

Science Reports New Boons to Man

Chemists Approach Isolation of Life-Substance; Discover Arthritis Cure; New Friendly Virus of Shadow-World Brought to Light.

By WILLIAM C. UTLEY

HOW is your supply of cortin today? What? Never heard of cortin? Well, let's hope you have it, whether you know it or not. For without cortin your skin's pigmentation would change; you would slowly become brown, and then you would contract Addison's disease and die.

Cortin is a strange hormone secreted by your suprarenal glands. These are fat bodies above your kidneys and are important to what is called the "symphony of glands." The cortin which they supply keeps various constituents of your blood—urea, potassium and sodium—in their normal relationships.

The exact chemical nature of cortin has long been unknown, and no one has been able to give it to you if your suprarenal glands atrophied and ceased to produce it. The news about cortin today is that the isolation of a crystalline compound closely resembling it, and perhaps opening the way to isolation of cortin itself, was reported at the ninety-second meeting of the American Chemical society in Pittsburgh.

Discoveries Are Many.

Only one of many fascinating discoveries reported in one historic week by the chemical society and the Harvard Tercentenary at Cambridge, Mass., was this. Among the hundreds of papers read, there was one telling of a substance which has relieved many test cases of arthritis, one of the most painful a discovery of a new virus which, instead of causing disease and death, actually destroys bacteria which are harmful to man; new revelations in diet which, it is claimed, are capable of building a race of supermen and superwomen; a new substance prepared from the fig tree which will destroy worms and parasites in human intestines, and many others.

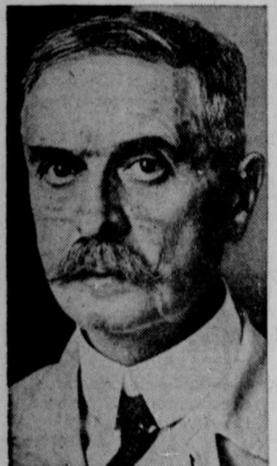
The crystalline that resemble cortin was isolated by research workers in the famous Mayo Brothers clinic at Rochester, Minn., and was presented to the chemical society by H. L. Mason, C. S. Meyers and E. C. Kendall.

"The substance," said their paper, "is capable of maintaining the life of animals which have had the suprarenal glands removed. It is hoped that its study will give an idea as to the action and the chemical nature of cortin itself."

"The concentrates of cortin obtained have very high activity. Exceedingly small amounts are potent. It is impossible to compare the new crystalline compound with these cortin concentrates. Quantitatively it takes more of the crystalline compound to produce the same action, therefore the chemical structure cannot be identical, but full knowledge of the nature of cortin is brought nearer."

Cure for Arthritis.

Of immediate interest to thousands of sufferers is the new drug for the treatment of arthritis, reported to the chemical society by Dr. Herman Seydel, of Jersey City, N. J. The report opened up some controversy between this society and the American Medical association, which declared through its



Dr. Karl Landsteiner, once winner of the Nobel Peace prize for medicine, and a figure at the Harvard Tercentenary.

journal that Dr. Seydel's announcement had been "premature." The latter, however, scoffs at this and cites the success with which he has used the drug on many patients who had suffered from three months to 25 years.

The substance is called a "calcium double salt of benzyl succinic and benzoic acids." Its application of the benzoate group of drugs is said to be entirely new from past uses, in that it "detoxifies" the body fluids or "humors."

"Contrary to the revered belief that arthritis is of infectious origin, we preferred to consider it as caused by intestinal stasis (stagnation), with an accompanying dysfunction of the liver and gall bladder which adversely affects the blood stream.

"Thus we proceeded to remedy it by the treatment designed to better the body humors. We believe that our procedure is sound

therapeutically as it shows itself successful clinically."

Dr. Seydel's compound has for two years been carefully applied at the Jersey City Medical center. "In many cases," he said, "it was found that the compound gave progressive and definite relief of the three major symptoms of arthritis—pain, fever and swelling. The swelling disappeared; the pain was alleviated or driven away entirely;



Andrew Mellon (center) accepts the American Chemical society's bronze plaque for "outstanding service in chemistry" from Chester C. Fisher (left). Richard K. Mellon is seen accepting a similar one in the name of his late father, R. B. Mellon.

movement and renewed use of affected parts were greatly improved or restored."

