MEDICINE AND ITS OUTLOOK

Rapid Review of Advances in Medical Science as Given by W. McKim Marriott, M.D., in Current "Worlds Work"

Advances in medical science do not come as the result of isolated brilliant "discoveries," but through a slow process in which many workers of necessity take part, each contributing some essential observation. The notable achievement of to-day may be possible only because of the controlled scientific observations of a past generation. Medical science has as its basis chemistry, physics, and biology, and consists in the application to the human body of the facts established through investigation in these sciences. It is in this way that the problems of disease are solved. Many of these problems are now nearing solution and although it is impossible to predict which pieces of investigation now, under way will be completed in the near future, it is possible to indicate the general lines of endeavor and the nature of the progress which may be expected.

Body Structure

The gross structure of the human body is now well understood, but the finer structure of the cells and the nature of the life processes occuring within them is less completely understood. Recent advances in our knowledge concerning the nature of matter in general and particularly the electronic structure of atoms and molecules have provided new methods for attacking the problem of the nature of the cell, which is the basis of the living body. The individual cell is now seen as a complete physicachemical system in unstable equilibrium, affected by a variety of influences, and capable of affecting other cells by means of products elaborated within itself and carried to distant parts of the body. The conditions influencing cellular action are becoming known and the products of cellular activity are being isolated and identified. Perhaps the most spectacular result of investigation of this type has been the finding that the disease diabetes may be controlled by a cellular product "insulin." A number of similar substances have been identified and at least one has been produced artificially; more will undoubtedly be isolated in the near future. In these cell regulators, or "hormones," we have a most effective means of controlling the functions of the body almost at will.

Bacteriology

In the study of the living organism we are constantly confronted with the influence of parasitic cells, or bacteria, whose life processes are similar to those of body cells and whose activities are at times salutary and at others detrimental to the host. The science of bacteriology is now concerned more with the life processes of bacteria and the nature of the struggle between parasite and host than with the description of new micro-organisms. Certainly most of the bacteria capable of producing disease have been identified and described; an occasional new germ may be discovered and doubtless important observations will be made concerning the nature of the so-called "filtrable viruses," living matter acting like bacteria but far smaller in size.

The most significant advances, however, will be made in additions to our knowledge of the mode of action of bacteria and the effective means of defense against these invaders. Bacteria bring about their effects through the elaboration of poisonous substances known as "toxins." Body cells, on the other hand, produce "antibodies" capable of rendering inert the bacterial toxins and of destroying invading bacteria. It is the goal of chemistry and of bacteriology to determine the precise nature of toxins and antibodies and to produce in the laboratory means of defense against bacteria which will supplement the activity of the body cells.

Through a study of the products of bacterial growth and the reaction of body cells there will be evolved methods for the prevention and cure of the various infectious diseases which may prove as effective as those now used against diphtheria. Practically every bacterial disease from scarlet fever and pneumonia to the ordinary "cold in the head," is now being attacked and each year will see the development of some new means of defense against the invading army of bacteria.

Study of Cancer

The newer knowledge which has been obtained regarding the nature of cells is leading us nearer to the solution of the problem of cancer, for cancer is merely disordered cell growth. There is probably no single cause of cancer. Numerous factors may disturb the equilibrium of cells and start them on a career of uncontrolled activity — chemical and physical agents, bacteri, improper nutrition—any or all of these may be factors. A cure for cancer will be found in methods of re-establishing normal cell equilibrium and efforts in that direction are now under way.

Surgery as a mechanical art has reached a high degree of perfection. Every part of the body, including even the brain and interior of the heart, has been successfully attacked. Various structures and even whole organs have been transplanted. Minor technical improvements in surgery will be made, but the most important developments will be in the prevention of conditions making surgery necessary. Methods for the control of bacterial infections and the development of an effective treatment for cancer would diminish by at least one half the number of necessary major surgical operations. The problem of wound healing is now claiming the attention of surgeons and it seems likely that as a result of investigations now in progress means will be found for speeding up the processes of repair in the body. Broken bones will be made to heal more rapidly and the period of disability following injury or surgical operations will be correspondingly shortened.

Obstetrics

Great advances have been made in the field of obstetrics, but the bearing of children should still be classed among the dangerous occupations. Much work remains to be done concerning the relation of the unborn baby to the health of the mother and the influence of the mother's condition on the development and health of th einfant. Childbirth is not as yet a painless process and deforming injuries to the baby occurring at the time of birth are all too frequent. Happily, means for the solution of some of these difficulties are already at our disposal and others are in process of development.

