

Cancer Control By Blood Alkalinity

Chemistry

Concluding sessions of the American Chemical Society Institute at Evanston, Ill.

Cancer is associated with and possibly controlled to a large extent, by the relative alkalinity of the blood. This discovery was revealed by Dr. Ellice McDonald, chairman of cancer research of the University of Pennsylvania, in an address given before the American Chemical Society Institute.

Dr. McDonald flatly rejects the germ theory of cancer. At the same time he discounts the idea that cancer cells are of some abnormal species foreign to the human body.

A cancer cell is simply an ordinary body cell which is compelled to live in the wrong liquid environment. The trouble in such liquid medium comes mainly from excess of alkali, coupled at the same time with a low content of calcium in the blood—two factors closely inter-related.

The much-disputed radium and X-ray treatments for cancer are successful, in a limited number of cases, mainly in so far as they reduce the alkalinity of the blood. Experiments have demonstrated an appreciable rise

in hydrogen-ion concentration—that is, relative quantity of acid in the blood—following irradiation. It is still not clearly demonstrated how or why the powerful rays should succeed or fail in a given case.

'Tis an ill wind that blows nobody good. People cursed with "acidosis" are found by Dr. McDonald to be practically immune from cancer. The blood of such individuals, who are usually of sedentary habits, may reach the figure of 7.2 on the biochemist's scale of acidity. A victim of cancer, however, would show a record of about 7.45. Simply expressed, the latter figure means nearly double the alkalinity (or half the acidity) of the value for the former case.

It is likely that families cursed with cancer are composed of persons sharing a family tendency to run low in bodily acid and high in alkali. It is accordingly quite unnecessary to suppose that the actual disease itself may be inherited. Only the tendency is passed on.

When a body cell finds itself in an abnormally alkaline environment, it

simply acts like a yeast cell. It grows. Its cell wall expands and becomes more permeable. It divides, and great increases in number and mass occur. As with yeast again, the addition of sufficient acid stops the irresponsible, wild growth of the cells.

Dr. McDonald's revelations, supported not only by his Philadelphia staff but also by the recent biochemical discoveries of Rene Reding of Cancer Centre, University of Brussels, have thrown a large part of cancer research into the hands of the chemists. Search for new substances capable of correcting abnormal alkalinity is now projected. It is probably not sufficient merely to administer doses of some common acid to a cancer patient. It will be necessary either to attack chemically the fundamental source of alkali, or to foster acid production; these may be one and the same thing. With this will be joined an investigation of new calcium salts suited to the maintenance of decreased alkalinity.

Secret "dope" sold to private owners for addition (*Turn to next page*)

Rubber, Alcohol by Cathode Rays

Chemistry

A new apparatus by which the waste products of petroleum stills and coke ovens may be quickly transformed into rubber, alcohol, acetic acid and valuable drugs and perfumes is announced by Professor H. Plauson of Hamburg, Germany. The active agent is the cathode ray, which is produced in the ordinary X-ray tube but which is here brought into the open, and made applicable to industrial processes on a large scale by Plauson's tube.

This, he claims, is more economical and efficient than that invented by Dr. W. D. Coolidge, the American physicist, in 1925. In the German tube the window through which the rays pass is of gold-plated beryllium instead of nickel. The current required is only 200,000 volts, while Coolidge runs his voltage up to 350,000 or higher.

A further advantage claimed by Prof. Plauson is that he is able to direct and focus the rays upon the chemical to be acted upon by placing it in a powerful rotating electro-magnetic field, which greatly enhances their activity. Under this influence moist air is converted directly into

nitric acid. Ammonia is made from a mixture of nitrogen and hydrogen. The unusable gases given off in cracking petroleum to get the highest possible yield of gasoline can be combined with hydrogen or chlorine gas to form useful products. Synthetic rubber may be made from isoprene with astonishing rapidity. The milk from the rubber tree is quickly converted to a solid and insoluble state without the use of sulphur and becomes brittle if exposed too long to the rays. The liquid forms of bakelite are hardened into the solid shape without heating. With coal, water and air as the raw materials it is possible to make alcohol, methanol, acetic acid, ether and all such products as were formerly produced from vegetation.

Dr. Plauson says that the use of the cathode rays opens a new era in synthetic chemistry which is being actively investigated by the Laboratory of the Society for Ray Chemistry at Hamburg.