The drug is a white, crystalline salt "of distinct odor and taste." It is administered without other drugs.

Into the Shadow World.

Evidence of a queer "shadow world" of "creatures" which exist in a sort of twilight zone between living and non-living things was reported at the Harvard Tercentenary by Dr. John Howard Northrop of the Rockefeller Institute for Medical Research. It is a world of viruses, some of which are deadly to man and others, according to Dr. Northrop's discoveries, friendly.

It is a virus which is believed to cause the dread infantile paralysis, as well as the common cold. But the newly found virus is one which has the same power to destroy bacteria as the bacteriophage which saved hundreds of lives during the World war.

A queer property of the virus is that it multiplies itself after the manner characteristic of life only when it is in the presence of bacteria. With no living bacteria present it "goes dead" again.

Dr. W. M. Stanley, a colleague of Dr. Northrop, last year was the first to isolate in crystalline form a tobacco virus which had the property of seemingly taking life, vampire-like, from living beings with which it was associated, but lapsing back into an inanimate state as soon as the living thing was taken away from it.

Fig Sap Kills Worms.

It was the opinion of the scientists present at the meeting that Dr. Northrop's discovery indicates a possibility that there may be more of these semi-beings in their twilight world who—or which—will further aid man in his battle for life against deadly bacteria.

From the milky sap of the fig tree comes a substance which kills worms and parasites in the intestines of men, as reported to the American Chemical society by Dr. Alphonse Walti, from the laboratories of a manufacturer in Rahway, N. J.

Dr. Walti described the product, known as "ficin," as a powerful, protein-cleaving enzyme in crystalline form. He said it was the first ever shown to destroy living cells. Science, heretofore, had believed that enzymes were without effect on living cells. He declared that ficin is the first protein-digesting enzyme to crystallize from plant sources. Its story has a romantic background.

For many years certain native tribes of Central and South America have been known by explorers and others familiar with them to have successfully used a mysterious healing substance, which they called "oje" as a specific for many diseases. They attributed to it, with some justification, extraordinary therapeutic values.

"In 1934," Dr. Walti continued,

"Professors Benjamin H. Robbins and Paul D. Lamson of Vanderbilt university showed that the latex from various fig trees contains a potent protein-cleaving enzyme which is capable of digesting live ascaris worms.

Finding Mysterious 'Oje'

"They found that such a latex was commonly used in Central and South America as a remedy for worm parasites in the intestinal tract; that is, as an anthelmintic. The efficacy of such a latex against whip worm had been demonstrated in Alabama by Fred C. Caldwell of the Rockefeller foundation in 1929.

"Since none of the known anthelmintics had proved satisfactory against whip worm, an investigation of fig tree latex was undertaken about a year ago. It soon became apparent that this material was identical with the mysterious 'oje' previously obtained with such

difficulty from Central America." Dr. Walti and his staff succeeded in isolating the protein-cleaving agent in its crystalline form. "Further investigations of the enzyme are being carried out along various lines," he said. "Crystalline ficin is of the utmost scientific interest as it may help to elucidate the protein metabolism in plants as well as animals."

Diet May Build Super-Race.

New discoveries in the field of diet which, if applied, may result in the production of a race of supermen and superwomen, and may succeed in eliminating idiots altogether were reported to the chemical society by Dr. E. P. Armstrong, president of the Association of British Chemical Manufacturers. He predicted a revolution in the methods of growing foodstuffs.

"There is strong reason to believe," said Dr. Armstrong, "that the finding of biochemistry and medicine will afford conclusive evidence that freshness in food is of paramount importance to a nation, so that there will be a national outcry both for absolute maximum home production and for production of vegetables contiguous to the great cities."

Dr. Armstrong said that science tomorrow must concern itself much more with the study of the farm and food it raises, declaring that the new science of food may even be able to change the mental nature of the people. "A trace of iodine may shift the balance from idocy to sanity," he said. He added that one of the great problems of tomorrow is to find "what chemical substances in food, if any, can give intelligence, courage and alertness to the inhabitants of a city."

