

HEALTH

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EDITORIAL



WORK

THERE seems to be no very good definition or exact explanation of what work is. That which is work for one is play for another, and that which is only occasional play for one is serious work for another. In general it would seem that almost any intellectual or manual activity by which one acquires gain, or by which one subsists, is work, while the same activity done only now and then by way of change or recreation may be play. When it is done voluntarily and as play it is usually done with interest and vigour, and is likely to be enjoyable and comparatively easy. But if done under compulsion and of necessity the same activity is often without interest or enjoyment of any kind and becomes irksome and hard and something from which to escape if possible. It would seem, therefore, that it is not entirely the kind of activity that makes work or play but also the purpose behind it, and the attitude of mind with which it is done.

Work that is done with whole-hearted interest, so that some liking for it may be experienced or pleasure derived from it, will be achieved with a minimum expenditure of nervous and physical energy and will cause a minimum of fatigue, while that which is done in a perfunctory manner and as an irksome drudgery will absorb a maximum of energy and cause much fatigue from minimum performance.

The state of mind of the workers is the most important factor in modifying the feeling with which work is accepted. The urge to work in order to preserve life is probably instinctive, and enables the majority to endure toil and drudgery even when other mental factors are non-operative. A few even accept such drudgery with gratitude. In fact the gratitude ameliorates the drudgery, makes it less painful, and elevates the worker into a class somewhat higher than the bullock in the treadmill.

Another respect in which man dif-

fers from the bullock, is his acquisitiveness, that is, his desire to accumulate and own property. The boy is spurred on to work in order to acquire a football or a bag of marbles. When he becomes a man he wants a house, a plot of ground, a railway or stocks and bonds, to acquire which he will work as though his very life were dependent on the possession of them. Gratification of this desire is an additional strong urge to work. Beneath the lash of gain the toiler often hurries to gather wealth far in excess of present or future needs. Were his toil and busy activity always honest and fair, his wisdom might still be questioned, but when for gathering a little heap of gold he works to access, ruins his physical and mental health, deprives himself of spiritual values and robs others of the little they need, he may with justice be classed with fools. Nevertheless, the gratification of this desire for possession is a tremendous stimulus to toil, and be the desire right, its gratification need not be an evil.

Again, man by nature differs from the bullock in his desire for power. The lowliest among men as well as the highest and most powerful, constantly seek gratification of this desire by showing "who is boss around here." The servant is master of a servant beneath him in some respect, and lets no opportunity go by to exercise his power over the other. The foreman in the shop, the petty government official in the exercise of his duty, or one in a position of greater responsibility often make themselves ludicrous in their demands that due fear and respect be paid, and also obnoxious by imposing inconvenience on others because they have the power to do it. Wicked, cruel men, who gain con-

WE APOLOGIZE for an error in giving credit for our April Cover Picture, which was supplied by the *Cement Marketing Company of India Ltd.*, No. 1 Queen's Rd., Bombay, and not by the *Cement Marketing Corporation* as we stated.

trol of governments often find no crime too horrible to commit in order to exercise the power they have wickedly seized.

This desire for power is a human trait and in many creates an urge to work. Work efficiently done may be the gateway to a position of power and influence. Position and influence tend to gratify man's pride and greed, but they may also greatly enhance his usefulness to society. Gratification of the desire for power is not necessarily an evil, though there may not be many who can possess power and employ it righteously. Nevertheless, the desire for power is a mighty urge to work.

The bullock experiences no worry over his reputation, but man does. He wants to be reputed to be good even though he is evil. He wants respect and honour, whether or not these be due him, and often makes himself ridiculous by his display of cheap and gaudy show. He permits his pride to puff him up like an angry toad. He decorates and displays his poor person. He gratifies his foolish pride by building a bigger house than his neighbours, or by riding in a better car. He publicizes himself by building a watering fountain, a shrine, or a temple on which his name must be blazoned in large letters so that none will fail to see it, and gloating over the applause in the newspapers he clips it out and pastes it in his scrap book so that he may often see it and show it to others. Regardless of how bad the heart may be, or how foul the means by which he acquired that which is called greatness among men, his nature is gratified by the reputation accorded.

But a good reputation can be acquired by honest living and efficient industry, and he who gains it by such means need not resort to the questionable methods of others. A reputation based on character may be villified, may be subjected to that which is untrue, may be disrespected, may be relegated to oblivion, but in

the midst of all this it is unmoved and will at last be known for what it truly is. There are those who treasure a good name above riches wrongly acquired, and who find in their work a means for the gratification of the worthy desire to obtain it. A worthy reputation is greatly to be desired, and work so done that it becomes a fair and just means to this end, will be done with interest, with a minimum of fatigue, and will be well done.

Still again, man differs from the bullock in the treadmill in that he needs diversion from the sameness of the task day after day, but from which many see no way of escape, and in which, therefore, their need for interest and enjoyment must be satisfied. To achieve this requires intelligence and spirit of a very superior quality.

That which is only beautiful, that is, which has been made solely for beauty or which is beautifully performed for the sake of beauty, is often just as useful as that which has been made or performed merely to be useful. But not many can paint beautiful pictures, or carve lovely figures or make enchanting music on the harp. The artist does that. But before he became an artist he toiled and drudged for many weary years, often depriving himself of rest, sleep, food, and comfort doing the same thing day in and day out, but robbing the process of its drudgery because perfection was his goal, and finding pleasure in every little step of progress.

Striving for perfection makes the difference. The artist by his labour produces that which is beautiful and enjoyable because he strives for perfection. But the worker at the loom, the shoe-maker, the printer, or the writer at the desk, can also strive for perfection and make of himself an artist at the work he must do if he cannot do what he wants to do. If perfection be the ultimate goal and not merely the making of a passable article or giving passable service, the task one must perform will be deprived of much of its drudgery and invested with a degree of interest and enjoyment. Perfection then becomes the ultimate goal and the day's wage an incident, and life takes on a different meaning. This will make the difference between the artisan and the artist. This demonstrates a rare spirit and a rare degree of understanding. A few work to this end.

Generally speaking, observation does not seem to indicate that very many derive much pleasure or interest from their work. Few are they who do it because they like to do it. Rare indeed are those young men who will put as much heart into their duties in the office, factory, or field as they will into a game of football or chess. The football usually consumes so much of physical energy that should any employer demand the same expenditure for the work for which he pays he would be branded a tyrant, while the game of chess or cards certainly burns up mental energy at a greater rate than anything the clerk does at his desk. Still the football often seems to be rest after a day of alleged physical labour, while a whole evening over the chess board or at cards cures the headache that was a plague all day at the office desk.

Look into any large office room where a group of clerks are at work such as a government establishment where no one has a personal or private interest in the business, and where no one seems to feel that he has anything special to gain by doing his work as well as he is capable of doing it. Look into the faces of that group and only here and there is one to be spotted who seems to be putting more interest into his work or to be working with more intelligence than the bullock. Pick out any one at random. His own careless personal appearance, the indescribable untidiness and confusion of his work table under which his foot wiggles, the sluggishness, and apathy with which he moves, and his amazing tenacity in refusing to do anything today that can by any possible ruse be postponed until tomorrow, indicate attitudes that would rob even football, chess, or cards of interest and enjoyment. No wonder work is drudgery!

Now look at a factory or any other place where groups of workers gather at machines, work benches or in packing rooms. See them run to work when the whistle blows or the bell rings! They do not walk—they run. Is it because of love for their work? Observe them a while. See how the great majority keep their eye on the foreman and the clock. Here again only now and then is one to be seen who really tries to do his best. The majority aim to do as little as possible and still retain their wages. Whether or not they

earn them is not a matter for concern. When the boss is out they loaf, shirk, and cheat in various ways and resort to any trick to avoid the work they are employed to do. A large number of holidays or any event that can be used as an excuse for remaining away from work is accepted as gain. They strike for less days of work and shorter hours on those days, but do nothing useful with the time gained. Everything indicates that all but a few despise work and accept it as a curse and indignity to which they must submit because of necessity and compulsion. It makes of life a dreary, wearisome burden. Were it possible for such to exist without work, they would do none of it.

If any work is to be free from drudgery there must be a personal interest in it, but lack of vision robs most workers of such interest. If their compensation is the salary or wages received, their entire interest is confined to that and not to achievement. Lack of purpose and toil without direction toward some tangible achievement makes work a humdrum, stultifying job, and at length makes the worker capable of nothing better.

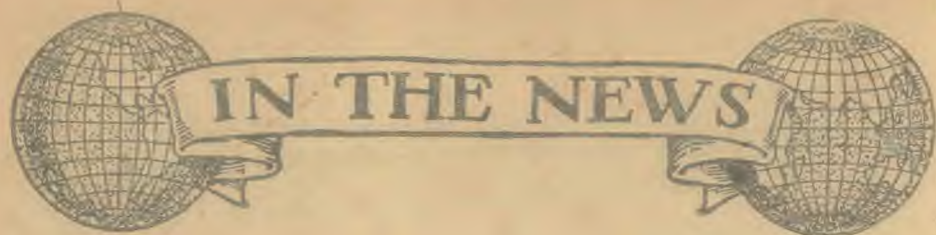
All but a few are lashed to toil and work by the need for a morsel to eat. It is an irrevocable rule that he who will not work shall not eat, though in these lands there are many who try to infringe it, some succeeding fairly well. It is a great blessing that man must work in order to eat and live, for were it not so his energies would be directed into the ways of evil doing by which the world would be made unbearably evil and filled with still greater wickedness than at present. A certain amount of toil is essential for man's physical, mental, and moral welfare, even though it has to be done under compulsion.

The fact that one must work in order to subsist is not a reason why he should deprive himself of the joys of living. Everyone can have a purpose to live for, an objective to achieve, and can thus make something more of his toil than drudgery and burden.

The worry cow might have lived till now;

If she hadn't lost her breath;
But she thought her hay wouldn't last
all day,
So she worried herself to death.

—Selected.



Religious Freedom

THE Rumanians recently passed a religious law guaranteeing religious freedom to all recognized sects, so long as they in turn respect the freedom of other sects. This same law also confirmed the recent denunciation of Rumania's Concordat with the Vatican.

Traffic Regulations

THE Swedish government is preparing a revision of Sweden's traffic regulations which will ban all drivers past seventy years of age, and recommend that the laws affecting intoxicated drivers be applied also to bicycle riders and drivers of horse-drawn vehicles.

Achievement

ALBERT K. GAYZAGIAN, twenty-one years old, has been blind from birth, and yet he has graduated from Harvard University as an honour student. During his four years in college he took notes in Braille shorthand and typed out papers to be turned in to his teachers. He also helped organize a four-piece band and played the piano and clarinet at socials. Albert is now taking graduate work and hopes to receive higher degrees.

Energy

SCIENTISTS estimate that the eyes consume about one quarter of the total nervous energy of the body.

Plastic Surgery

POLYETHYLENE, a new plastic used by the United States Navy during the war for constructing radar equipment, has been found to be an excellent substitute for human cartilage and bone needed in plastic surgery. Noses, eyes, jaws, ears, and large portions of the skull can be reconstructed with it, according to

the *Journal of Plastic Reconstructive Surgery*. The plastic is said to be superior because it will not warp or dissolve but becomes adherent, and resists displacement and post-operative reaction.

Reducing Exercise

If you are overweight you had better cut down on caloric intake. It is more effective than trying to work off unwanted weight. The physiotherapists calculate that you need to walk about thirty-five miles to reduce one pound.

Growth

FISH have been made to grow twice as fast as normally in Loch Craigin, an enclosed salt-water sea in the west of Scotland, by the addition of sodium nitrate and phosphates to the water. The chemicals also increase the growth of the small plants on which the fish feed. The experiment was conducted by Dr. Fabian Gross of the University of Edinburgh.

Printing Press

THE world's largest printing press has just been installed at Concord, New Hampshire, U. S. A. The 258-ton "Goliath," as the pressmen call it, is 100 feet long and stands two storeys high. It turns out 8-, 12-, and 16-page sections of a book of 144 pages, which are all folded and printed in five colours on each side of every page. The giant will soon have an identical machine standing beside it, but at present it alone is turning out 20,000 completed copies of the current edition of the *Reader's Digest* every hour.

Minerals

CONSIDERABLE deposits of pure lead and uranium have just been discovered in Greenland by a Danish expedition.

Language

CARIB Indians of the West Indies speak a different language among the members of each sex. The men have a language which is spoken only among themselves, and the women also have a language of their own.

Coal Mining Machine

THE Sunnyhill Coal Co., near New Lexington, U. S. A. have in operation a twenty-six-ton machine which can take out of a mine 1,000 tons of coal in a day with one man operating it.

The machine is a low-slung, twenty-five foot long contraption which travels on caterpillar tracks. It has two horizontal rows of rotary steel drills which chew out the coal and sweep it on to a conveyor which carries it over the tail of the machine into mine cars.

Pain Killer

A NEW pain-killer, six times more powerful than morphine, has been produced in Britain. In trials carried out so far on patients the drug has given quick relief in rheumatic complaints, pleurisy, heart trouble, sinusitis, toothache, gastric ulcers, and inoperable cancers. Heptalgin (the name of the drug), can act within a few minutes and rarely takes more than half-an-hour, while its pain-killing effects last for at least three to four hours. Swallowed in tablet form or given as an injection it attacks the seat of the pain without producing drowsiness or a feeling of depression. While it is too early yet to say with certainty that Heptalgin is in any way habit forming, it has been established that addiction to this drug is certainly less likely to occur than with other analgesics. Heptalgin is already being sold to overseas countries.—*London Press Service*.

Auto-Operation

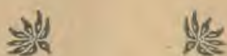
DR. THEODORE HERR's appendix was causing trouble. The thirty-seven-year-old decided to remove it, and in order to find out how his patients felt, he injected Novocaine and operated on himself. An assistant handed him the instruments as he worked in a half-reclining position. Next day he was out of bed, attending to his patients. He says that he is not very sympathetic with vocal suffering.



B. I. S.

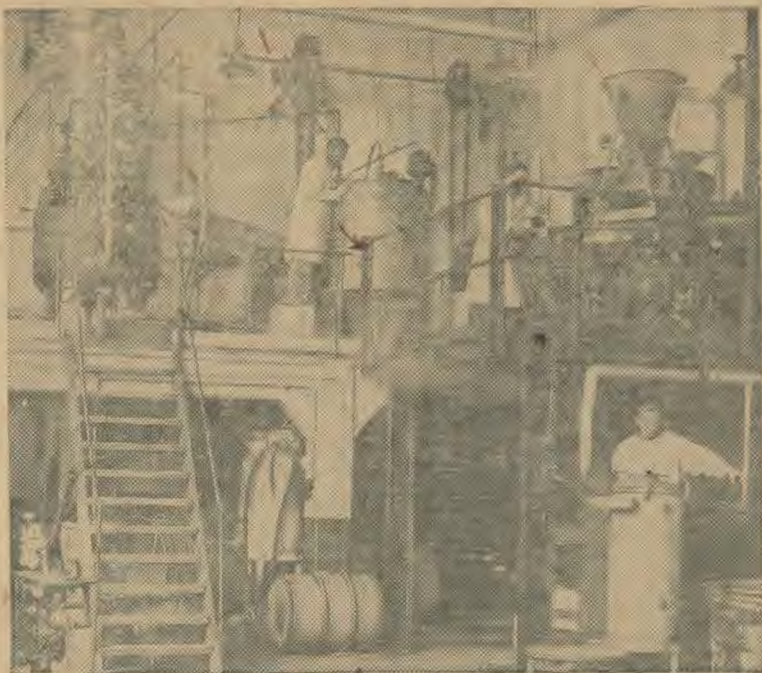
Mobile Hospital for Workers

The conception of bringing the doctor and the nurse with full equipment to the patient has been realized by the industrial workers of Slough, England, where a mobile dressing station, with the required medical facilities, is now available to the workers. It is the first of its kind in Britain, and has, judging by the numerous inquiries received, obviously aroused world-wide interest. The picture on the left shows the treatment room of the mobile unit and a patient receiving treatment from the nurse.