Rapid advances in the field of mental and nervous diseases are bing made as a result of increased knowledge concerning the nature and activities of nerve cells. We may perhaps look forward to the establishment of a physical basis of insanity and a chemical basis for the influence of the mind on bodily functions.

Keep Well

The most important practical applications of the development of medical science lie in the field of preventive medicine and public health. Epilemics are no longer considered visitations of an avenging providence, but as preventable accidents. The physician of the future will spend more time in treating those few who succumb to injury and to macterial infection.

The veil of secrecy which has shrouded medicine in the past is being rent apart. Education in health is assuming an importance as great as that of the traditional "three R's," and as a result the future will possess the blessings of health, happiness, and increased efficiency for thousands who would otherwise succum to preventable diseases.

SPORTS MONEY

Not So "Easy Go" With Pros Now Says Writer

The younger generation in professional tahletics like the younger generation in everything else is wiser than the old.

That is the opinion of W. O. McGeehan, famous New York sport writer, who contributes an article to the July issue of "Vanity Fair Mazazine." The present crop of young pros in all branches of sport, concludes Mr. McGeehan, after watching the old-time stars end their days as night-watchmen, trainers and what-not, have firmly grasped their earning power by the horns with no easing up for sprees and high living, even though they realize that thrifty athletes are not popular.

He continues in "Vanity Fair," "The younger generation of ball players have not the romantic ideal of their elders. With most of them it is a business and quite as prosaic as any business. They have learned from watching the old gentlemen who are spending their reclining years watching the grass grow on the infield of Polo Grounds. They can imagine nothing more futile than watching the grass grow in a ball park or watching anything else about a ball park when 'their dogs go back on them' which is a baseball player's warning that he must prepare to get his money out of something less arduous."

According to Mr. McGeehan even the prodigal Mr. Ruth now has some $30,000 in the bank, while as for Ty Cobb, he is rated as a millionaire in the sporting Bradstreets.

"In the cauliflower branch of the business of professional sport," continues Mr. McGeehan, "the modern athletes are developing both the business and the killer instinct to such an extent that the time is not far distant when the business sense will be overdeveloped. Th growing opinion is that th time already has arrived. Benny Leonard, who resigned the lightweight title has without any evidence of parsimony managed to save about a half million out of his earnings. Harry Wills who left a steady job as a stevedore to become the 'black menace of the Caucasian supremacy in the prize-ring' and not much of a menace as it turned out is about half a millionire."

As for golf, concludes the famous sports writer, you hear neither of great wealth nor of great poverty in connection with professional golfers, perhaps because the base of the profession is Scotch. With the growing popularity of golf, their financial opportunities will become enhanced. You may yet hear of a millionaire golf professional in the United States. I doubt if you will ever hear of a golf professional being buried in one of these 'unmarked paupers yraves.'

Must Be An Eeel.

One Lidardrenussvfdlizimarit goldfish to sell. K. C. Bird Store Co., 1421 Main St.—Kansas City Star.

FARM NOTES

Uses for Rape and Kale

Because of the fact that both rape and kale may be planted profitably quite late in the spring they are often recommended as aids in eradicating weeds. In a pamphlet of the Dominion Department of Agriculture the writer advises early ploughing and cultivation until towards midsummer which in itself results in the destruction of large numbers of weeds. The rape or kale may then be sown and as they soon cover the ground, further growth of weeds will largely be prevented by shading. The rape or kale can later be used as a pasture for sheep, swine or cattle, and they constitute a satisfactory free range food for most kinds of poultry. Instead of being user as pasture these crops may be cut green and fed directly to the animals.

How to Make Lime-water for Preserving Eggs

Lime water is strongly recommended as a preservative for the putting down of eggs for winter cookery, by Dr. F. T. Shutt, Dominion Chemist, in a circular on the household preservation of eggs, distributed by the Publications Branch, Department of Agriculture, Ottawa.

The lime water is prepared by slacking freshly burnt quick-lime, thinning with water to the consistency of cream, then further diluting with constant stirring to the desired volume, when the mixture will consist of one pound of quick-lime to five gallons of water. Perfectly fresh eggs in a suitable receptacle are covered with the lime-water and stored in a cool place. They should not be taken out of the solution until ready for use.

Even although, however, lime-water is a first class preservative for eggs a certain deterioration will inevitably take place. Nothing has been discovered that will fully retain the fine flavor of the new-laid egg.