The cathode rays consist of streams of electrons, the minutest of all particles, driven off from the cathode of a vacuum tube. They are not capable

of passing through the glass of the tube, but where they strike they start a stream of X-rays which are immaterial and more speedy and so penetrating that they will pass through the human body and thus enable you to see pictures of your bones. The X-rays were discovered in 1896 by Roentgen, a German physicist, and in 1894, Lenard, another German, found that the cathode rays could be let out of the glass tube by a little window through a pane of aluminum foil.

But the most powerful X-ray tubes were invented by Dr. W. D. Coolidge of the General Electric Company, Schenectady; and in 1926 he got cathode rays in abundance by closing the end of the tube opposite to the cathode by a window of nickel, three inches in diameter.

The rays so released are found to have amazing effects on chemicals and on plants and animals. Caster oil, exposed to the rays, become solid. Acetylene gas was converted into a brown powder that could not be dissolved. When a rabbit's ear was placed in the path of the ray the hair came off, and when it grew again it was white.

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Cancer Control by Alkalinity—Continued

to motor gasoline is at least a delusion and possibly a snare. Investigations show that chemicals of real potency in the betterment of automobile fuel are already well known and are now marketed by responsible manufacturers. There is no secrecy in their scientific formula. The search for anti-knock material has been highly scientific and exhaustive. It is probable that no ordinary person outside the great research laboratories has any chance at all of producing something of value to drop by the teaspoonful into a tank of "gas."

Among the chemicals recently sold widely without basis of merit are nitro-benzine and ortho-nitro-toluene, fixed up in perfumed and colored mixtures. These coal-tar products do nothing of significance to the gasoline and may be regarded as a fraud.

More deceptive is the widely known use of mothballs. These may be used either as such, or may be purchased at times in a crushed form under some non-descriptive trade-mark. Experiments carried out by the Bureau of Mines have revealed that mothballs, known to chemists as naphthalene, have practically no effect, good

or bad, on the power qualities of gasoline. The substance does, however, increase the viscosity of the fuel so that the spray of the material in the motor carburetor is cut down in volume. Particularly in the Model T Ford it is well known that most owners waste a large part of their fuel by feeding too rich a mixture to the carburetor. Naturally, the addition of naphthalene cuts down the supply and actually gives more miles per gallon. One could have gotten the same result without expense merely by turning down the needle-valve. With the up-to-date high efficiency carburetors, however, the naphthalene is worthless.

It is considered possible that some anti-knock substance of lower activity than that of the present ethyl fluid may be developed and used in larger proportion because of possible cheapness. Such a preparation may be a compound of some cheaper metal than the lead now used. But there will be no mystery about its identity when it comes.

"No free samples!" was the caution to the audience at the Institute of Chemistry of the American Chemical Society, when they were shown

various types of synthetic gems by Frank B. Wade of Indianapolis.

Mr. Wade reviewed the history of the making of gems, from the first much-disputed rubies from Geneva in 1885 to the present time, when chemically genuine rubies and sapphires have become commonplaces of the market, and even the most prized of all sapphires, the clear blue, can be produced at will.

Tungsten, a few years ago so rare that it was a curiosity even to chemists, is now a household necessity and a household word. Its near relatives, tantalum, molybdenum and columbium, while not so universally familiar, are now produced quite as readily and are finding an increasing use in industry, declared Dr. C. W. Balke, of Highland Park, Ill.

The handling of these metals on an industrial scale presents its difficulties, Dr. Balke said. The melting points are among the highest known for metals, and in order to prevent oxidation during melting, the process has to be conducted in a vacuum or under an inert gas, such as neon or nitrogen.

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Radium Power

Physics

SIR PHILIP GIBBS, in *The Day After Tomorrow* (Doubleday Doran):

Radium heat, we are now told, is a third of a million times as great as the same amount of coal combustion. A pound weight could be made to do the work of 150 tons of dynamite. There is an unceasing supply of this energy in the matter that lies around us. If the scientists can get hold of it, liberate and utilize that atomic force—some of them think they are getting close to the secret—mankind will be put into possession of power so illimitable that all previous forms of energy such as coal and oil and water will become negligible and man himself will be the master of the very source and origin of power.

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A wolf family may consist of as many as 12 pups.

Hardwoods from New Zealand have been successfully made into good newsprint paper at the U. S. Forest Products Laboratory.

The early Greeks regarded sitting on the ground as ignoble, and this position was usually taken only by mourners and suppliants.

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