or more is practicable. Rubber thus formed is stronger than rubber prepared by the old methods, and is free from gas or air holes.

"Industrial development is already well advanced. Continuous, automatic production of certain kinds of articles is feasible. Manufacture of inner tubes for automobile tires is the most important application, if quantity be the criterion. Bathing caps, stationers' plastic bands, tobacco pouches and hot-water bottles are other examples. Insulation for wires and other things electrical is another application. No high temperatures are used. For impregnating textiles the rubber can be more intimately applied to the fibers."

British and American interests, it is stated, have united to form a corporation to bring goods manufactured by the new process on the market in large quantities.

Science News-Letter, May 14, 1927

It is believed that among barbaric tribes as well as civilized races a majority of both sexes were right-handed.

England found time during the World War to send out two expeditions to test the Einstein theory of relativity.

After the Japanese earthquake of 1923, about 300,000 of those who fled to the suburbs made their homes there permanently.

Nearly all genuine armor and weapons of the Middle Ages are in the hands of national museums or private collectors.

Liver Extract

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The chemists are still uncertain as to the exact amount of the effective substance in the liver extract, since despite the fact that the purification has proceeded far, a large part of the material in the present mixture may eventually prove to be inert. After further purification it may be possible to isolate the chemical substance, or substances, that are specifically involved, and thereby learn more of the reactions and of the physiological mechanisms that are disturbed in this disease.

The development of the use of liver extract in the treatment of pernicious anemia may be as important in its way as the outstanding achievement in the treatment of diabetes three years ago by the use of insulin, an extract of a particular part of the pancreas. Physicians and scientists are watching the clinical trials of the Harvard liver extract with great interest. Further reports of the treatments are to be made at the coming meeting of the American Medical Association in Washington beginning May 16.

Science News-Letter, May 14, 1927

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