Securing Good Seed for Next Year

Now is the time to take steps to secure good seed for next year, states Mr. P. R. Cowan, cerealist at the Central Experimental Farm. The best part of a wheat, oats or barley field should be staked off to be harvester separately. Any heads that are off type, weak or diseased heads, other cultivated plants and noxious weeds should be pulled, going over the plot at least three times until it is clean. Before harvesting a strip should be cut around the plot to facilitate a separate harvesting. The binder must be thoroughly clean before the cutting and the plot stooked and threshed by itself. The thresher must be aboslutely clean, and the seed plot threshed into clean bags. If the grain is not dry the bags should be only partially filled and not too many piled together. The bags should be turned over daily until the grain is dry. Early in the winter the seed should be thoroughly cleaned using a scrupulously clean fanning machine and clean bags.

Milking Machines

A great deal of experimental work on milking machines has been done at the Central Experimental Farm, and the results have been summed up in the latest report of the Dominion Animal Husbandman. He states that a high standard of mechanical efficiency has been reached in these machines. The better class of them properly installed, intelligently operated and kept in repair, and thoroughly cleaned after each milking will give good results. The most important factor in the successful use of a milking machine is an intelligent operator. The claim that any child can operate a machine is false and has done a great deal of harm. The operator must be something of a mechanic and at the same time a good herdsman and have an appreciation of the part that bacteria play in milk spoilage.

Special attention must be paid to detail together with great care in cleaning from a bacteriological rather than a visible-dirt standpoint. The milking-machine, unless properly handled, is a prolific source of bacteria in milk and therefore exacts considerable time and expense in its care and upkeep, and unless the farmer is ready to exercise this care he had better get along without one.

Smart silk and wool outfit in subdued tones for street or travel.

LAST OF THE SIX HUNDRED

Another Survivor of Balaklava Joins His Comrades

Another "last survivor" of the Charge of the Light Brigade at Balaklava has gone to join his comrades of the Six Hundred. Ninety-seven years of age, but trim and erect to the end, Sergeant Major Edwin Hughes died in Blackpool, England, the other day. From time to time other "last survivors" of the famous Six Hundred have passed on; but Hughes's claim has, it is said, been borne out by the official records.

In the "Valley of Death," made famous by Tennyson's poem, Sergeant Major Hughes had his horse shot under him and was hurled to the ground badly hurt. Despite his injury, he was able to seize a charger and join in the pathetically brave retreat. He fought again at Inkerman, but the Light Brigade as a collective force was no more; it had been shattered in that twenty-five minutes of terrific peril when it hurled itself, in blind fealty to orders, upon the Russian host.

"Some one had blundered," wrote Tennyson, and he wrote truly. Six hundred and seventy-five men were thrown against thousands, while from the hillsides behind them their comrades and the French watched them go to sure destruction. Not a man of the Light Brigade wavered when Lord Cardigan raised his sword aloft.

Responsibility Still Unfixed.

The question of responsibility for the charge has not been fully settled to this day. For years after the British expeditionary force had returned from the Crimea military circles were split over the problem. But the men of the Light Brigade were heroes. The country was stirred to its depths by their great adventure. The tail of the chestnut horse on which Cardigan led the charge was literally plucked bare by the frenzied crowd when he returned to London.

The British and French were investing Sebastopol on the Crimean Peninsula on Oct. 25, 1854, when the Russian foe sent out a reconnoissance in force, directed toward Lord Raglan's headquarters in the town of Balaklava. At once the allies mustered their forces to repel the assault. On one side of the Valley of Balaklava rose the Causeway Heights and on the other the Fedioukine Hills. Driving forward with a mass of 22,000 cavalry and more than seventy guns, the Russians drove the Turks from the redoubts on Causeway Heights and also occupied the Fedioukine Hills across the valley. The Russian horse, sweeping up the valley itself, descended on Sir Colin Campbell's Ninety-third Highlanders, drawn up only two deep.

There the historic phrase "the thin red line" was born. The Cossacks reeled back before the Highlanders' fire and the Heavy Brigade charged, driving the Russian horse back down the valley to the shelter of a battery of guns. Meantime, the Light Brigade had been awaiting its orders at the other end of the valley.

No Attempt to Warn Commander.