A Cure for Leprosy

This plant has been specially constructed for the manufacture of sulphetrone, the new sulfa drug discovered by British medical men for treating leprosy. This most dreaded disease which for centuries has been considered incurable, and the victims of which have been subjected to the most rigid segregation, is now found to respond to this new British drug.



B. I. S.

NOW IT'S THE GLANDS

G. K. ABBOTT, M.D.

THERE is always an exaggeration of affairs in a newly explored field. In the same state of over-emphasis is the matter of psychosomatic medicine.

"Formerly, when a child didn't turn out as well as it was hoped he might, the parents remembered that in his infancy some inattentive nurse had dropped him on his head; now it's the glands! If you are too tall or too short, too fat or too lean, too nervous or too dull, it's the glands! If you lack hair or have too much, if your skin has pimples, if your nails are brittle, if your child wets the bed, if your arms are too long or your hips too wide, it's the glands! If your physician can't account for your complaints on any other basis (even allergy, a psychosomatic relationship, or a vitamin deficiency) then it's your glands! Granted that these are unscientific and exaggerated statements, they contain as much truth as the equally unscientific and exaggerated claims of many 'endocrinologists.'"—*Collected Papers of the Mayo Clinic and the Mayo Foundation* (Philadelphia: W. B. Saunders Co., 1942), Vol. 34, p. 449.

"An attitude is gaining ground among the profession as well as with the laity that if a man has no demonstrable defect and still persists in being ill, he should consult a psychiatrist. Or since psychiatrists are rare and such patients seem to be innumerable, he should perhaps try to find someone who for want of a better term has been called a specialist in psychosomatic medicine, and who has become especially interested in the relationships and interplay of organic and emotional disease. Such an attitude may have some justification in expediency to meet existing conditions but can do little toward the final solution of the problem. Psychosomatic medicine is medicine itself. The role of humanist cannot be assigned to any one group, whether its members be called psychiatrists, psychosomaticists, or priests. The study of man and his values is at least as much a part of internal medicine as physiology, chemistry, or anatomy. Fundamental concepts which involve or modify our understanding of all disease can never be regarded

as clinical specialties... By no means are all internists involved in these defects: Osler, Francis, Peabody, and many others of our predecessors were great humanists who in being so never lost their respect for science."—David P. Barr, "The Responsibilities of the Internist," *Annals of Internal Medicine*, August, 1947.

Do our glands control our mental and emotional behaviour? Does the mind project into the fingers and toes distresses and disturbances which do not really exist in these peripheral parts? This latter field is just now receiving great attention. To a physician who keeps his feet on the ground of scientific facts this seems a rather fantastic, or at least a highly imaginative affair. Nevertheless, there are certainly many subjective distresses of great variety which cannot be shown to have an objective or demonstrable cause in the part where the distress is located. And besides this field there are emotional, nervous, temperamental, and other apparently purely psychic states which likewise have no obvious anatomical basis. What are the causes of these mental and nervous phenomena?

Since I have had experience with many such "cases" and by reliable criteria identified and relieved them, I would venture a few observations. There are two so-called ductless glands which bulk large in this field of intangibles—thyroid and ovarian. Only one of these applies to both men and women. This is thyroid gland degeneration, with an accompanying low metabolism, or hypothyroidism. There are not only all sorts of bodily distresses as headache, backache, numbness, tingling, aching, soreness, tenderness, but also a great variety of symptoms to which both the patient and the doctor are likely to attach names of diseases which have no existence in fact, and cannot be demonstrated by any known method of examination.

LOCATING THE TRUE CAUSE OF THE DISEASE

Of these latter, especially notable are arthritis, sacroiliac slips, colitis, and even heart disease, merely because the distress is located in these

parts or near them. In some cases of actual arthritis, as shown by X-ray or deformities of the joints, the pain can be, and is, relieved by thyroid extract if there is a low metabolism. A happier adjustment in daily living is often accomplished, and distress is relieved when the metabolism is brought up to normal by thyroid extract properly given. The complete story in the words of the person is the first item in diagnosis. The next is a full and complete physical examination to find or rule out organic disease at the area of disturbance. Laboratory tests must also be taken to rule out or discover other biochemical or nutritional disorders. X-ray is often necessary in this thorough hunt for structural disease. The physician must of necessity have in mind all possible causes of such distresses as are enumerated by the patient. A certain amount of suspicion is also necessary in this exhaustive quest for the cause of the trouble, but diagnosis must be based on tangible demonstrated defects or disorders. Not infrequently this thorough examination leads to a solution of domestic relations. Unfortunately there is almost no account of these affairs in physiologies or books on endocrinology. Many metabolism tests are done on persons who are not in basal condition, and hence moderate degrees of deficiency are not discovered.

Moreover, the lower limit of the range of normal metabolism as given in all the books for years back and down to date is not correct. Minus 10 per cent is not the lower limit of normal, but rather about minus 5 per cent. The test must be taken before the patient gets out of bed in the morning in order to secure a reliable figure. There may be as much as 15 per cent difference between the reliable method and the ordinary commonly used method. A restless, sleepless night is almost certain to give a false figure. The treatment, with gradually increasing doses of thyroid extract, is a slow, time-consuming procedure, but is the method that must be followed if results are to be secured.

Much more could be written regarding the great variety of physical, nervous, and temperamental ills, often involving domestic tranquility, which results from hypothyroidism. Some of these are very similar in nature to the nervous manifestations of vitamin deficiencies, and the two may co-exist.

WORRY

CAN CAUSE

RHEUMATISM

EDWARD PODOLSKY, M.D.

THERE is an old saying but a very true one: "Man's mind is man himself," which simply means that mind and body are integrated, and what affects the mind also affects the body. Take worry, for instance. Worry is purely a mental phenomenon, but it can and does have very pronounced effects on the body. Among the most painful of these is rheumatism. However, worry, fear, and emotional upsets are not the only contributing causes of this malady. Age, exposure, and sometimes infection play a role in the production of rheumatism and arthritis. Yet it is a fact that one's disposition, if you please, can affect his bones and muscles.

Dr. Bernard I. Comroe is a well-known authority on arthritis, or rheumatism. In the large clinic he conducts he has found that more than one-fourth of all his patients worried themselves into painful, swollen, aching joints. Says the doctor: "Many patients with rheumatoid arthritis were nervous or highly-strung as children. Depressing influences have frequently been found immediately prior to the onset. More than twenty-five per cent of one series of patients showed a history of worry."

Another well-known physician, Dr. Russell L. Cecil, has found that emotional disturbances, great and small, act as a stimulus to the onset of arthritis. Dr. Cecil lists among the possible causes of arthritis not only marriages gone wrong, financial disaster, and grief, but long-cherished resentments, loneliness, and worry.

Doctors Cobb, Bauer, and Whiting found in a series of patients suffering from arthritis, a significant relation between disturbing situations and the arthritis. The situations found alone or in combination included financial distress, family difficulties, the loss of a parent or spouse and unfaithfulness of a married partner. The effect involved was usually that of worry.



Worry during hours of work or at other times is responsible for much ill health.

Dr. E. S. Jelliffe quite a few years ago found that the emotions play a very important role in the causation of arthritic aches and pains. Environmental stress, especially poverty, grief, and family worry, seems to play a very important role. Dr. Thomas, who also is very much interested in arthritis, after studying a great many cases stated, "The rule was to find that for years the patient had been neurotic; then an unusually severe conflict developed, and in the midst of this struggle arthritis appeared."

A few cases will serve as good illustrations of the factor of emotions in arthritis. G. H., 46, lost his position as a draftsman, began to worry about his finances, his security, and the future. Six weeks later he developed arthritis. Mrs. K. M. saw her husband killed in an automobile accident. Several days later the joints of her hands began to swell. In a week she had a full-blown case of arthritis. Mrs. H. K. fell ill after worrying about her son, who was overseas. She developed arthritis of the hands and knees.

There is the case of a young woman of thirty-two. Her childhood

was filled with hardships. Her father died when she was three. When she was ten her mother became insane. At present she is in great conflict over her obligations to her sister, who supports her. Frequent emotional upsets are followed by swelling and pain in the joints.

Another case is that of a woman of fifty. She had been well all her life and happily married until her husband, eight years ago, ran off with another woman. After this experience, however, she became depressed, and rheumatism developed. But when her husband returned and she resumed her life with him, the pains in the joints disappeared. A little later her husband suffered financial reverses, and she began to worry a great deal. Almost at once her rheumatic pains returned.

Then there was the case of a married woman of thirty-eight. She was the youngest of eight children and was always very sensitive. She married and was quite happy until her husband took to drink and became a confirmed alcoholic. This caused her to worry a great deal. In time she developed arthritic pains in the fingers, wrists, elbows, ankles, and feet.

Another case was that of a man of forty-two. He had been well all his life, was married and making a good living. Then he took to gambling. He lost considerable money and began to worry because he could not overcome his love for gambling. Then he developed pains in all his joints.

Persons who develop arthritis show definite emotional self-limitation and self-restriction. They tend to be independent and self-sufficient, keeping themselves to themselves. They are self-sacrificing. They are over-tidy, over-cleanly, over-conscientious, slaves to routine, and have a strongly developed sense of duty.

Just how emotions operate in causing arthritis is not understood in its entirety. It is well known that emotional tension over a long period of time brings about lasting changes in the sympathetic nervous system, the great network of nerves which operate and control the beating of the heart, breathing, circulation, and other vital activities of the body. Under the influence of adverse emotions the heart increases in rate, and blood vessels go into spasm. Circulation in the affected joints falls below par because the small blood vessels are constricted. The muscles are under constant tension, and this also serves to interfere with the blood circulation, bringing about poor nutrition of the joints.

Muscular relaxation is extremely valuable in all cases of arthritis caused by emotional upheavals, because of the close relationship between muscles and bones. Physiologists tell us that during muscular relaxation the body eliminates toxins, renews used tissues, restores the energy, and eases the tension on all the joints.

A practical programme for muscular relaxation is the following: Muscular relaxation should be practised in the morning before arising and at night after retiring, and also in a moment of leisure during the day. Stretch out on your back, shoulders propped on a cushion, head slightly raised and supported by a pillow. Whenever convenient, remove as many clothes as possible.

The limbs should be extended naturally. Drive all pre-occupations except those of the exercise from your mind. Force your attention upon your whole musculature until you feel a vague pain, a sensation of pulling. This is a sign that your con-

sciousness has become aware of the semi-tension state.

Next relax your muscles as though you wished to be entirely limp. The ideal state, when the pulling sensation is over, is the impression that you are a mass of inert flesh. When the exercise is finished, return to the normal state should not be accomplished suddenly. Take time, and then have a long stretch, like a cat.

Muscular relaxation of the head and face is particularly valuable in banishing worry and anxiety from the mind. First relax the lower part of the face by smiling. Then either close the eyes, or better still, look straight ahead into space without attempting to see. Such muscular relaxation produces mental calm which is accompanied by a vague

sensation of physical and mental well-being.

Breathing is also a very good method to bring about muscular relaxation. Breathing should be slow, rhythmical, and complete. Expiration should not be accomplished before inspiration is complete—in other words, before the lungs are again entirely filled with air. Also, inspiration should not begin before the lungs are emptied, at least to a large extent, of the air inhaled during preceding inspiration.

The two simple physical measures described above will go a long way toward bringing about relaxation of muscles and blood vessels, and easing nervous tension. Prevention is much more effective than a cure.

COMMON COLDS

DR. TREVOR I. WILLIAMS,

Deputy Editor Scientific Quarterly *Endeavour*

IT IS sometimes said rather bitterly that with careful medical treatment one can be cured of cold in a week, whereas if nature is left to take its course it disappears in seven days. Unhappily, this is virtually true and until recently a cold has remained almost unchallenged as the world's most common ailment and one which every year causes tens of millions of working hours to be lost.

During the past two-and-a-half years, however, an intensive study of the problem has been made in Britain at Harvard Hospital, Salisbury. Although no spectacular cold cure has been announced, this special unit set up by the Medical Research Council and the Ministry of Health has just been able to report real progress and the clearing up of a number of important points which have so far been very doubtful.

ANIMALS ARE IMMUNE

The greatest difficulty in studying the common cold has always been that no known animals—except chimpanzees—are susceptible to it, while the ailment itself is not serious enough to bring sufferers to hospi-

tals or clinics where they can be carefully studied. Consequently, laboratory work is extremely difficult. At Salisbury for the first time it has been possible to bring together really large numbers of human volunteers for detailed research. In the two-and-a-half years of its existence, nearly a thousand volunteers have visited the clinic for ten-day periods.

During their stay elaborate precautions are taken to see that they run no risk of accidental infection from the staff or from fellow volunteers, so that the results of the experiments made can be quite clearly understood. While relying on their human volunteers, the research workers have themselves made repeated attempts to find some susceptible animals but quite without success. Hedgehogs, monkeys, ferrets, mice and many other animals all enjoy complete and enviable immunity from this human weakness.

A satisfactory method has been perfected for inducing colds in the volunteers at will. It is done by transferring the nasal washing from somebody in the throes of a cold to the nose of a volunteer. A high pro-



The common cold is not fatal but annoying and costly.

portion of "takes" is recorded, though wide differences in individual resistance have been discovered. Another discovery is that infection is present fully twenty-four hours before the sufferer becomes aware of it. Some normal people without colds seem, from these experiments, to be the carriers of the cold virus.

EXTRAORDINARY RESISTANCE

The virus present in nasal secretions appears in some ways to be extraordinarily resistant. Thus, when stored in intense cold, the secretions retain their infective powers even after two years. On the other hand, some popular writings—which the Salisbury workers have studied just as carefully as records in medical journals—seem to show that in a small community the cold virus dies out in a few weeks unless fresh infection is brought in from the outside world. Thus the Spitzbergen community finds that colds almost disappear a fortnight after the last ship leaves in winter but there is an epidemic as soon as the first ship arrives in the spring.

In Tristan da Cunha, another very isolated community, the same kind of thing occurs though here an interesting fact is that the ships which

arrive after long voyages bring no colds presumably because the virus has died out *en route*. Ships from Cape Town, twelve days away, bring colds but not those from Panama which make a long journey round Cape Horn.