"Can we feed to produce nervous strength and mental agility?" he asked. "At present it is more than doubtful if chemical factors alone in the food are sufficient to achieve such ends, for we are biological and not physical entities," Dr. Armstrong said.

"All that can be said is that certain chemical elements assume our racial and individual peculiarities; they become truly ourselves, whereas other chemical substances only pass through the body. "Food is the first of all the weapons of preventive medicine, and it must be the function of the agriculturist in the near future to grow complete foods and not mere market produce. Life is so complex that we have forgotten how entirely food is its foundation.

"We have only recently learned that life depends upon the concurrent balanced interactions of a considerable number of material agents in the food, some of them substances directly derived from the soil, others formed in the plant, all indispensable in some as yet unknown way to health and some of them required only in the most minute proportions."

"In 1934," Dr. Walti continued,

SEEN and HEARD around the NATIONAL CAPITAL By Carter Field

Washington.—The Democratic and Republican organizations alike are proving again this year what every politician knows—that presidential campaigns are the most wasteful form of activity known to man, surpassing even the red tape, wasted energy, duplication of activities and poor judgment of government itself.

A very wise politician once told the writer that 90 cents out of every dollar spent in a presidential campaign is wasted. That is still true. No one has much idea at this moment how much the two major parties will spend before the campaign is over. Reported figures do not give much idea. There will be big spending later. Moreover, there is big spending by all sorts of agencies, which do not directly tie in to the national organization, and much spending by amateurs on sidelines.

The probability is that not less than ten million dollars will be spent altogether, and, if the old politician mentioned is right, nine millions of that will be wasted.

Nine million dollars is not much waste if one thinks in terms of federal government spending. And it has the redeeming side that no one has to pay for any part of it if he or she does not want to do so. But there is something about this waste which shocked such a mind as that of Calvin Coolidge, who in 1924 put his friend William M. Butler in charge for the main purpose of holding the costs down—knowing all the time, incidentally, that Butler knew very little about politics, but a great deal about business efficiency.

Yet even in that campaign, with an efficient business man in charge, and with no real necessity of doing anything whatever, literally millions of dollars were wasted. Redistributed, if you like. For of course the money spent went mostly for salaries, postage (which helped the Postoffice department's deficit and thereby helped keep taxes down), printing, etc. There weren't many special trains. Coolidge didn't think much of them!

Consider Pamphlets

In a close battle, such as this one is, however, the difficulty about eliminating waste is that so few people really know what does count in changing votes and what does not. In considering the question, one can dismiss the really effective work—that of a local political organization getting the voters registered and to the polls on election day. Most of that does not figure in the reports of campaign expenses, anyhow.

But consider pamphlets! This writer has been touring the country during presidential campaigns since 1920. In every campaign the closing days have found tons of pamphlets, prepared at prodigious effort and after all sorts of wrangling over texts, standing in unopened packages at local headquarters in states, cities or counties.

With a moment's thought the directing head in either political headquarters would know that most of these pamphlets would meet their fate. Yet they were delayed until it was physically impossible for them to be distributed as their authors fondly imagined they would be, and then rushed out when there remained no possible chance of their finding their way into the hands of the mythical undecided voter who, by reading it, might be influenced.

Even the much discussed campaign textbook rarely appears, even in national headquarters, until well into September. Yet it is supposed to guide speakers who have been busy since early August! And who by the time it appears have long since discovered what points make hits with their audiences, and what do not.

And there remains the point that nobody really knows whether any pamphlet ever changed a vote. There is a known case, about twenty years ago, where a speech in the senate changed a vote, so maybe pamphlets also do.

Case of Talmadge

"Mad Democrats" beat wise-cracking, rough talking Eugene Talmadge, most colorful southern governor for many years, in his race for the Georgia senatorship against Senator Richard B. Russell, Jr.