The orders came to Lord Lucan, head of the Cavalry Brigade, from Major Gen. Airy, asking that the Russians be driven from the Turkish batteries on Causeway Heights. These orders were transmitted to Lord Cardigan, commanding the Light Brigade. But Cardigan could see nothing from where he was and led the charge straight down the valley instead of to the right. Lord Lucan, who must have seen the error, made no attempt to warn Cardigan, and Captain Nolan, aide-de-camp to General Airy, was shot in the act of attempting to wheel the brigade, his horse galloping off with its rider dead in the saddle.

It was a mile and a quarter of level ground, with the Russians on thhe heights on both flanks and the Cossacks drawn up behind the guns in front. No more hopeless and no braver charge was ever made in history. The troopers dropped by scores. A final blast was hurled into the Light Brigade's ranks when the oncoming men were only eighty yards from the battery. Fifty or sixty men alone remained in the first line when Lord Cardigan spurred his charger in among the guns. The gunners fought among the limbers with their ramrods, warding off the blows of the sabres.

Meanwhile, the second line of the Light Brigade, led by Lord George Paget, had whirled over the guns and was fighting desperately with the Cossacks. Heading a section of twenty men, Colonel Mayow flung himself upon the whole Cossack cavalry and actually drove them back before he saw the futility of further attack and sounded the retreat.

On the hillsides where the British and French forces were grouped, consternation reigned. Two thin lines of cavalry were flinging themselves against a host.

"Those who saw the Russian battalions, squadrons and guns disposed in the valley in front of the Light Cavalry could scarcely believe their eyes when they saw the brigade move forward and presently break into a charge of which the pace, quickening every moment, carried them into the smoke of the guns and of the rolling musketry which opened at once on them," wrote William Russell, the war correspondent, who was an eyewitness of the charge.

"The lines of horsemen had a perceptible interval between them as they vanished into the war cloud; but ere the impetuous flood swept over the plain, the specks which speedily dropped behind in their course—dead and dying man and horse—told the story of the desperate adventure."

Bravely rallying all that was left of the Light Brigade, Lord George Paget led them back up the valley. This time they had to face only the fire from the Causeway Heights, as the Chasseurs d'Afrique had stormed the Fedioukine Hills and driven the Russians there into retreat. No other support was furnished to the Light Brigade during the action. The Light Brigade now—"not the Six Hundred"—drew itself singly and in groups out of the melee and back to the protection of the allied forces.

Ready to Go Again!"

Lord Cardigan called the roll in a hollow behind a hill Six hundred and seventy-three men and horses had been hurled nto the jaws of death. In all 127 men had been killed and 104 wounded. Seventy-three remained as prisoners in the Russians' hands. Four hundred and seventy-five horses had fallen in the charge.

"Men," Lord Cardigan told them, "it was a mad-brained trick, but it is no fault of mine!"

Spent and weary as they were, the troopers of the Light Brgade were not done yet. "Never mind," rose the cry, "we're ready to go again!"

Beats the Milkman.

A local man has discovered a method of getting to work early each morning He has made arrangements with his daughter to call him when she comes in.—Alva (Okla.) Record.

Trained Setters.

"Where were you boys when I called for you to help me an hour ago" asked Farmer Jones at the supper table.

"I was in the barn settin' a hen," said one.

"And I was in the loft settin' a saw," answered another.

"I was in grandma's room settin' the clock" came from the third boy.

"I was up in the pantry settin' a trap," said the fourth.

"You're a fine set!" remarked the farmer. "And where were you" he asked, turning to the youngest.

"I was on the doorstep settin' still!" was the reply.—The Outlook.

Petty Thief.

"He's stolen hugs and kisses from me."

"Petty thief."

LINDBERGH RECEIVES GOLD RAILWAY PASS

When Col. Charles A. Lindbergh visited Ottawa on the occasion of Canada's celebration of the Diamond Jubilee of Confederation he was tendered an enthusiastic welcome by the thousands of Canadians who crowded the flying field and Parliament Hill for the celebration. On his arrival in the monoplane "Spirit of St. Louis" in which he made his wonderful flight across the Atlantic, the intrepid airman was greeted at the field by Sir Henry W. Thornton, K.B.E., Chairman and President of the Canadian National Railways, and was presented with a life pass, good on Canadian National lines in Canada.

This pass is handsomely engraved in black enamel on a sheet of Canadian gold, mined in Canada.

The photographs show: Top, Col. Lindbergh beside his monoplane as he arrived at "Lindbergh Field," Ottawa; lower, left, the gold pass which was presented to "Lindy" by Sir Henry Thornton, who is shown on the right making the presentation.