An unsuccessful but none the less important series of attempts was made to cultivate the cold virus in incubating hens' eggs, but four commonly used techniques which have succeeded with other viruses failed. The cold virus which can for a few days reduce the strongest man to misery was apparently unable to thrive in the delicate tissues of an unhatched chick.

Most people have their own ideas about the original cause of colds—the two main schools of thought being that which maintains that all colds are caught from other sufferers and that which believes that cold feet, draughts, and so on are the culprits. The Salisbury experiments suggest that both the answers may be right.

Almost everybody may harbour the virus at some time or another but cold develops only when draught or sudden chill temporarily lowers the body's resistance or when one receives a particularly heavy dose of

infection by coming into close contact with a person whose nose blowing and sneezing is sowing a rich crop of infected droplets.

The ubiquitous handkerchief also seems to be a dangerous source of infection. Experiments with bacteria show that a carelessly flourished handkerchief can contribute enormous numbers of bacteria, and possibly viruses equally easily become airborne. This danger might be almost completely averted if every handkerchief was impregnated with some suitable disinfectant every time it was laundered.

Natural resistance to colds varies enormously from one person to another and in the same person from one year to another. It is on this fact that the reputation of most of the popular cold cures is built. At Salisbury, volunteers received doses of infection thousands of times heavier than would normally be encountered in everyday life, but even so, two people out of every five proved resistant to a single attempt at infection. Very few, however, claimed to remain free from colds all through the year.

A popular belief not altogether borne out by these experiments is that after suffering from a cold one is temporarily immune to another. In fact, however, it proved possible to re-infect some volunteers less than a fortnight after they had recovered from the previous cold.

It is popularly believed that colds are a consequence of cold weather and are, therefore, seasonal in their onslaught. The Salisbury team doubts this. Thus in the West Indies an epidemic of colds may occur in December, when the temperature is a little lower than it is in mid-summer. In other countries, the monsoon and not a cold spell may herald an outbreak of colds. Immunity to colds in summer may be apparent rather than real and a consequence of the fact that instead of crowding together indoors we spend a lot of time in the open air where the chance of infection is much less.

These careful British experiments have not led to the full knowledge of the cause of colds or to any method of curing them, but they have laid a very solid foundation for future work. In particular, they have succeeded in their main object, which was to work out a practical laboratory method for a detailed study of colds, without which no progress could be hoped for.

IT IS the wish of every human being to be in health. We all desire abundant health, vigour, and energy. In order to have this physical vigour, however, not only must we observe certain physical laws of health, but the mind, which is the seat of control of the body, must also conform to certain laws. Many pay little attention to their centres of control—their seat of government, the mind. They are indifferent to its needs, and pack it with undisciplined, untrained, and even evil thoughts, and then wonder why the body which it governs, rebels and refuses to perform its work properly. Nations of the world that fill their legislative bodies with inefficient, undisciplined men, incapable of handling the problems of the commonwealth, soon find their country disintegrating, their people rebellious, their leaders disloyal. Similarly, a body that is controlled by a mind unable to meet the buffetings of life in a strong way, and which readily yields to worry, fear, anxiety, and depression, soon finds itself in a condition of disorder and disease.

The human animal is endowed by his Creator with a mind capable of great development, great power, and great thought. It is His purpose that this mind be used to order and direct our lives intelligently and wisely, so that not only good physical health will result, but a good life as well. In every life, storms, difficulties, and disappointments must come. If our minds are not conditioned to meet these vicissitudes, we yield to worry, fear, depression—all abnormal states of mind, which harboured, bring chaos to our mental processes and illness to ourselves. It is, therefore, vital that we give thought to our mental state. It is vital that we learn how to meet life's problems with peace of mind and spiritual serenity. One writer has said, "Heap worldly gifts at the feet of foolish men. Give me the gift of the untroubled mind."

Someone may ask, "How can my thinking affect the functioning of my body?" The relation that exists between mind and body is very close. When one is affected, the other sympathizes. The mind, being the seat of control, is influenced by abnormal mental states such as worry, fear, and melancholia. These conditions of mind stimulate the hypothalamus, that portion of the

brain controlling the activities of the internal organs. Nerve fibres emanating from this part of the brain carry stimuli which produce changes in organ functions. By such stimulation heart action may be increased or slowed, blood pressure may be raised, digestive processes stimulated or retarded. In fact, all the internal organs may be affected as a result of persistent worry and anxiety. It is normal to be fearful in times of real danger, normal to be anxious in times of threatened losses and the body is uniquely provided with emergency equipment to meet such exigencies. But it is not so equipped to handle these abnormal states continuously. It is the harbouring, the cherishing, the clinging to our griefs and troubles that plays havoc with body functions.

spiration to those about her. During the years when she sensed that her eyesight was failing, she stored her mind with passages of comfort and cheer from the Good Book, as well as many soul-inspiring poems and songs. Then when the blackness of night descended permanently upon her, although advanced in years, she studied Braille, and continued to seek out gems of hope, not only for her own comfort, but to pass on to others. To spread kindness, encouragement, and cheer has been the all-absorbing passion of her life.

Then I think of another, a "most unforgettable character" so ably described by Anne Morrow Lindberg in a recent popular magazine. With brilliant successes in the intellectual world, Edward Sheldon in his late twenties was attacked by a painful and progressive form of crippling

PEACE

I have many patients who ask me, "But how can I overcome these worry habits when I have nothing to be happy and contented about?" In reality the state of a contented mind is not dependent on one's physical condition, environment, or comforts of life. Wealth and luxuries cannot buy it. Success and prosperity are no assurance of its presence. It may be found in every walk of life. Probably the most outstanding examples are to be found in those who have suffered most, for they have conquered the most.

We have all known and admired some individuals who meet life's problems with strong mental fortitude and untroubled mind. Up in the mountains there lives a little woman whose attitude of mind in the face of overwhelming misfortunes has been the amazement of all who know her. Totally blind for years, partially deaf, a great sufferer, with no worldly wealth to provide physical comforts, she has been, and is, one of the happiest souls it has been my privilege to know—ever an in-

JOHN F. BROWNSBERGER, M.D.

arthritis, which finally culminated in complete rigidity of his entire body, imprisoning him to his bed for life. A few years later total blindness also overtook him. In spite of such a succession of staggering catastrophes, Edward Sheldon overcame the miseries of his own life and threw his interests and all the capabilities of his active mind and big, understanding heart into the absorbing work of helping others. From his bed he gave sympathy, understanding, and encouragement to all who sought his help—and they came by the hundreds. Although he is now at rest, the influence of his life lives on, a continuous blessing to all who knew him.

Some may say, "A few rare individuals can do that, but I'm different. My mother was a great worrier, and my grandmother too. I'm just like them. There is nothing I can do about it." But there is some-

thing that can be done. It is possible to change one's thought habits, although definite effort is required. Thoughts may be compared to a stream which flows on and on in a certain direction. If that direction is along the way of discontent and unhappiness, we ourselves will finally become changed. Our natures, our expressions, our characters, will become set and moulded along these lines. In order to change, the stream must be redirected at its source, the thoughts, and allowed to follow another pathway.

Our interests must be redirected, and our lives organized around goals of supreme value. Serenity of mind must replace worry; confidence and trust supersede fear; kindness and love supplant suspicion and distrust; mature attitudes replace childish reactions to troubles; and trust in divine power should take the place of self-trust. With such purposes life may become satisfying, full, and abundant, in spite of handicaps beyond our control. With our minds set on such a worthwhile goal small difficulties encountered on our way may easily be ignored. One writer has said, "If you wish to see far horizons

remedied are the ones to tackle. Disagreeable mental traits should be faced, and an effort made to replace them with desirable ones. Each liability thus replaced increases one's assets for meeting other difficulties. As we frankly face our own deficiencies, we will become more tolerant of others in their weaknesses, and gradually a kindness of heart unknown before will fill the life.

Most of the undesirable thoughts that clutter our minds are fear or worry thoughts. We fear everything. We fear we will not succeed in our race for economic security; we worry because our friends may scorn us; we worry about our personalities; we bemoan our failures; we fear old age; we fear sickness and death. I have known some patients who feared to go to sleep at night lest their hearts stopped beating. Many of those now confined to mental institutions are there because of worry or fear, which, uncontrolled, saps one's vital forces and leads to physical as well as mental illness.

Fear thoughts can actually exaggerate pains in our imagination—pains that in themselves may not be serious but that with ever-present

Experience has demonstrated again and again that he who has peace of mind has also kindness of heart. Failure to be kind to others destroys this peace. We must realize that every person we meet is made of the same human clay as we are, also that everyone is a dignified human soul. To love one's neighbours is to achieve an inner tolerance for the irritating habits of others. Christ said, "I have compassion on the multitude." Not just a few, but all. Our strength is doubled when we show compassion toward humanity. One writer has said, "Our lives must be prisms through which the rays of deep fellow feeling may pass, colouring and lighting a world grown black with cruelty and suffering."

There are untold resources about you that can contribute to your mental health. Broaden your interests. Tackle some interesting activity as soon as discouragement descends upon you. Wholesome pleasure, a programme of work and play balanced by good physical health and the rest, will help to bring peace to the mind. Develop creative hobbies, preferably where the hand as well as the brain may be used. Impelling interest will give the energy. A prominent physician once wrote, "Hard work, plenty of it, whether physical or mental, never in itself produced one single case of nervous exhaustion." And Henry Ward Beecher stated, "It is not work that kills men; it is worry. Work is healthy. You can hardly put more upon a man than he can bear. Worry is rust upon the blade. It is not the revolution that destroys the machinery, but the friction. Fear secretes acids; but love and trust are sweet juices."

Association with noble works of art and literature helps to promote inward peace, although these alone are not sufficient to satisfy the soul. One great aid in restoring serenity to a troubled mind is to listen to great inspiring music. To understand and appreciate good music is to have an additional weapon with which to fight life's battles. The right kind of music should become as much a daily factor in building and maintaining mental health as proper diet and sleep.

*"And night shall be filled with music,
And the cares, that infest the day,
Shall fold their tents, like the Arabs,
And as silently steal away."*

MIND

from some mountain-top, you do not howl and moan over every little stretch incidental to the climb."

Self-understanding is essential to sound mental health. The old adage "Know thyself," is wise. One of the first steps to take is to examine yourself, get acquainted with your assets and liabilities, study your problems, face directly and unemotionally all the factors involved in your life. In this examination you will find that you have two kinds of liabilities, problems, or defects—those which can be remedied and those which cannot. There may be physical or environmental handicaps beyond your control. These must be accepted and compensated for intelligently. The liabilities that can be

fear may grow to be serious in condition. This fear affects the nervous system, the functioning of the glands, the work of the organs, until we really do have diseases that are difficult to cure. Fear thoughts should be replaced with happy, cheerful thoughts. Joy in the heart is revealed to others by the smile on the face and the cheer in the voice. Cheer has definite therapeutic value, not only for the one who has it in his heart, but also for those about him. The wise man said, "A merry heart doeth good like a medicine." Joseph Addison once wrote, "Cheerfulness keeps up a kind of daylight in the mind, and fills it with a steady and perpetual serenity." This is the state desired by the troubled mind.

FOUR-YEAR-OLD Tommy had behaved very badly. He had scribbled all over the walls in the dining room, and when his mother had scolded him and taken away his crayons he had thrown himself on the floor in a rage. When his father came home at supper time Tommy's mother met him at the door.

"We've just got to do something about Tommy," she said. "He is completely out of hand. You must punish him tonight—I've tried everything."

Tommy's parents were not unusual in feeling that if only they could find the right punishment they could control their child. Punishment seems to many parents the key to good behaviour. They feel rightly that little children need to be controlled, but too often they feel that control means punishment rather than guidance toward desirable behaviour.

The faith that many parents place in punishment has grown out of our past. It has come from the attitude of many of our parents and

Because we now know that children are not inherently bad, we no longer need to feel that we must make them good; we can accept the idea of helping a child to become a desirable person by guidance rather than by force or punishment. Now we think that punishment is a method of teaching acceptable behaviour only when other methods of guidance have failed, and that even then it should be used sparingly. It is perhaps the least effective way of teaching a small child the difference between acceptable behaviour and that which is unacceptable.

A little child has many things which he must learn. He comes into the world with impulses which are not acceptable to the adults in our society. He likes to play in the dirt; he wants to touch everything, to pull things down, to feel them, to play with them; if he sees something he wants he will snatch it, and even hit or kick the person who stands in his way. This way of doing things is natural for the young child. He is not being bad or naughty. On the other hand, if he is going to live with other people and get along with them without too much friction, he must learn that there are other ways of behaving.

Learning takes place best when the child is interested in what he is doing and receives some satisfaction from the experience. Sue's mother

When she is older she will be able to put things away without Mother's help. Because she felt pride at being praised for a good job, Sue is likely to help her mother much more readily than if her mother had said, "Put away all those toys, Sue. It is supper time."

It is true that children can also learn through pain or punishment, just as Sue might have learned to pick up her toys if she had been scolded and spanked when she didn't. Learning which comes from pain may also bring feelings of tension, of bitterness, and of rebellion. Two-and-a-half-year-old Phil was playing on the floor when Mother came into the room to tell him lunch was ready.

"Come and wash your dirty hands, Phil, lunch is ready."

"Won't wash hands, won't eat lunch," shouted Phil.

"Come this minute, you naughty boy, and do as you are told."

But Phil held his ground until Mother spanked him and dragged him howling into the bathroom.

"I hate you, you bad Mummy," sobbed Phil, hitting at her and trying to bite while mother scrubbed his face and hands. Phil's mother

GLADYS GARDNER JENKINS

DOES

Punishment

WORK?

of our parents' parents before them. It used to be thought that a child was born "bad" and that it was the duty of the parents and teachers to make him "good." This belonged to the period when a child's will was regarded not as something to be guided but as something to be broken. Punishment was considered an essential means toward this end; a child would not behave without it. The old adage, "Spare the rod and spoil the child," grew out of these roots. It is only recently that we have realized that a child is not born bad, but develops into an acceptable or unacceptable person because of those things which happen to him after he is born.

knew this when she encouraged her five-year-old daughter to help put away her toys at the end of the day:

"Let's put your toys away, Sue. Supper will soon be ready. You arrange the dishes on the shelf, and I'll put the blocks in the box."

"I'll put the cream bowl here."

"I'll put the blue, blue saucer here."

"How nice they look!" chanted Sue.

"How nicely you have arranged the dishes. They look so neat and pretty. That is a fine job," said Mother.

Sue had not put all her toys away by herself, but she was learning that things which are used are put back.

may have won; Phil had his hands washed but at what cost to his feelings for his mother and his relationship with her.

Punishment is frequently administered by the adult to call a halt on undesirable behaviour at the moment. The parent who relies on punishment to control the situation usually is thinking only of the immediate issue, not of the permanent lesson to be learned by the child. Johnnie is hitting Betty again, it must be stopped, so Mother hits

Johnnie and takes him screaming into the house. The relationship between parent and child which exists when punishment is a frequent occurrence is rarely desirable. Too often the parent is feeling irritated, tense, and unable to manage the child, while the child is also tense and bewildered by the way in which his parent has swooped down upon him.