Talmadge, according to shrewd Georgia politicians, went out on a limb and sawed it off. He was on safe ground as long as he merely followed the lead of Senators Carter Glass and Harry F. Byrd of Virginia, and Millard E. Tydings of Maryland. They merely criticized what the New Deal did. They didn't intimate that they were opposed to the re-election of President Roosevelt. In fact, they stated the contrary. Moreover, they didn't accept what is generally regarded as help from Republican sources in any local contests.

Talmadge did. One of the weakest spots in Talmadge's armor, again citing in-

formation obtained from well informed and, strangely enough, disinterested Georgia sources, was the fact that the American Liberty League spent more than \$40,000 in his behalf.

To show how curious this situation is, let's look at a little happening in the campaign for the Democratic gubernatorial nomination. Right at the height of the bitterness, the supporters of Charles D. Redwine charged that E. D. Rivers, another candidate, had flirted with the Republicans. They produced affidavits seeming to prove that Rivers had been willing to make a race for congress on the Republican ticket providing he was supplied with \$25,000.

Now at first blush that would seem to have been a haymaker, as our pugilistic friends would put it. Especially, as seems to have been the case, if it were true, and that Rivers would not dare deny it!

Why He Lost

What happened was that the Rivers people demanded indignantly to know what the Redwine people meant by getting affidavits from Republicans! What, the Rivers spokesmen asked, did the Redwine people mean by consorting with Republicans, and getting information about Democrats from them? And finally, what were the Republicans injecting themselves into a Democratic primary for? Were they attempting to tell the Democrats whom to nominate?

It may sound crazy to northern and western readers, but it worked. Four country papers, which had been supporting Redwine, were so disgusted with this apparent alliance between the Redwine forces and the Republicans that they switched their support to Rivers!

And to this day Rivers has never denied that he offered to run for congress on the Republican ticket if they would give him \$25,000.

It's a little difficult to draw any logical analogy, but it's there. Talmadge made his great mistake taking himself all the way out of the Democratic party, and by having aid in a Democratic primary from Republicans. He lost. Rivers flirted with the Republicans first, but sternly rebuked his Democratic opponent when that opponent sought to inject Republican artillery into a Democratic primary.

Actually the most amazing thing is the huge vote that Talmadge rolled up. He was beaten slightly less than two to one. One Democratic voter out of every three, in short, approved the man who has been rougher in his criticism of Franklin D. Roosevelt and the New Deal than any Republican speaker in this campaign.

All of which means nothing, so far as electoral votes are concerned. Not a single state south of the Potomac and Ohio rivers will go for Roosevelt by bang-up majorities. The Republicans, nationally, have been kidding themselves about the South ever since 1928. There is no such religious issue this year.

Tenant Farm Problem

Two solutions of the tenant farm problem are being seriously considered, on an absolutely non-partisan basis, by farm leaders in the Middle West who believe that tenant and share-crop farming are a little short of a curse.

This situation has been aggravated by city people buying farms as life-preservers against the possibility of a currency inflation which would wipe out or curtail the value of all "dollar" investments, such as bonds, bank deposits, life insurance, mortgage, etc., which specify the number of dollars.

One of these has worked rather successfully, they claim, in Britain and Ireland, in the drive to break up big estates and absentee landlordism. Whether it would be constitutional in this country is open to grave question.

This plan involves appraisals of farms—not only their sales price at any given time, but on their yield value. Valuations thus determined would be the figures set at which tenants could buy the farms they are operating, rather than the price to which land might be boosted due to the present wave of city folks buying farms as an anchor to windward against inflation.

Under the British-Irish system now being studied by farm leaders the value is not definitely fixed, but is flexible. Thus, if there should be a wide swing in the prices of farm products, which might take the yield value of the farm up or down, adjustments would be made to meet this.