Very often a child is punished for behaviour which does not seem wrong to him, but is wrong in adult eyes. When he is punished in such a situation, he is naturally bewildered. Four-year-old Joe wanted to see the pretty things in his mother's bureau drawer; mother had sometimes shown them to him. He opened the drawer, pulled out the boxes, and was happily at play when his mother found him.

"What are you doing you naughty boy? Put those things back at once. Don't you know you shouldn't get into bureau drawers?"

"But Mummy, I just want to play shop with them."

Joe's mother wouldn't listen, and Joe was spanked and shut up in his room. The child of two or three, or even four, is too young to have learned fully that some things are "mine" and some are "yours." How much wiser Joe's mother would have been if she had said, "I know it is fun to play with those things, but those are mine. If you would like to see them, ask me and I will show them to you."

Punishment which is delayed is also bewildering to a pre-school child. The young child has a very short memory span. He cannot be expected to connect punishment which Father administers at night with his refusal to come in from play in the morning. The morning incident is over and forgotten, or if it is remembered the setting is lost. He is apt to feel rebellious toward Father who comes home and scolds and punishes him for something which now has little meaning.

There are times when well-considered punishment can be effectively used to back up learning, but it is out of place with the small child as he cannot yet completely understand cause and effect. Punishment bewilders, disturbs him, and frequently creates anxiety. The little child must feel the security of a warm relationship with his parents. He learns by their expressions of approval or disapproval. But if the



R. Krishnan

Impatient punishment like this does not have the desired effects.

disapproval is too great, so that the warmth of the relationship seems to have disappeared, as it does when the child is spanked, or shaken, or scolded too severely, it is more than he can take. He feels that his parents do not love him if they talk to him like that or hurt him. As one four-year-old put it, "Don't get mad. It worries me."

Frequently a small child who is being scolded or punished is so startled by the change in a parent, that he is completely bewildered and loses sight of what he has done. How much more effective the learning which takes place when a parent says quietly but firmly, "No, you can't do that, but you can do this," or "If you hurt Billy you cannot play with him for a while." This type of guidance begins to teach what is desirable and undesirable behaviour. If it is repeated consistently through the pre-school years, by the time the child is ready for school he has learned to get along with others. A reasonably happy child tends to want to conform and win approval. Guidance is a slow process, but it brings permanent results without the destruction of the warm and friendly relationship which is essential between parents and children.

But many mothers say, "I am too

busy always to give patient guidance. If punishment seems to work, and keeps situations under control, isn't it better to use it? When Molly gets into things I spank her." Her mother had been spanking two-year-old Molly for a year, but Molly still has not learned not to touch things. To be sure, she stops touching when she is spanked; she realizes that Mother is displeased with her, but she does not remember from time to time what it was that displeased her. Molly's natural inclination to touch and explore is strong. Her mother could have taught her much more during the past year if instead of spanking her she had substituted something the child might handle and examine for those things which she must not have. The spanking worked for the moment, but the real learning was lost.

A little child comes into the world knowing neither right nor wrong. At first he knows only his own feelings, whether he is comfortable or wet or hungry. Gradually, as he gets a little older he realizes that his mother approves of some things and disapproves of others. He loves her and he wants her approval. She is nicer when she approves. In his desire to please Mother he accepts what she says as right, what she does not allow as wrong.

The child is in this stage during his early pre-school years. He is not yet at a point of development or understanding in which he can take the responsibility for his actions. He is gradually learning what he may and may not do, but Mother still has to take the major responsibility for seeing that he does what is permissible. If she thinks of his failure to be responsible for his action as naughtiness and punishes him, she makes learning more difficult by harming her relationship with the child. On this relationship learning is based.

By consistently guiding him in desirable ways of behaving, she gradually leads him to the next step—the development of an understanding of what is right and wrong, the beginning of the ability to accept some responsibility for his actions. This happens usually somewhere between four and a half and six.

The tiny child hits his baby sister whether Mother is in the room or not. He hits because he wants to hit; he has not yet learned that hitting is undesirable. The three or four-year-old may start to hit, see his mother and stop. Her presence reminds him that he must not hit. If Mother had not been there he might have hit the baby. The older child has reached a point of development where he knows that he should not hit the baby whether Mother is there or not. Before this point has been reached, punishment for doing wrong is useless. When this point has been reached, we can begin to expect a child to take more responsibility for his conduct.

Five-year-old Mary had been given freedom to go to kindergarten alone, and to visit her friends in the neighbourhood, but it had been pointed out to her repeatedly that the traffic on the boulevard was so heavy that it was dangerous for a little girl to cross alone. Mary crossed the boulevard to visit a friend. Her mother realized that this was a serious enough situation to require punishment, so Mary had to play in her yard for the next two afternoons. Mary was old enough to understand, and punishment was effective.

Even at this age or with an older child punishment should be used sparingly and only when a child has deliberately done something which he knows is forbidden. The most effective punishment is not that which is severe, but that which follows when possible the path of natural consequence.—*Parents' Magazine.*

OUR stomachs are ill-understood and much-abused organs, with a multitude of duties. Not only do they put up with whatever of food or liquid we like to shoot down to them at any old hour of the day or night, but they have a full-time job registering our emotions, and being held responsible for a lot of our ailments. Actually the stomach is merely a dilated part of our digestive tube, and has few of the qualities or functions assigned to it. When a lift stops suddenly, it is the nerve centres in the abdomen influenced by the semi-circular canals in our ears that cause the funny feeling, and not our stomach. It is the same nervous centres that react to fright, rage, etc., and not the actual organ we think is tied in a knot.

hold from one to one and one-half quarts. When empty it holds but a few ounces.

Besides muscle, the stomach has other layers—an inner one or mucous layer, a soft velvety layer, like the inside of the mouth, except for numerous folds or ridges. These are well marked when the stomach is empty, but tend to become flattened out as the organ becomes distended. A sub-mucous layer attaches the mucous layer to the muscle layer, and a serous or peritoneal layer covers the outer of the three muscle layers.

When empty the stomach muscle is relaxed, with only an occasional wave of contraction. When food is swallowed it passes down the oesophagus, or gullet, and by its own weight separates the gastric walls

DYSPEPSIA

DR. J. W. KENT

The ancients referred to the belly or bowels as the seat of the emotions. They knew that unpleasant stimuli had this reaction on the nerve centres in the abdomen, and they blamed the stomach for it. Even in this day and age, we carry the same ideas, and blame the viscus for a lot of our nervous ills. Quite wrongly is the stomach blamed for all this. We may as well blame the third part of the duodenum or the small bowel, as much as the stomach.

But though we may abolish many of its supposed functions, the stomach still has left a very important role—that of being the first receptacle for our food in the process of digestion and assimilation of what we eat. It is essentially a muscular organ with three layers of muscle fibres. One set runs lengthways, a middle set round the organ in a circular manner, while the third or innermost is oblique. These muscle fibres can open out or constrict and thus lead to a small contracted organ. When full, the stomach can

and passes down to the lower part of the stomach, which is called the pylorus. This pyloric part of the stomach is a chamber wherein food is macerated, fragmented, and thoroughly mixed. Waves of muscular contraction called peristaltic waves commence near the middle of the body of the stomach, and sweep downwards over the pylorus. These peristaltic waves are shallow and ill-defined at their commencement, but become stronger as they descend. As digestion proceeds they increase in strength, so that when at their height they bite deeply into the gastric walls. These peristaltic waves when seen under the X-ray appear as a band of constriction that travels down a few inches behind the last band and a few inches in front of the next.

Gastric motility is the term used to describe the frequency and strength of these waves, and this varies in individuals. In some types of stomach the wave travels very quickly, completing its journey in ten to fifteen seconds. In others the

waves take thirty seconds or more. The slow waves are more common.

Aside from these individual differences gastric motility, or the movement of the stomach, is influenced by the chemical character and bulk of the meal. Fats, for instance, slow up the movements. So do the products of protein digestion. Nervousness and excitability tend to increase peristalsis, while other emotional states—apprehension, fear, mental strain, shock, or depression—reduce the movements and the powers of contraction of the stomach. Pain and fatigue act similarly. Severe exercise upsets stomach movements and abolishes them.

Apparently the stomach is a high-spirited and sensitive individual and must be handled with care. But how many abuse their stomachs as they bolt their food, eat under stress and strain, and after a few years suffer from dyspepsia. This dyspepsia refers to the discomfort or distress which follows shortly after a meal, and is believed to have its origin in one or other of the factors mentioned above. When food is taken while one is fatigued, anxious, agitated, or hurried, disturbances of the normal muscle mechanisms of the stomach give rise to unpleasant gastric sensations.

Just how these arise is not exactly known, but it is not unlikely that it has to do with an upset in the normal descending waves of peristalsis. Some believe that reverse waves arise which lead to a feeling of heartburn, belching, and a feeling of discomfort. The nervous state referred to as psychic factors leads to the so-called nervous dyspepsia. According to Alvarey, a famous American bowel physician, this is "the disease of the mother who prepares the meal, and then wrangles with the children or husband at the table; it is the disease of business men and women who gulp down some food at a counter and rush back to work; and it is the disease of the president of the luncheon club, or of the travelling sales manager who gives 'pep' talks at lunches and dinners."

Alcohol in small doses increases peristalsis—the *raison d'être* of the before-dinner drink. So do coffee and small amounts of bicarbonate of soda. Smoking, however, depresses the muscular movements. So do infectious fevers (hence the reason for light, soft, easily digested

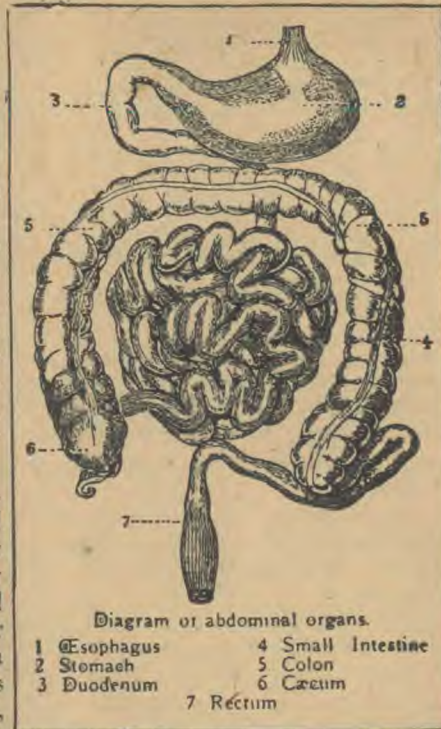


Diagram of abdominal organs.
 1 Esophagus 4 Small Intestine
 2 Stomach 5 Colon
 3 Duodenum 6 Caecum
 7 Rectum

foods during a fever), and vitamin B₁ lack has a similar action.

After about three or four hours the contents of the stomach, having been rendered fluid or semi-fluid, have passed on to the intestine. This more or less homogeneous creamy material with gruel-like consistency, is called chyme. The process of digestion starts in the mouth, where the food is mixed with the saliva which contains ptyalin, a ferment to digest starch. Being swallowed, the ptyalin if thoroughly mixed with the food has most of its action in the stomach till the rising tide of gastric acidity stops its activity. Besides the digestive action, saliva has an important action in moistening the food to be swallowed, thus enabling it to be rolled into a plastic mass which is given a lubricant coating. Try to eat a dry biscuit in a hurry; it sticks in the throat till the saliva comes to help it.

The stomach has glands in its walls which secrete the gastric juice, consisting in the main of pepsin, a protein ferment or digest, and hydrochloric acid. This gastric juice, up to one-half to three-quarters of a pint, is poured forth in response to two factors. The first is the psychic factor, i.e., the thought, sight, or smell of food; the other is the gastric phase, i.e., the presence of food in the stomach calls forth more gastric secretion. As previously de-

scribed, worry and anxiety retard gastric movements. These have the same effect on gastric secretion.

The application to dietetics becomes obvious—foods agreeably flavoured and attractive in appearance, impressions received from a meal prepared in a pleasant way, and most likely also sensations aroused by the surroundings, all have an effect on gastric secretion. The gourmet is on sound physiological grounds—his food does him good. Not so the glutton who overeats, nor the anxious worrying type who hasn't enough juice to digest his food.

Care, worry, and anxiety appear then to have a bad influence on the stomach. Firstly, the food is bolted, is swallowed in big lumps and is not properly mixed with saliva. Secondly, there is not the usual outpouring of gastric juice to digest the food. Lastly, the muscle action or gastric motility is far below normal level. All these factors add up to dyspepsia. It occurs in the man who can't eat, whose meals lie in his stomach for hours, and not being properly digested do him no good. The same result occurs in chronic alcoholics and heavy smokers. A few simple rules then appear quite justified as a result of the consideration of these factors, and we present them as a preventative and cure for dyspepsia and chronic digestive upsets.

1. See the food is palatable, appetizing, nicely prepared, and eaten in pleasant surroundings and in a pleasant, calm atmosphere.

2. Never eat in a hurry or when upset or worried.

3. Chew the food slowly, mixing it well with saliva.

4. Avoid rushing back to work or business immediately after a meal. Give the stomach a chance to digest the food. The results of our age are seen in the dyspepsia and ulcer incidence. Follow the above rules and good health will be yours, or at least your tummy won't bother you.

Sight-Seeing

DOMENICO GERMANO, eighty years old, after spending fifty-one years in prison in Turin was recently released. He spent his first night of freedom seeing for the first time in his life, tram cars, buses, bicycles, and cars. He is planning a voyage of 7,000 miles to Argentina to see his family.

HABITUAL

I. R. BAZLIEL, MAJOR, I.M.S. (Ex.)

CONSTIPATION

THE term constipation cannot be defined in absolute terms, the frequency at which normal persons have bowel movements varying widely. Some may have two or three movements daily while others may have two or three per week. Whatever the frequency, bowel movements in a normal person occur regularly. So we can define constipation to be a disturbance of intestinal function, usually of the colon, which results in delayed, incomplete, or irregular evacuation of fæces.

Constipation is a frequent disorder of mankind leading to ill-health. Habitual irregularity is the commonest form of constipation which is being aggravated by modern living conditions. Lack of fresh air and exercise, over-refined foods and nervous tension are important contributing factors. Constipation can be classified into two groups. (a) atonic: where there is impairment of the muscle tone of the intestines. It occurs commonly in individuals of sedentary habits who have a greater intake than output, developing flabby, lax muscles and obesity. In this country such specimens are predominantly exhibited in market places. (b) Spastic constipation: occurs in persons with nervous temperaments and excitable natures. The causes of constipation can be well grouped under the following headings:

1. MECHANICAL, such as pressure on the intestine by abdominal tumours, kinks or twists in the intestines, narrowing of the lumen of the intestines due to ulcerations, scars, tuberculosis, syphilis, and cancer.

2. DYSCHESIA is a difficulty in expulsion of fæces from the colon due to painful stimuli from fissures, piles, fistulæ or enlarged prostate.

3. INHIBITION IMPULSES which arise in the nervous system or intestinal tract, may be associated with

mental, spinal, or endocrine diseases like hysteria, neurasthenia, diseases of the gall bladder, appendix or colon.

4. FUNCTIONAL CAUSES include disturbances of nutrition, anæmias, fatigue, and impaired tone of the muscles of the colon.

This article is not intended to deal with most of the organic causes of constipation as tabled in groups 1, 2, and 3, but the main idea is to enlighten the readers and especially the non-medical public about the commonest form of constipation which is termed habitual constipation due to functional causes. Such constipation is most often produced by irregularities in time and quality of food, sedentary habits, irregular habits of moving the bowels and inattention to the calls of nature. When once it has developed, it is aggravated by the use of frequent cathartics or purgatives which in turn lead to inflammation and irritation of the large bowel (colitis) and weakness of the bowel muscles (atony). Thus a vicious circle forms necessitating more and more frequent purgations to relieve an almost constant habitual constipation. No wonder the sufferer starts feeling indisposed, lethargic, morose, discon-

tented, and ill-tempered. To make it worse, the quacks and even some of the medical profession express the condition in such ambiguous terms as sluggish liver, intestinal toxemia, auto-intoxication, indigestion, etc. I would prefer to quote below two examples indicating how injudicial use of cathartics can be harmful and ultimately ruin the whole system.

(a) I am personally acquainted with a person who years ago once in a while became constipated which was evidently due to his suffering from piles, resulting in slight indisposition and lethargy. Somebody suggested that intestinal toxemia was the cause and purgation was highly indicated. The advice was most faithfully followed. The result was dramatic but as was natural a severe constipation was the result for a few days after the purgation due to fatiguing of the bowel musculature. These purgations had to be repeated about every second or third month in the beginning but gradually the frequency of these so-called intestinal toxemias increased, every time requiring a physic. Ultimately the condition deteriorated to such an extent that the person had to take a purgative two or three times a week, and above all he was becoming a

A healthy colon gives one a brighter outlook on life.



nervous wreck. Much psychotherapy and will power on the part of the patient had to be employed before he could get out of this trouble. It is roughly ten years now that he has hardly ever taken a cathartic and is in perfect health. His intestinal exit operates as faithfully as the inlet, no doubt traffic occasionally slows up a bit and as a consequence terminal unloading facilities are put to some test, but these are never severe enough to cause any break downs or needed repairs.

(b) Another young man is known to me who was advised by his doctor to take enemas occasionally for toning up his sluggish liver, which during the course of a couple of years became so frequent that he had to resort to an enema every day to facilitate the evacuation of his intestines. All the attempted toning of his liver resulted in the atoning of his bowel musculature. The terminal eight inches of his digestive tract was ballooned enormously, and the patient himself had become an absolute neurotic. It was almost impossible to talk him out of this habit.

All different conditions of functional and habitual constipation can be summarized under a distinct entity called "Colon Consciousness." This is a disturbance of the conditioned reflex upon which normal bowel movement depends. The disturbance may be caused by environmental changes in neurotic individuals and may be aggravated by unscrupulous treatments as mentioned above. The normal physiological behaviour of the colon and rectum is quite simple. When a meal is taken, the ileo-caecal valve (at the junction of the small and large bowel) is relaxed and by rhythmic muscular contractions (peristalsis) the contents of the small bowel are pushed into the large bowel, at the same time waves of contraction sweep along the colon (large bowel) where the water portion is absorbed and the faeces converted into their final form and brought to the pelvic colon which is filled. In an infant there is no mental control of the terminal stage of this filling and the result of this lack of control is well known to everybody. In course of time an elaborate conditioned reflex develops, in which getting up in the morning, mouth wash and bath, breakfast and finally sitting down on a familiar water closet take part, with the result that the strongest



No need to worry about constipation if we include plenty of fresh fruits and vegetables in our diet.

peristalsis wave of twenty-four hours takes place in the colon. The rectum is filled, there is a call to defecate, the diaphragm and abdominal wall contract, the terminal sphincters relax and the process is complete. In most of the people this performance is enacted once or twice a day but there are many who skip one or several days and are not in the least disturbed. The colon-conscious fellow is however troubled more in the mind than in the colon. If he happens to consult a doctor who is also wedded to the fascinating idea of "auto-intoxication" the repeated purges or enemas put him in a state of chronic drug diarrhoea with physical and mental indisposition. Not all of those who are conscious of this affliction escape the surgeon, and those who do, should be considered lucky.

Before considering the treatment

of this common complaint, a word of warning to avoid over-negligence will not be out of place, and should always be borne in mind. Sudden changes in bowel habits, especially in elderly people arouse suspicion of an obstructive defect either in the stomach or intestines, which may be in the nature of a cancer, and calls for immediate, thorough, and repeated investigations by an experienced physician until the condition is satisfactorily explained. When after proper medical examination any possibility of organic trouble leading to this condition has been excluded and the condition labelled as habitual constipation of functional origin or colon consciousness, then the treatment may be employed under the following heads.

1. *Psychotherapy*: This concerns mostly those who are called upon to treat such patients. To gain the pa-



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ple wrongly harbour the idea, which often becomes an obsession with them that their bowels do not move with sufficient frequency or completeness. Reassurance on this point is desirable before starting any treatment. It is helpful to convince them that if their bowels do not move at a certain hour they will surely move at some later time and there is no ground for worry. They should understand that an effort is being made to re-educate their system and an immediate cure cannot be expected.

2. *Habit and Posture:* No little stress can be laid on the regularity of bowel movement. Whatever the suitable time or frequency one must stick to it. The person must go to stool at a fixed hour every day, whether there is desire or not. The habit of going to stool in the early morning hours has its advantages. Firstly there is more time at one's disposal before entering the hurry and scurry of the modern life, secondly the body must have had a good rest in the night to help the whole process. Often the housewives who are very busy at this time or people who like to rush to their work in the early hours, "put it off" until the desire is no longer felt, the conditioned reflex becomes dulled and constipation sets in. As soon as such people accept the advice of regularity in visiting the stool and start practising it with all determination the purpose is accomplished.

3. *Diet:* The old conception that the main trouble was the food which left very little residue or roughage has been given up by the leading specialists and with that has gone the idea of giving foods which contain fibres, skins, and seeds like bran, prunes, salads, dates, pineapples, string beans, etc. These cause more irritation to an already irritated colon. The present belief is that the colon of the patient suffering from functional disturbances is always in its spastic state due to hyper-irritability and that the best thing to do for such a colon is to give it rest by giving a smooth diet for some time till the state of irritability is gone and then to gradually change on to a more liberal and regular diet. For a smooth diet eat no food with skins, seeds, fibres, or gristle. Salads, celery, tomatoes, cucumbers, pineapples, green vegetables like beans,

THE ORIENTAL WATCHMAN, MAY, 1949

tient's confidence, talking him into the right line of treatment and removing all sorts of wrong impressions from his mind is the essence of this therapy. One factor should never be forgotten; that all these in-

dividuals need readjustment to something in themselves or in their environments. It is the duty of the attending practitioner to find out that something, then to lead the patient to face and live with it. Many peo-

cabbage, onions, green and red peppers, radishes, turnips, and melons should be particularly avoided. Avoid sugars and sweets as they cause fermentation and gases. The following articles are suggested for different meals. (a) Breakfast: Oatmeal, orange juice, grape fruit (excluding fibres) white bread, toast, butter, eggs, puffed cereals like corn flakes, bananas, idleys (rice cakes) are all good. Coffee or tea, shredded wheat, biscuits, cakes, bran, and other coarse breakfast foods are not permitted. Fried foods like purees and vegetables at breakfast should be excluded.

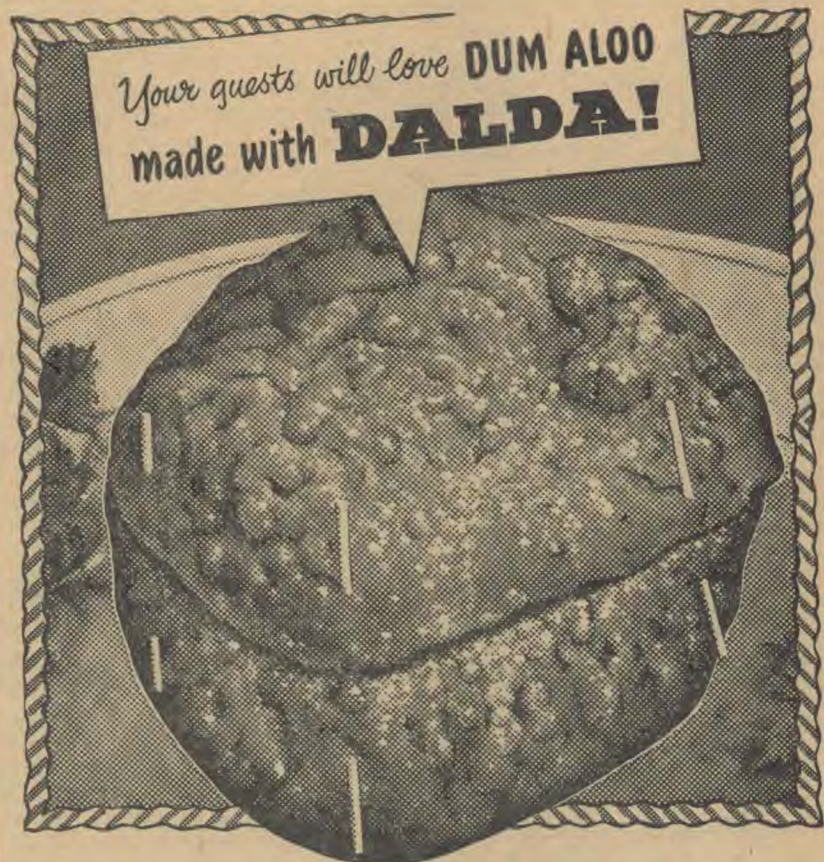
(b) Mid-day and evening meals: Soups, bread and butter, rice, potatoes, mashed, boiled or otherwise, sweet potatoes, cauliflower, all water gourds, peas, lentils, or lima beans, pulses of different kinds should be used to start with. Soft cooked macaroni is good. Curds and buttermilk should be used. No salads should be used. Chillies and spices are not allowed. Those who are interested in desserts, should take simple puddings, custard, sago, ice-creams, jellies, suji, stewed fruits especially pears and peaches. In fruit pies only the fillings should be taken. Cheeses are troublesome. All types of meat should be avoided. After the intestines have rested for a week or two and their irritability passed off, liberal vegetables like cabbage, beans, onions, cucumbers, tomatoes, turnips, carrots, radishes, eggplant (brinjal) okra (lady fingers) and spinach should be instituted. All fruits and fruit salads, raw vegetable salads can now be permitted. Green leaves of "sarsone" and turnips used as a cooked vegetable in the North are excellent for removing constipation. Wholewheat bread should be liberally used now. If still the constipation is continuing figs and prunes should be added. As regards fluid intake water should be taken freely, one or two glasses of water the first thing on rising and before retiring has proved very efficacious in some stubborn cases of constipation. A glass of cool water with the meals aids digestion and at least one glass should be taken in between the meals. This course does not apply to hot countries and climates where much more water must be consumed daily.

Before closing the subject of diet I would lay special stress on one principle and that is: avoid eating when in a rush and when mentally

upset. Family quarrels and rows should be kept away from the table. It is said that the only time when Napoleon Bonaparte used to be without his habitual serious mood was at the dinner table. He would even try to be humorous, in his own way, at that time.

4. Exercises: There is a lot in the

old saying that "have motion and you shall have a motion." No little stress can be laid on regular, healthy exercise even if it consists of a good early morning walk. Any outdoor exercise is beneficial as long as it is taken in moderation and regularity. Different types of abdominal exercises help in removing chronic con-



Peel potatoes, cut into halves, scoop out centres. Mix crushed peas with chopped onions, chillies, and the juice of lime and salt to taste. Stuff mixture into centres and bind halves of potatoes together by thrusting thin sticks through. Fry potatoes in hot Dalda and put aside. Next, prepare curry by frying onions and tomatoes with masalas in a degchi. To this add the fried potatoes. Seal down lid of degchi with atta dough, cook on brisk fire for $\frac{1}{2}$ hour, then let simmer on low fire for another $\frac{1}{2}$ hour. Serve hot.



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stipation. For those whose main excuse is the lack of time even in the early hours of the morning and who cannot attend an organized gym or a playground, I would strongly advise the following: As soon as you have opened your eyes in the morning, push your coverings off, lie flat in bed, fold your hands behind your head, bend your legs on your thighs so that heels are almost touching the back of thighs, bend your knees on abdomen so that the knees are almost touching the abdomen. Now kick your right foot in the air, move it in a circle bringing the leg straight and back to the same bent position on the abdomen. Follow the same with the left leg. Continue it alternately at a rapid rate as if you were cycling in the air. To start with, do this exercise for five minutes and then gradually increase it to fifteen

minutes. Now you are in a fit condition to jump off your bed and on to your daily morning routine. This does not involve much time and the simple exercise will improve your abdominal muscles a good deal and help to remove the constipation.

5. *Drugs:* The use of drugs in the shape of cathartics, laxatives or enemas should be totally discouraged. If the sufferer in spite of following all the previous instructions still continues his habitual constipation and the possibility of any underlying organic cause has been excluded by repeated medical examinations, a little medicinal help may be required. If any drug at all must be used the ideal agent with which chronic constipation should be tackled is liquid paraffin or liquid petrolatum or mineral oil, for it is non-irritating, indigestible, non-absorbable, and incapable of undergoing bacterial decomposition. Its combination with agar is put up in the market under so many different names like agarol, petrolagar, etc., and is available at every chemist's shop. All these things could be started with two teaspoonfuls morning and evening which could be increased or decreased as required. For those who cannot afford these expensive medicines a simple home treatment can be carried out with the common article known as "isabgol." A tablespoonful of this should be soaked in a glass of water for a couple of hours, until it issues out a gelatinous substance. It should be taken morning and evening. It has the function of softening the stool and lubricating the passage. As the stools become softened, the canal lubricated, and chronic habitual constipation stopped, the person should be gradually weaned away from these medicaments and avoid them for ever after.

To summarize, the real cause of a chronic habitual constipation must be ascertained. Organic causes should be excluded through medical examinations. Functional constipation should be treated by regulating the diet, the time of visiting the stool, and exercises. Unscrupulous use of cathartics and medications is condemned. Last but not the least, worry, and any factors leading to nervous tension, must be avoided.



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INSECT AND FLOWER PARTNERSHIPS

An Amazing Pattern of Life

R. N. MONTGOMERY

INSECTS are the only creatures which seriously contend with man for control of the earth. Entomologists say that if it were not for the birds man would lose the struggle and be forced to find sources of food other than plants. Paradoxically, the late war (in which, as usual, man applied all his abilities to exterminating his fellowman) did more scientifically to accomplish the destruction of harmful insects than had been done since the dawn of history.

Economic entomology, which is concerned with the protection of growing crops, has emerged with new and potent weapons to wage annihilative war against the farmers' ancient enemy, namely, such weapons as DDT, DD, ethylene dibromide (an underground insecticide), and sabadilla. The now famous DDT destroys insects by contact through their exoskeleton and feet. Results are impressive and many towns last year in U. S. A. were made free from the common housefly. Along with the flies they rid themselves of many other pests too numerous to mention.