Tough Hurdle

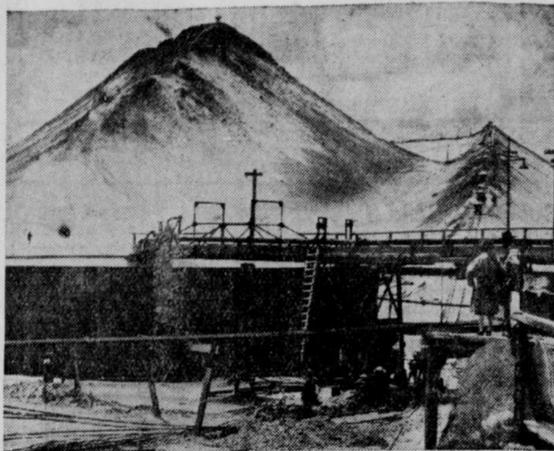
The tough hurdle to get over is the forcing of people who did not want to sell their property to sell at a price thus determined. To which answer is made by those advocating the plan that they would not have to sell, they could come and live on the farms themselves if they chose, in which case there would be no move to force them to dispose of their property.

The other plan being studied involves less constitutional difficulty, but still contains quite a little.

This would be to have two separate rates of state and local taxation on farms. One would be for farm owners who lived on their farms. The other would be for landlords. Naturally in this system the proposal is that the man who lives on his own farm would be made a much lower rate of taxation than the man who owns the farm but rents it to a tenant or share-cropper.

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Golden Johannesburg



Pyramids of Dross at Johannesburg.

Prepared by National Geographic Society, Washington, D. C.—WNU Service.

THE Golden Jubilee of Johannesburg, Union of South Africa, is marked by the opening of the Empire Exhibition of South Africa. Two million visitors are expected as a minimum during the four months' duration of this, the first exhibition outside the British Isles purporting to reflect activities of the entire British Empire, which embraces about one-fourth of the entire earth's land area.

The Jubilee for Johannesburg is "golden" in more ways than one. In claiming a place among the world's most prosperous, this city needs only to mention that it is the center for the ten-billion-dollar gold industry of the Witwatersrand, discovered in 1886.

Thus Johannesburg is the city that gold built. Just fifty years ago George Walker, out for a stroll, accidentally stubbed his toe and kicked into a gold-bearing outcrop of what proved to be the main reef of the Witwatersrand. Here, shaped like a vast bowl imbedded face-upward, was a 70-mile stretch of gold-impregnated rock, now familiarly known as the Rand and surely one of the richest gold fields in the World.

Immediately, upon that treeless uninhabited no-man's-land there appeared a tawdry mining village of tents and covered wagons. Telegraph wires hummed and the village became a raw tin-shack town of 3,000 people.

The prevailing crude process of mining and treatment of ore lost half the gold worked. Yet who cared, since the Reef seemed inexhaustible? Supplies were teamed from 300 miles away. Yet who minded fancy prices? And, as to the water shortage, "All right; let's bring in champagne!"

Thus began the babyhood of Johannesburg, which is to-day, though a mere youth of fifty years, a giant in achievement. The largest African town south of Cairo and chief commercial plexus of the South African Union's hinterland, "Jo'burg" has a municipal area of nearly 82 square miles and some 300,000 people, or about half the population of the Reef, upon which rises this city built on gold.

Now a Cosmopolitan City

A town of such spectacular beginnings needs time to settle down to life's quieter realities. Today, 50 years young and quite used to having an annual \$225,000,000 worth of gold dug up, so to speak, in its back yard, the City of the Reef presents the aspects of a well-rounded cosmopolitanism.

One might expect such fine public buildings as the Town Hall, the Law Courts, and the Stock Exchange. Few visitors, however, would anticipate the planned beauty of some of Johannesburg's suburbs, or the spaciousness of its parks and recreation fields, or its support of art, medical research, and of so impressive an academic seat as the Witwatersrand University.

It is reported that growth even within the past few years has accelerated, to keep time with the amazing boom in the value of gold. Tall buildings are taller and more frequent on the skyline of this South African metropolis—and still going up!

As for the city's play-hour aspects, one might mention innumerable clubs, race meets, sporting events, motor cars like peas in a pod, and as for motor-cycles—watch your step! In off hours the City Built on Gold forgets its world-important mining interests in such relaxations as a quiet game of bowls on swards as smooth as golf greens. For Johannesburgers are one with Drake in their love of bowling greens and the very same game which tradition says the great Elizabethan was playing with the captains of his fleet when couriers brought news of the sighting of the Armada.