While we view with satisfaction the decimated ranks of harmful insects, let us not forget the many beneficial creatures we would be loath to lose, such as the bees, so beneficial to man; and the dragonfly, that archenemy of mosquitoes and other insects, which perform a very essential function of pollination, without which many plants would cease to exist.

This partnership between plants and insects to provide pollination presents one of the amazing chapters in the history of nature. Bees with long tongues reach the nectaries of certain lilacs, which in many regions would fail of pollination without this service. It is very interesting to note the meticulous adaptation of insects to the mode of life that enables them to assist in the function of cross-pollination of plants. For instance, a negative case is that of the drone bees, which are hairless; they carry no pollen, so they have no need of hair. (This is an interesting sidelight on the Bible statement concerning the man who did not improve the talent given him, consequently it was taken from him.) Yucca flowers are pollinated

by the Pronuba moth, which collects the yucca pollen in her mouth, proceeds to another flower and actually pushes the pollen into the opening of the style.

So important is the vast partnership of insect and plant for pollination that some flower petals are marked with guide lines which lead directly to the nectar pots. All flowers which depend on insect pollination are so created that the insect agent must pass both the anther and the stigma. Among those contrivances which are so clearly the results of deliberate creative design must be mentioned the flower structure of the Kalmia, or mountain laurel. In this blossom the anthers, or pollen carriers, are held back from the throat in depressed, latterly constricted pits. When an insect of sufficient size to be an efficient pollenizer arrives on the wing and alights, its weight and effort to reach the nectar releases the captive ends of the anthers, which spring instantly to the centre, thus pelting the intruder with the vital pollen. This sticks to the bee and is carried to other flowers.

Certain milkweed pollen is shaped like two bags tied with a single string. In this case, the string is a short, tough, silky filament so designed as to entangle readily around a bee's feet, and the pollen is thus carried from flower to flower. A clever device is employed by the horse balm. One of its lemon-coloured petals is very slippery, and the bumble-bee, lured by the strong lemon-scented perfume, alights, slips, grasps the stamen to right itself, thus violently shaking it, and showering down the pollen on itself.

A further strange relationship between plants and the insect world is found in the numberless galls. Possibly the most familiar is the oak gall, or "oak apple," and the blackberry knot gall. The first is a round green ball; the second is a knotty, ridged enlargement on the stem. These galls are formed by punctures of the inner bark by the lancet-like ovipositor of female insects (mostly gnats) in the process of egg-laying. Then begins an amazing process in which the wounded plants, irritated and stimulated by the chemical na-

ture of the egg and the sting, begin the building of tumours of hypertrophied tissue enclosing the eggs uniformly, which soon hatch into larvæ, feed upon the juices of the central cavity of the galls. Thus the galls are at this stage parasitic. In the process of time the fully developed four-winged flies emerge to continue the cycle of life.

Of special interest are the oak hedgehog galls, found on the under side of leaves of the white oak tree. These galls are brownish pink in colour and are covered with spines, from which they take the name hedgehog. When the leaves fall in autumn, the galls still contain the young insects. In North America they emerge in early November, having gnawed neat round doors, and appear like wingless brown ants. Being forced to climb, in the absence of wings, they work their way up any vertical objects which are near by, apparently making no choice. Many perish after having laboriously climbed some object other than an oak tree. Those having succeeded by chance in selecting an oak tree, climb to the tip of the twigs and, since all of them are females, they prepare to lay eggs, without the necessity of fertilization by males. These eggs they insert into the winter buds of the trees, there remaining dormant until spring.

The return of warm weather stirs the buds to activity and also the hidden insects. In response to the irritation produced by the larvæ, the plants form galls around them about the size of pin heads. Each white worm, without eyes or legs, absorbs its daily food from the juices of the



bud, grows rapidly, and becomes a pupa. It is ready to emerge as an adult when the bud expands, which thus frees the insect. But what magic is this? The adult appearing from the folds of the tender bud in no-

(Continued on page 24)



DONNIE'S SWEET TOOTH

JOAN KING-HOATSON

GRANDPA was going to take Donnie to the dentist. It was all settled.

"But I don't want it to hurt!" Donnie, who was six years old, already had a fear of dentists.

"Now, Donnie," Mother said gently, "I'm not going to tell you it won't hurt a little, for that wouldn't be true. But if you are a brave boy, and help the dentist by sitting still, it will not hurt nearly so much as if you cry and struggle." She winked toward Grandpa by the door. "And if you don't cry, I think there will be a surprise for you when you get home!"

The dentist helped Donnie into a strange-looking, high-backed chair and smiled.

"My, but I'm glad to have a good little boy for a change. It makes everything twice as hard for the child as well as for me if he doesn't co-operate. Now, let's see that tooth!"

With some misgivings, Donnie opened his mouth, but the dentist was so kind and friendly that he was not afraid now.

"That is a bad tooth!" The dentist shook his head. "And it's one of your permanent teeth, too. Tell me, Donnie, do you eat many sweets?"

Donnie nodded. Mother gave him annas sometimes for other things, but he spent them for sweets at the corner shop. He wondered how the dentist knew.

"Yes, sir!" said Grandpa from the

corner by the window. "Donnie has a sweet tooth just like his grandfather!"

Grandpa laughed, and Donnie smiled as much as he could with the things in his mouth. But the dentist did not laugh. He looked at Donnie very seriously and said:

"Yes, a great many boys and girls and older people, too, eat more sweets than they need. The sugar the body doesn't use for energy, destroys the calcium, or hard covering of the teeth. Germs like to multiply in sugar, so when sweets stick to the little crevices between your teeth,



those germs begin their work. Milk, bread, and other nourishing foods help build up the calcium and keep the teeth healthy, but too many sweets—" The dentist was busy with some strange-looking needle. Before Donnie knew what had happened, there was a little pin prick on his gums near the bad tooth.

"Ouch!" Donnie had forgotten about its hurting him, but now he was getting scared again. A big tear rolled out of the corner of his eye and his lower lip started to tremble.

"There, there!" The dentist was smiling sympathetically. "That is all you will feel. The needle contained Novocain, a drug that takes all the pain away so you won't feel it when I pull your tooth out!"

It sounded strange to Donnie, but soon he realized it was true! That whole side of his jaw began to feel numb. And before he knew it, the tooth was out of his mouth and lying in the dentist's hand.

"There, see what I mean?" the man in the white coat was saying. "If Donnie hadn't eaten those extra little pieces of sweet between meals, he would still have his tooth and the tooth wouldn't have that ugly black hole."

Donnie gulped and looked at the tooth. Could that be *his* tooth? Sweets must be bad indeed to make such a jagged, black hole in the centre of a nice white tooth!

On the way home Donnie looked at Grandpa and felt the vacant place in his mouth with his tongue.

"You know, Grandpa, I think he must have pulled my 'sweet tooth.' I don't think I'll want any sweets for a long, long time!"

GINGER AND CHINCHILLA

C. E. SUTTON

GINGER lived in a flat in the area of a Bombay house. He had a very busy life, for he did not always have enough to eat, and hunger always makes people restless, and cats too!

Now in a square, not far away, in a beautiful big house, lived a lovely grey Persian cat, with large orange eyes, named Chinchilla. She used to squat on the corner of a table near the window overlooking the square, because she liked to see what was going on.

Then one day Ginger went out on one of his hunting expeditions and he suddenly saw two big orange eyes gazing upon him. It was Chinchilla.

Ginger went hot and cold all over; he had never seen such a lovely cat before, but when he "miaowed" and looked up at her, she turned her head away.

"She is such a grand lady, and I am only the area cat," sighed poor Ginger, "and my coat is rough and untidy, and I have a bite out of my

ear, so no wonder she will not look at me."

So Ginger went home, but he thought of Chinchilla (for cats do dream you know). It wasn't long before he was beginning to look so thin and miserable that he was quite a sad sight.

Then one day he ventured out into the square, his heart beat "pit-a-pat" but there was no Chinchilla at the table by the window—no sign of her at all.

"Ah, me!" sighed Ginger, and his whiskers twitched. Suddenly he heard a noise that stirred him to the depths. At that moment Chinchilla came racing down the square, screaming with fear. Behind her ran a dog. He was almost upon her, and Chinchilla was out of breath, and her orange eyes were staring wildly. In a moment Ginger rushed

toward them and sprang upon the angry dog, digging in his claws as hard as he could until the dog howled with pain. Then both of them rolled over and over on the ground.

Meanwhile Chinchilla had escaped. Her mistress on hearing the noise, had run to the window, and watched what had happened. She ran out into the street with a broom, just as the big dog went off the other way, limping.

Then she took poor Ginger indoors. He looked limp and lifeless but at the sight of Chinchilla he was well in a moment. "How can I thank you?" Chinchilla purred, softly.

"Don't mention it," said Ginger, "it was the least I could do." So Ginger and Chinchilla lived together in the beautiful big house in the square.

rise again. When risen to twice its size again knead it well and mould into loaves. Place these in warm oiled pans or tins and let rise until double in bulk. Bake in a hot oven for 45 minutes to one hour. For variety, dates, nuts, or raisins may be added to the bread dough as it is kneaded before putting it into the baking pans to rise. More sugar and shortening may be added also if a sweeter or richer bread is wanted. Milk may be used instead of part of the liquid and rolled oats may be used for part of the flour. The main thing to remember about bread is to keep the dough at an even temperature while rising, never letting it get too cold or too hot for in either case it will be spoilt.

CINNAMON WHIRLIGIG

Use recipe for bread and let dough rise once. Take it out of the bowl and roll it out half an inch thick with a rolling pin on a floured board. Sprinkle this with a little melted butter, sugar, and ground cinnamon. Roll up the dough like a jelly roll. Place in a greased pan and cover. Let rise until double in bulk. Bake in a hot oven for 35 or 45 minutes.

CINNAMON BUNS

Use the above recipe and proceed the same way, but when sprinkling with the butter, cinnamon and sugar, also sprinkle with nuts and raisins. Roll up like a jelly roll and cut in 1½ inch slices. Place these in a well-greased tin just a little apart. (Place the cut side up.) Let rise until double in bulk and before baking pour over the rolls a caramel syrup made by bringing to a boil ½ cup of brown sugar, 1 tablespoonful of butter and ¼ cup of water. Bake the rolls in a moderate oven for 35 minutes.

PLAIN CHAPPATIES

Half a pound of ata; a pinch of salt; 1 tablespoonful of ghee or butter, and enough cold water to make a soft dough.

Mix these ingredients; cover and let stand one hour or more. Knead well. Make into balls and roll these out to the size of a tea plate. Bake on a griddle and serve with your favourite curry or sauce.

YEAST MADE FROM HOPS

Two large potatoes; ½ oz. hops; 1 cup white flour; 4 cups water; ½ cup white sugar; 1¼ teaspoonfuls salt.

Tie the hops in a cotton cloth and boil for one hour in the water. Squeeze the liquid from the bag of hops and remove it from the water. Add this liquid to the sifted flour and the sugar and salt, stirring it to a smooth batter. Place this in an open glass jar covered with only a piece of cloth. Keep in a warm place for three days. On the third day slice and boil the potatoes; sieve them and add to the flour batter, mixing well. Allow this to stand for twelve hours in a moderately warm place, stirring occasionally. Stir well before using. Use half a cupful of this yeast to a loaf of bread, adding water or milk to make a cup of liquid. If kept in a refrigerator or cool place it will keep a long time. It must be warmed before using.

RECIPES

BREAD—THE STAFF OF LIFE



BREAD is the most important single item in the diet for most people, and bread as we know it today is made up of a number of ingredients. Flour is the most important of these and flour is made from all the grains that we know. In some parts of the world, and especially in the northern parts of Russia and in the Scandinavian countries, rye, barley, and oats are used for bread a great deal. Flour made from wheat, rice, barley, corn, and guar, are commonly used in India and in many other parts of the world, soya beans, lima beans, some pulses and some seeds are also ground into flour and used. These different flours are made into appetizing breads by the thrifty housewife who knows how to supply her family with good food.

Besides flour, liquid must be used. It may be water, milk, or vegetable juice—chiefly potato water. One measure of liquid is required to three measures of flour.

Sweetening is also added such as honey, brown sugar or refined sugar—one tablespoonful to a cupful of liquid, unless a sweeter bread is desired.

Salt is also necessary. One teaspoonful to a cupful of liquid or less, according to taste.

Shortening in the form of oil, ghee, or butter—one tablespoonful to a cupful of liquid is the usual amount but more

may be used to make a richer bread.

Yeast must be used, for the lightness of the bread chiefly depends upon the yeast. Yeast may be made at home but there are many brands of dry yeast sold in India. When a tin of yeast is opened it should be kept in a dry, cool place or it will spoil. One tablespoonful of yeast dissolved in one cupful of lukewarm water, one tablespoonful of sugar and three cupfuls of flour with a teaspoonful of salt and a little shortening, makes one medium loaf of bread. Dry yeast gives the best results if used as a starter

YEAST STARTER

One heaped teaspoonful of dry yeast; 2 medium-sized potatoes; 2 tablespoonfuls sugar; ½ teaspoonful salt.

Wash the potatoes, cut in small pieces and boil in two cups of water until tender. Put these potatoes and liquid through a sieve. Add sugar and salt. When cool add the yeast and stir until it is dissolved. Keep in a warm place overnight. There should be about a cup and a half of this mixture. The next morning make bread as follows:

BREAD

One cupful of yeast starter; 1 cupful warm water; 1 tablespoonful of sugar; 1 tablespoonful of ghee, melted butter or other fat; 1 teaspoonful salt; six cups of flour.

Mix the above ingredients and knead well. Place in a warm bowl to rise. This mixture should never be allowed to get too hot or too cold. When the leavened lump of dough has risen to twice its size punch it down and let it

INSECT AND FLOWER PARTNERSHIPS

(Continued from page 21)

wise resembles the mother. It is smaller, more active, slender, and possesses wings. To add another touch of mystery, males and females appear! Then the cycle begins again.

One stands in amazement in contemplating this complex pattern of life governed solely by instinct. Who else but the Creator could have brought such a thing to pass? How absurd to believe that circumstance, environment, or trial, and error by an insect void of the power of reason could produce such an amazing pattern of life!

BOOK REVIEWS

Mahatma Gandhi, by H. S. L. Polak, H. N. Brailsford, and Lord Pethick-Lawrence—Oldham's Press. The Home Library Club, *Times of India*, Bombay (Rs. 10-8-0).


This book written in three sections, by three outstanding men who were intimately associated in one way or another with Gandhiji and at various periods of his career, is a mixture of biography, history, and criticism. Each one of the authors writes from his own point of view and on a chosen part of the subject's life.

The first section of the book by Mr. H. S. L. Polak is the story of struggle and triumph in Africa. This story has been told by others but he who here reads it for the first time can but be impressed with the outstanding ability of a young lawyer too shy to practise his profession in India, but who, having been sent to Africa on professional business while still not much more than a boy, became involved in the fight for the liberation of his kinsmen from oppression in that country. Reading this section of the book leaves one with the feeling that this struggle was not only a revelation of the man's unusual character and ability, but a period of training and development of power for the fight in India.

The second section by H. N. Brailsford, entitled "The Middle Years," is a still clearer revelation of Gandhi's character in an account of the early struggle for freedom in India. Here we have descriptions of Indian economic and social factors not ordinarily dealt with in Gandhian biography, and the reader is made to feel that he is not here so much reviewing that which he has already known, as that he is learning something new and different. The author cleverly interweaves his comments on character in this recital of momentous events in India's history. In this and in some other respects this section is probably the most enlightening of the three, and here a unique personality is made known to an unusual degree. At times the reader is stirred to feelings of indignation, and at others to sympathy, pity, and admiration.

The third section by Lord Pethick-Lawrence describes the last ten years of the struggle in India. We suspect that the general reader, not so keenly concerned with an analysis of the

THE ORIENTAL WATCHMAN, MAY, 1940

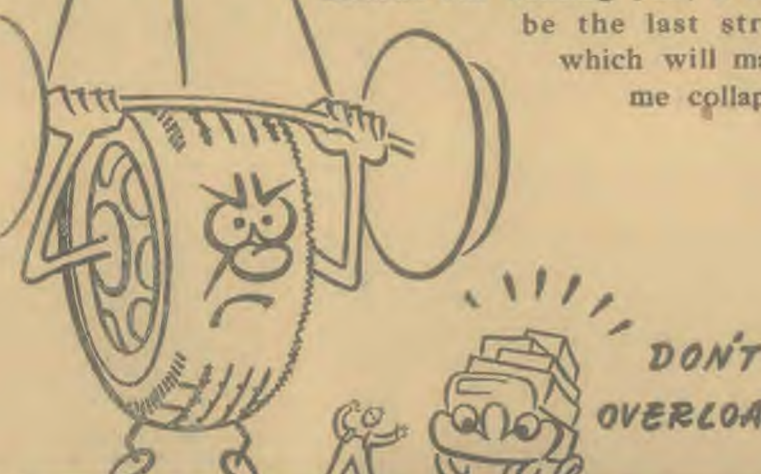


IT'S THE
LAST STRAW

I'm used to heavy loads, in fact I've been brought up to them. But there is a limit, if you don't mind my saying so, and after that it becomes too much even for me.

The limit in question is the tonnage of your vehicle. It's all very well to think of the springs, but in the end, I have to do the final springing and carry the full load. So if you have a 4 ton truck, please don't put 4½ tons on it.

Because I'm warning you, it may be the last straw which will make me collapse.



DON'T
OVERLOAD



DUNLOP

political implications of the struggle, may find this section somewhat less interesting and heavier reading than the other two. But for those who are interested in the part that India played in the world war, and in the following and immediate events that led to the achievement of the goal in the long struggle, this account will be especially enlightening and valuable. Impressive is the array of material presented to indicate how Gandhi was implicated in almost everything that moved in the direction of victory during those years.

The introduction to the book by Mrs. Sarojini Naidu is a work of art.

All India Medical Directory and Who's Who, by the Board of Health



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5. Make questions short and to the point. Type them or write them very clearly.
6. Questions and answers will be published only if they are of such a nature as to be of general interest and without objection, but no names will be published. Address "The Doctor Says," Oriental Watchman and Herald of Health, P. O. Box 35, Poona 1.

CANCER OF THE BREAST: Ques.—
 "A cancer patient of mine has a slow-growing cancer in the upper part of the left breast. The cancer appeared about two years ago. It is painless but is now the size of a large potato. An operation was arranged but could not be done due to a sudden fall of the patient's blood pressure at the time of the operation. She then had deep X-ray treatment in the medical college

Bookstall—7/8 Krishnan Koil Street, Madras (Rs. 20-0-0).

This is the first edition of the first directory of this kind to be published in India. Compiled in a single volume of about 600 pages is a vast amount of information on the medical situation in general in India, brief descriptions of medical schools, hospitals, and special institutions. There is a section on the latest advances in treatments and a list of the latest proprietary medicines. The greater portion of the volume, as is to be expected of a work of this kind consists of a directory of physicians, dentists, chemists, and pharmacutists. This directory is compiled on the basis of provinces and districts, which enables the user the more easily to locate the information desired.

and had two courses of X-ray after an interval of six weeks. After the application of the second course a wound appeared from which yellow water discharges. I would be greatly obliged to have your opinion and advice regarding the best course of treatment in this case, and whether or not you consider radium treatment would be successful."

Ans.—There would be no advantage to your patient in having radium treatment providing the X-ray treatments were deep X-ray therapy and were administered in sufficient dosage. Radium and X-ray treatments have similar actions and similar effects as far as cancer is concerned. Without seeing the patient it would be ill-advisable for me to attempt an opinion one way or the other as to whether this cancer of the breast has progressed to the incurable stage or not. Usually

after a cancer has been present two years and has ulcerated the skin it is incurable, but this is not always true. I should advise that you and your patient follow the advice of the men at the medical school or if you wish added counsel you might consult the specialists at the Tata Memorial Hospital in Bombay, which is the outstanding cancer centre in this country. The warning signs of cancer are: 1. A painless lump which does not disappear in two to three weeks. Any such lump in a woman's breast should be cause for having a careful examination by a competent doctor. 2. A persistent blood-stained discharge from any of the body orifices, or a prolongation or change of character in a normal discharge. 3. Change in bowel habit which lasts more than two weeks is often a sign of cancer of the colon or rectum. 4. Persistent dyspepsia coming on suddenly where there has been no digestive disturbance previously. All of these signs may be caused by some less serious condition, but if you or any of your friends observe these signs in yourselves, consult a competent physician for a careful examination at once. Cancer is curable in its early stages by the proper use of surgery, radium, and X-ray.

?

PSORIASIS AND RINGWORM: Ques.—
 "Please let me know of a treatment for psoriasis and also for ringworm. What medicine should be applied?"

Ans.—Psoriasis is a capricious skin disease of unknown cause whose only harmful effect is to worry the patient. The lesions may appear almost anywhere but they seem to prefer the elbows and knees and very rarely do they appear on the face. The treatments that have been tried are legion. For the disease seems to appear and disappear of its own volition regardless of what remedy is being used or not being used at the time. Most physicians

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recommend the following measures: 1. A diet low in fat—no ghee, oils or fried foods (milk should be skimmed milk or buttermilk.) The diet should be varied and high in vitamins. 2. Often some polyvitamin preparation or capsule is given which adds more vitamins A, B, C, D, and G, to the dietary intake. 3. Some ointment or lotion designed to aid in loosening and removing the scales from the lesions. You should consult your physician about the particular preparation which you should use. The condition commonly called ringworm is really a fungus infection. Commonly it occurs between the toes, in the groin and sometimes elsewhere on the body. There are many proprietary preparations on the market for the home treatment of this condition. Whitfield's ointment and Mycozol are two good ones. If the infection does not yield to either of these it is well to see your doctor for some fungus infections are very persistent and also some things which look like ringworm may be something else entirely.

7

NECK CYST; STIFF NECK; MALARIA; D.D.T. Ques.—“(1) I have a tumour in the front of my neck just above the thyroid region. I have consulted a throat specialist who says that it is a harmless cyst and need not be removed. What is a cyst and can it be removed under local anaesthetic? (2) For the past two or three months I have suffered from stiffness of the neck muscles. The pain is more severe in the morning and nearly disappears by the evening. The pain is felt in the back and sides of the neck and is sometimes so severe that I am unable to bear the weight of the head and cannot look in a particular direction for more than a few minutes. Will you kindly let me know what causes this pain and whether or not it has any connection with malaria? I feel some relief when I take paludrine. (3) Can paludrine prevent as well as cure malaria? About three months ago I had a slight attack of malaria and since then I have taken paludrine occasionally. As soon as I stop taking it I get pain in the joints

with heaviness in the head. Is this due to the effect of malaria? (4) Kindly let me know how D.D.T. solution can be prepared at home.”

Ans.—(1) A cyst is a thin-walled sac usually containing fluid or some soft substance such as mucus or sebaceous material. A cyst on the front of the neck may be a thyro-glossal duct cyst or it may be a bronchial cleft cyst or another rarer type of cyst. These are harmless as far as one's health goes but if they are large or annoy one in some other way they can be removed successfully by surgery. Most surgeons prefer to operate upon these growths under general anaesthesia but it may be possible to remove yours under local. You should ask your surgeon. (2) It is possible that the stiffness of the neck muscles is due to your malaria. However, it is more likely that it is due to some unrelated condition. Often heat treatments or diathermy—greatly relieve a stiff neck. (3) One tablet of paludrine taken twice weekly is said to completely prevent the occurrence of symptoms of malaria, but when one stops taking the drug the symptoms appear. One should take a curative course of paludrine (one tablet three times daily for ten days, followed by one tablet daily for one month, total 60) to get completely rid of the infection. After recovering from malaria one must take care to avoid being bitten by mosquitoes or he will be reinfected. (4) A five per cent solution of D.D.T. may be mixed at home by adding one ounce of commercial crystals (purity usually about 90 per cent), two ounces of benzene and eighteen ounces of kerosene. This makes a useful solution for spraying or brushing on surfaces on which one wishes to retain an insecticidal activity. One pint of such five per cent solution is the right amount for treating 140 square feet of surface so as to leave a residue of 200 mgs. of D.D.T. per square foot. NOTE: This mixture is inflammable and D.D.T. is poisonous to man when taken in food or when solutions such as this are in contact with the skin for prolonged periods.

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PALPITATION OF THE HEART:
Ques.—"I am an old man of sixty-eight years with robust health and a youthful appearance. I take morning and evening walks, and exercise by running in the morning regularly. About two weeks ago I began to hear the beat of my heart, which I took to be palpitation. I was examined by some competent doctors who have assured me that my heart is normal but I fear that this audible heart beat is not quite a normal thing. I solicit your opinion and remedy for this."

Ans.—Anyone who is sixty-eight years of age and is still capable of running daily is to be congratulated. Your doctors have examined you and if they say your heart is normal you may be assured that it is, for the heart is an important organ and doctors do not lightly advise a patient that his heart is normal unless they are quite sure about it.

?

CHLOROPHYLL: **Ques.**—"I was interested in your article on chlorophyll published in the December issue of 'HEALTH,' and particularly in its use for head colds. My son has a more or less permanent cold in his head and when it gets worse, which it frequently does, it leads to bronchitis and asthma. We have recently had some good results from penicillin lotion used as nose drops, but I would also like to know if there is any chlorophyll preparation on the market that could be used for the purpose."

Ans.—To the best of our knowledge chlorophyll preparations have not appeared on the market as yet. I would advise you to continue your present treatment.

?

EPILEPSY: **Ques.**—"A friend of mine has suffered from a bad affliction for the past ten years. Every two or three months he falls down, his hands and legs tremble, he foams at the mouth and he is unconscious for ten or fifteen minutes. Can you give the reason for this complaint and suggest any medicine?"

Ans.—From your excellent description it is quite apparent that your friend is suffering from some form of epilepsy. The cause of the disease is not known but there are some excellent drugs on the market which aid greatly in controlling the manifestations of the disease. They should be taken only under the personal direction of a physician. Your friend should solicit a competent physician and follow his instructions carefully.

?

ABDOMINAL PAIN: **Ques.**—"I have been suffering from abdominal pain in the left side of the lower part of my abdomen for two months. The pain generally comes on when my body becomes over-heated. My bowels move regularly but not satisfactorily. Kindly prescribe the medicine I should take to relieve this condition."

Ans.—There are a number of condi-

tions which may cause discomfort on the left side of the lower abdomen. The most common is some sort of intestinal parasites—amœba or worms. Pain of two months' duration should be investigated by a competent physician.

It is usually a waste of money and time to try first one thing and then another without first having a careful physical examination done, followed, if necessary, by a laboratory investigation to determine the cause.



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MAY

SUPPLEMENT

1949

WILL RUSSIA ABSORB ALL EUROPE?

J. L. SHULER

THERE are three particular items in our world of 1949 concerning which most people would like to know the outcome. These are: The matter of Russian aggression in Europe and Asia, the struggle between the United States and Russia over a way of life, or Democracy versus Communism, and the implications of atomic power upon the destiny of mankind.

We need to know what is coming in order to be ready. If a man pounded on your door at midnight and shouted, "Fire! Fire!" would you not act at once? Most assuredly, You would think of your loved ones, your home, your valuables, and try to save them. It is infinitely more important for you to know what is coming than it would be to know if your house were on fire.

The world was surprised in 1914 by World War I. Pearl Harbour was a fatal surprise to many in World War II. World War III may kill millions in their beds, never awaking to learn what hit them.

No man of himself knows what is coming. But there is a God in heaven who does know. He knows the end from the very beginning, and from ancient times the things which are not yet done. And it has pleased that great God of heaven who knows the future, to reveal in the Bible some of the events of the future which we need to know. It is to some of these items that we direct your attention.

In Daniel 2:31-35 we find that God used a gigantic statue of a man, composed of different metal segments, to portray the future history of nations from the time of Nebuchadnezzar, king of ancient Babylon, to the time when the King of kings will appear from heaven to take over the world for His own eternal kingdom.

This man's head was of fine gold, his breast and arms of silver, his

thighs of brass, his legs of iron, his feet part of iron and part of clay. Finally a stone cut from a mountain smote this statue upon the feet and dashed it to pieces. The wind from that concussion blew the fragments into oblivion. Then the stone expanded and expanded until it filled the entire world.

These four metals—the gold, the silver, the brass, and the iron—represented the four successive world monarchies of Babylon, Medo-Persia, Grecia, and Rome.

In Daniel 2:41, the prophecy declares that the fourth kingdom, or Rome, would be divided, as prefigured by the mixture of iron and clay in the feet and toes.

Less than one hundred years after the fall of the Western Roman Empire, the ten barbarian hordes that over-ran Rome became the nucleus of the modern nations of Europe. The Anglo-Saxons settled in England, the Franks in France, the Alemanni in Germany, the Burgundians in Switzerland, the Visigoths in Spain, the Suevi in Portugal, and the Lombards in Italy. Three others, the Heruli, Vandals, and the Ostrogoths were later uprooted. Seven of these nations are still found on the map of Europe. The prophet has brought us down to modern Europe in 1949.

The prophecy explains that these divided nations of England, France, Germany, Spain, Switzerland, Portugal, and Italy can never be welded together into a world empire, as they once were under the Caesars of Rome. In Daniel 2:43 we read, "Whereas thou sawest the iron mixed with miry clay, they shall mingle themselves with the seed of men; but they [referring to these divided nations of Western Europe] shall not cleave one to another, even as iron is not mixed with clay."

Everybody knows that you cannot weld iron and clay together. Iron will not cohere with clay. These na-

tions of Western Europe cannot be welded into one world empire as they were back in the days of the Caesars when Rome ruled the world.

As the shadow of the Soviet begins to fall across Europe and the Near East, people are wondering, Can Russia unite and control all of Europe? Can she rule the world? Can Stalin succeed where Hitler failed?

These seven words of God, "They shall not cleave one to another," settle these questions for all time. On the basis of these seven words of Holy Writ, we can say that even if Russia grows to be ten times as strong as she is now, she will never be able to absorb and permanently hold all Europe under her sway. These seven words are God's answer to Russian aggression.