Mines of The Rand

Strangely impressive, as one approaches Johannesburg, are these miles upon miles of mine dumps surrounding the Witwatersrand gold fields and stretching across the vast plain like avenues of mammoth monuments. Indeed, South Africa also has its pyramids—pyramids of waste material, running into millions of tons of fine white sands, left from the gold-extracting processes. Their sloping sand-hued massifs suggest military fortifications on a

scale the world has never known.

The Witwatersrand mines present a unique sight. Above ground is a confusing mass of vats, trolleys, bins, trestles supporting pipes and machinery, dumps, headgears topped by cables and whirling wheels, and various structures of wood and iron. Workmen, who are "underground commuters," descend by "skip" (lift) into the interior at the speed of an express elevator for well over a mile into the depths of the earth.

Johannesburgers dig holes as grandiosely as Americans rear skyscrapers—more grandiosely. The shafts of the deepest mine on the Rand at present descend over 8,000 feet, approximately a mile and a half. Plans are under way for mining to the depth of 10,000 feet, nearly two miles.

Atrip below the surface reveals to you a subterranean electric-lit town, with avenues and cross streets, where thousands of men are drilling and loading the gold-bearing conglomerate. It gives you the impression of cleanliness, neatness, and—thanks to the giant elevators—a not-too-uncomfortable warmth.

You stay long enough to watch a surface hoist start off with a load weighing over nine tons, which it will lift up that mile or more of shaft to the crushing and reduction plant in about two minutes. Then you too may ascend once more to what, measuring shafts by skyscrapers, the elevator operator might conceivably announce as "Two hundredth floor, last stop!"

What you have glimpsed is but a tiny corner of what is, in effect, a vast underground city, whose axis measures 70 miles, whose workers number over 300,000 and whose shafts, avenues, and streets exceed 4,000 miles, or approximately the length of the African Continent.

Sports of the Natives

How to handle that grand total of 212,000 men, 90 per cent of them Bantu, who, either above ground or under it, work on the Rand?

Recreation—whether golf, tennis, bowls, swimming, or native dances—is universal, with inter-mine sports as a corollary. As to health and safety, each man regularly undergoes medical examination, first aid is taught to many thousands, while that cheery organ, The Reef, advises you on everything, from keeping fit to giving accident-prevention tips to American visitors in what it thought to be Americanese.

As to native recreation, the "boys' weekly war dance rivals a circus, a rodeo, and a football match combined. Here is a native compound discharging its thousands of black Shangaans who are welcoming other thousands of black M'Chopis, the former tribe's invited guests. A pell-mell pageant of savage magnificence! All are superb in leopard skins, beads, head plumes, oxtail knee adornments.

Iron and Diamonds, Too

How explain the Reef? How was this treasure house built? In order to comprehend, we must imagine successive geologic cataclysms—molten rock being ejected from the interior of the earth; long-vanished seas rushing in to lay sediments thereon; then the sea's retirement, and in its place some great, prehistoric river sweeping through aridiferous regions to deposit its granular gold among that three-mile depth of marine sediment.

But the Transvaal, like South Africa in general, is as varied in respect to treasure houses as was ancient Delphi, with its "treasuries." In the Pretoria region, and also near Rustenburg and in the "Bushveld Complex," there are apparently unlimited iron resources, while the last-named region promises to yield one of the greatest platinum deposits in the world.

And then there are the ever-cropping-up diamonds—one might almost say, those irrepressible South Africa diamonds. Really, one never knows where they will turn up next.

And, just to illustrate how South African diamonds keep cropping up, here is a glimpse of the Lichtenburg alluvial diggings west of Johannesburg. Not ten years ago Lichtenburg was a tiny, willow-shaded Sleepy Hollow of a dorp—sleepy, perhaps dreaming, but certainly not of diamonds. But suddenly one day appeared some 25,000 men, who lined up for the official pistol shot, then rushed pell-mell to peg their claims on what had proved to be a diamond field fifteen miles long by five miles wide.