In the final act of this representation of the future, a stone smote the metal man on his feet, dashed him to pieces, the wind blew the fragments into oblivion, and the stone became a great mountain and filled the entire world. What does this mean? In Daniel 2:44 the prophet explains that this typifies the destruction of the sin-saturated systems of man which, being cleared away, pave the way for the divine reconstruction of a new world. It will be a new order of things, after God's own plan prepared for those who choose to obey Him.

It is significant that the end is pictured as the composite metal man being blown to pieces. Some may wonder if this means that the world will be blown to pieces by the atomic bomb.

It seems that the atomic bomb has done more to convince people that the end of the world is near than anything which has ever happened. It is deeply significant that scientists who worked on the bomb see a direct connection between atomic fission and the end of the world.

What is the significance of this atomic age? What should the bomb

mean to you and to me? In the first place it means that the return of the Lord has become an urgent necessity. He must come to save the earth from destruction. It is not only a "blessed hope," but it is the only way out. The only salvation from the annihilation of civilization is that provided through Jesus Christ and His return.

The atomic bomb says, "Prepare to meet thy God. It is high time to make your peace with God. There is no time to lose."

While man may soon bring himself to the verge of self-annihilation, he will not be permitted to commit race suicide. God will intervene and the last judgment will come from heaven. Even now the atomic bomb thunders in our ears God's last call to man: "Fear God, and give glory to Him; for the hour of His judgment is come; and worship Him that made heaven, and earth." Revelation 14:7. The judgment hour is now here.

Some will ask, "Will the atomic bomb make the earth desolate?" We do not know how many cities will be laid low by such bombs, but we do know that God will never permit the atomic bomb or any other

weapon of man to be used so promiscuously as to obliterate man from the earth. Jesus will intervene to "destroy them which destroy the earth."

This earth is not destined to become a dead planet like the moon. On the contrary, this earth is destined to be purified of sin and sinners; and then transformed into a new, perfect, sinless world where the righteous only will dwell for ever. That is how and when world peace and security will be permanently established.

Everything that man has devised for bringing lasting peace has been found wanting. What we need is a peace conference with the Prince of Peace as conference Chairman. Soon He will come and will take the government upon His shoulders and then peace will reign from pole to pole for evermore. (Isaiah 9:6, 7.)

Because of conflicting ideologies, the United States and Russia are locked in a great political struggle for world influence. They are like two boys with fists clenched, waiting for the other to start something. Then the question arises, Who will win the struggle for the world? The

U. S. A? The U. S. S. R? The prophecy of Daniel 2 shows that the struggle for the world will be won by Jesus, the coming King. His kingdom will destroy all earthly kingdoms, as the stone demolished the composite metal man, and will fill the entire earth. One government will rule the world and twelve united nations will form together "one world." (Matthew 19:28; Revelation 21:12, 24.) God's government will restore all that is good and right and fair and beautiful.

On the authority of this blessed Word, I can tell you that the final outcome of this world situation will be the return of the Lord Jesus Christ to this earth to reconstruct this world into a new, perfect world where there will be no more sorrow, no more sickness, no more trouble, no more wars, and no more death. In Revelation 21:1 the prophet says: "I saw a new heaven and a new earth, for the first heaven and the first earth were passed away." In verse four he declares that "God shall wipe away all tears from their eyes; and there shall be no more death, neither sorrow, nor crying, neither shall there be any more pain."

ATOMIC FICTION

SAMUEL CAMPBELL, B.A.

A STRANGE mark flashed across the fluorescent screens of the radar units located on top of the high towers at Richmond Hill, thirteen miles north of the city limits and about five hundred feet above down-town Toronto. The time was 12:15 p.m. At 12:16, CBL got half-way through its special news broadcast and went off the air. The operators at the Hill stations knew then what had happened. They came out with binoculars on the observation platforms and looked directly south. The great, white pillar of smoke, with its familiar mushroom top, was still rising miles above the city. The long war of nerves had ended at last, Toronto had been struck a mortal blow; and Toronto was dying in the September sunshine.

The bomb, carried by a rocket, exploded a quarter of a mile in the air with its awesome orange-and-white flash. It happened almost directly over the intersection of Queen

and Yonge Streets, near the city hall. A T. C. A. plane, winging its way over the city toward Malton Airport, practically collided with the rocket missile. When the explosion occurred, the plane, the crew, and the passengers were burned to vapour and ash.

The area around the centre of the explosion beggared description! From Toronto harbour north to Bloor street, and from east of Broadview Avenue to Sunnyside, the streets were filled with the charred, mutilated bodies of the dead and dying.

Broken glass, with its sharp, jagged edges sticking up, ready to cut and tear into human flesh, was piled knee-deep in the streets. The whole city rocked and shivered under the blast. The terrible wind produced by the shock-wave that came seconds after the flash, overturned every boat tied up at the docks. It capsized the majestic *Cayuga* just

leaving the harbour for Niagara Falls with fifteen hundred happy, carefree sightseers on board. The passengers on the side toward the bomb were charred black; then the ship capsized and took all its occupants to the bottom of the bay. Perhaps the greatest loss of life in one small, confined area was at the Canadian National Exhibition where tens of thousands of youngsters were enjoying Children's Day at the Exhibition. The spacious grounds and buildings, full of amusements and wonderful things to see, were transformed in the twinkling of an eye to a desolate, burning burial ground.

As for the business sections of the city, only the heavy-ement walls and twisted steel girders remained to show where shops and department stores had once stood. At the centre, absolutely nothing was left—just an evil, burning scar. The noon-hour rush, which tears out of offices and stores into restaurants and hotels, was literally disintegrated. Everywhere there were fires raging unchecked and spreading rapidly to other parts of the city. Gas mains and sewer pipes were broken, causing more fires and explosions and

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pouring pollution into the streets. The scorched chassis of a street car was left dangling precariously from a projecting steel beam of the hot shell of a building. The centre of the city, for about two square miles, was reduced to rubble and ruin. The rest of the city was left in a state of hysteria and near insanity as relatives and volunteer fire-fighters tried in vain to control the fires and rescue those who had been trapped under falling buildings and debris. Three hundred and fifty thousand were killed! Half as many again were seriously injured and listed among the radiation casualties.

The more massive buildings, such as the Union Station, the Royal York Hotel, and the towering Bank of Commerce, were not completely destroyed. Their interiors, however, were gutted by fires set by the flash, and all were made practically useless. On the bomb side, a ten-story section of the bank caved in on King Street. The only human beings left alive were the ones working in the basements and tunnels that honeycomb the area of the railway station and post office. All three general hospitals were tragically wiped out. The University of Toronto was left in shambles of brick and plaster.

The railway lines were cut at the union terminal; telegraph, telephone, and radio were also off. It was about an hour later that help began to pour in from Hamilton and Oshawa, only to be hindered by roads blocked with debris and fires which burned continuously for a week. During that time, long lines of freight trains carried the injured and dying to hospitals as far away as Boston and New York.

Owing to the fact that many of the corpses were highly radio-active and as a result presented an ever-present menace to the survivors and rescue workers, engineers and medical men erected a series of crematorium stations on the outskirts of what was once the city. Crews of men, grotesquely garbed from head to foot in uniforms of asbestos and lead, transported these "lethal" dead bodies to be cremated en masse. The ashes were then sealed in lead-lined boxes containing weights, shipped by boat ten or fifteen miles out on Lake Ontario, and dumped overboard.

And so Toronto, the second largest city in Canada, died—moaning, groaning, and in terrible agony! The atomic bomb, despite the cries

of "IT CAN'T HAPPEN HERE!" had done its devilish work.

This forecast in fiction, of course, has been a figment of the imagination. If you re-read what is written so far, you will realize that it is an attempt to project on the city of Toronto, or on your own city, what actually happened at Hiroshima and Nagasaki in Japan. But that was in 1945—four years ago—abstract and remote. Today, leading atomic scientists tell us that the bomb is now ten times more powerful than it was then. If an atomic war is waged, the bombs will not come in ones and twos as they fell on Japan. The sky will be blackened with them—thousands of them—and obliteration will be swift and sure. Against this atomic bomb there is no effective defence!

Since the history of the world began, great civilizations have risen and fallen, risen and fallen. Read about the Babylonians, the Egyptians, the Romans, the Incas, and the Mayans. Will there be any future for this generation of fear and perplexity whose chief concern is war—the preparation for war, payment for past wars, and solving the problems created by such wars?

Since no other civilization before the present one ever possessed such a devastating weapon as the atomic bomb, it would not be illogical to think, as some great scientists have already intimated, that the present civilization, in the event of open, atomic hostilities, might cause its own complete and final disintegration.

We are living in those days forecast in St. Matthew chapter twenty-four, verses six to eight: "And ye

shall hear of wars and rumours of wars: see that ye be not troubled: for all these things must come to pass, but the end is not yet. For nation shall rise against nation, and kingdom against kingdom: and there shall be famines, and pestilences, and earthquakes, in divers places. All these are the beginning of sorrows."

After the first World War, fifteen million Chinese were starving and three million died. Russia's famine was the most appalling in the recorded history of man. The worldwide influenza epidemic claimed the lives of 18,000,000. The effects of World War II are still staggering the imagination. In 1920 China's great earthquake snuffed out 200,000 lives. In 1923, Japan's earthquake claimed another 150,000. Inside ten years, the world saw "wars and rumours of wars," "famines and pestilences, and earthquakes."

Are we not living in those destructive days forecast by the prophet Joel: "Proclaim ye this among the Gentiles; Prepare war, wake up the mighty men, let all the men of war draw near; let them come up: beat your plowshares into swords, and your pruninghooks into spears: let the weak say, I am strong." Joel 3:9, 10.

Admittedly the outlook for the world is dark. Nations are being swept into the vortex of war against their will. No one wants war, but there is nothing that man can do to prevent it.

Our only hope lies in our personal salvation. Let us not procrastinate. Let us ever keep in mind the words of divine admonition that, "Today is the day of salvation."

EARTH'S LAST WAR

SUNDERA RAJ JAMES

WAR, despite its dreadful consequences to man, is not a new or an unusual incident in his experience. History can speak of innumerable wars of varying intensity and duration. Man has become accustomed to it by the reason of its frequent occurrence. He even considers periodical wars an absolute necessity for the world's good. In some cases the war is even glorified. Such an attitude toward war on the

part of man has given it a permanent place in his experience.

But what is new about war now is that at no time in history has there been put forth such determined and desperate effort to end it as is being done at the present time. The United Nations Organization's chief objective seems to be to avoid war as a means of settling disputes between nations. One chief reason for these noble attempts is that each succeed-

ing war has made more and more apparent the utter folly and futility of waging a war to settle international disputes. Then the discovery of atomic energy and its fearful and grim contribution to war has somewhat quickened his efforts. Scientists who deal with this primordial universal energy and who realize its destructive potentialities frantically cry out: "There must not be another war!"

That all the efforts of man to stop war and even the presence and possible use of atom bombs in a conflict cannot stop war, is not a difficult doubt to cherish. While the world's politicians and statesmen grimly proceed with their war-stop efforts, yet in the minds of at least some of them must be the thought that their efforts are going to be a glorious failure. Such fears need not be unreasonable. To have such doubts and to give expression to them is not necessarily to be an enemy of peace. For it is obvious that so long as man's mind and heart condition remains as it is at present, his desires so earthly and selfish, his tendency to take matters in his own hands in utter ignorance or disregard of divine plans or methods, war is inevitable. And nothing, absolutely nothing—human peace efforts or the dread of weapons capable of total human destruction—will stop him from waging war. It is not his own personality condition that is totally responsible for war. Unseen and sinister agencies, over which he has no control, but which gain mastery over him and control him, unceasingly incite man to violence suggesting conditions and plausible reasons for such violence.

Then is there to be no end to war? If there is, then when and where shall the last war be fought? Who will take part in it? Will this best war—because it is to be the last—be a short war, a long war, a total war, or what?

The Bible accurately chronicles humanity's origin and predicts its course. Man generally has not known this prophetic outline of world's history; but to one who knows it, world events march on one after another perfectly fitting into the blue-print as to both time and nature, and thus vindicating the Bible's claim as God's Book. And the Bible speaks with considerable particulars of the earth's last war, answering all the questions raised in the preceding paragraph.

In the last book of the Bible are these words: "The spirits of devils, working miracles, . . . go forth unto the kings of the earth and of the whole world, to gather them to the battle of that great day of God Almighty. . . . And he gathered them together into a place called in the Hebrew tongue Armageddon." Revelation 16:14, 16.

In this passage is brought to view a battle. "The battle of that great day of God Almighty" it is called. The day of the second coming of Jesus Christ to this earth is spoken of here as the "great day of God Almighty." This battle is to immediately precede the second coming of Jesus. Inasmuch as the latter event has not taken place yet, the battle in question is still in the future.

The spirits of devils incite and intensify this war. One reason for man's sure failure to end war is that he does not take into consideration the existence of these wicked spirits and their ruthless working for man's woe and destruction. Man needs di-



vine help to successfully deal with them.

Who are the belligerents? "The kings of the earth and of the whole world." A total, global war, involving all the nations of men, is envisaged in these words. How the nations will be aligned in that terrible conflict is not definitely revealed. The term "kings" is used in a larger sense to include all the heads of nations of all types of government.

Movements in and around Palestine must be carefully watched in the future. This small but ancient country will be in the limelight in regard to final and closing events of earth's history. It has already begun to move on to the stage and compel universal attention. What is taking place there now is ominous.

Here is another passage from the Bible on the last world war: "Proclaim ye this among the Gentiles; Prepare war, wake up the mighty men, let all the men of war draw near; let them come up: Beat your plowshares into swords, and your pruninghooks into spears: let the weak say, I am strong. Assemble yourselves, and come, . . . and gather yourselves together round about. . . . Multitudes, multitudes in the valley of decision: for the day of the Lord is near in the valley of decision." Joel 3:9-14.

What a clarion call to man for the earth's last conflict! What a graphic picture of the gigantic and total preparations for a war of global dimensions! All the men of war, with all the weapons they have devised and can muster, clash in terrific fury and intensity. As we read this passage, don't we hear the tramp, tramp of millions of booted feet, the clicks and clangs of countless swords; and see stretched across as far as eye can see an ocean of helmeted heads, glimmering in the Palestinian heat as the sea underneath the rising sun? All march, march to wage man's last war.

This war is to be fought immediately before the coming of Jesus. The events that shall take place at His coming point out that there shall be no victor or vanquished in this war. All will be destroyed alike by divine act amidst their death struggle.

After the conclusion of this titanic struggle, those that survive "shall beat their swords into plowshares, and their spears into pruninghooks: nation shall not lift up a sword against nation, neither shall they learn war any more. But they shall sit every man under his vine and under his fig tree: and none shall make them afraid." Micah 4:3, 4. A disarmament in the true sense. No weapons of war shall be seen anywhere. No rifle ranges and parade grounds. No more war. No fear of any sort shall plague man. Peace, perfect peace, shall grace his experience. Is this not the condition that man earnestly desires and labours to bring about in this world but fails, so utterly fails, to achieve? "He [God] maketh wars to cease unto the end of the earth." Psalm 46:9. Yes, war shall cease to form a part of man's experience; but it will be by God's own act, and at His own appointed time, and in His own good way.