arm, and if the radius is shortened the ulna, which articulates with the lower extremity of the radius, must go somewhere. The answer is, it goes inward. And when the ulna is driven inward (or toward the body when the arm is in the correct anatomical position) the wrist is broadened at the point of injury.

We are not suggesting the use of the calipers in lieu of the x-ray, or in any manner disparaging the value of the x-ray as a means of diagnosis in this class of fractures. But in localities where the x-ray is inaccessible we do recommend the calipers as a simple and accurate means of diagnosis.

There are several other signs of fracture of the lower end of the radius described in text books on fractures, and I do not want to ignore these symptoms, but so far as I have read there is no author who calls attention to the difference in measurements between the styloid processes of the radius and ulna in the different arms in fractures in this locality. Any fracture of the radius in which there is no displacement of any part necessarily would not be followed by any dislocation or displacement of the lower end of the ulna, and hence there would be no necessity for any treatment, as there would be no broadening of the wrist.

A most conspicuous sign of old fractures which have not been properly treated is the prominent protrusion of the end of the ulna when the hand is in the prone position. And, to recapitulate, where there is shortening of the radius, there is dislocation of the end of the ulna from the ulna cavity, and consequently broadening of the wrist. Then, broadening of the wrist following an injury means fracture and not sometimes a sprain for which it is so often treated by anterior and posterior splints. And I wish to emphasize again the importance of etherizing the patient, since too frequently a doctor is not strong enough to break the impaction which is too often present, because the natural resistance of the muscles have also to be overcome.

The proper application of a well-fitting splint, such as I exhibit here, is, I believe, the best method of bringing slight traction on the broken end of the radius and at

the same time returning and retaining the end of the ulna in the cavity of the radius, which is made for its reception.

This appliance is made of plaster of Paris bandage, woven back and forward upon itself until the proper thickness is acquired. It is then removed from the even table on which it is made, just before it hardens, and is moulded to the particular arm for which it is intended. You will notice that the end is swept over the hand instead of being allowed to proceed straight. This "lucky curve" serves to retain the wrist in the pistol-shaped position, while the forearm is in a position midway between pronation and supination. It will also be noted that when the hand is bent laterally, or toward the ulna, when the forearm is in the mid-position, the end of the ulna at once falls into its cavity, thus allowing healing of the capsular ligament, which had been torn when the injury was received. This simple plaster splint prevents at once any movement in the supine or prone directions, thus retaining the end of the ulna in position, and at the same time lends itself admirably to considerable movement of the fingers, thus keeping free from involvement in the after-coming callus, the tendons on the flexor and extensor surface of the wrist. 259 St. Francis St.

PREPAREDNESS AGAINST CANCER

By JOSEPH C. BLOODGOOD, M.D.,
Baltimore, Md.

Cancer Week.—During this period the medical profession under the direction of the American Society for the Control of Cancer proposes to disseminate correct information which every one should possess for his protection against death from cancer.

The Menace of Cancer.—This danger now needs no signal post. The majority of the adult population of this country knows that cancer is one of the most common causes of death in men and women. What is not known and should be known is that in many parts of the body cancer can be prevented, and in all parts it can be recognized so early after its beginning

that the present methods of treatment have, and will, accomplish a large number of cures.

Misinformation.—The general opinion of cancer is that it is a hopeless disease. This folk-lore impression is based upon the fact that the majority of people, when uninformed, seek treatment in the late and advanced stages, and it is quite true that any known treatment has cured but a very small per cent.

The educational movement by the medical profession is to correct this misinformation that cancer is a hopeless disease and rarely cured.

The medical profession is the guardian of the health of the people and when it possesses evidence that a disease formerly considered hopeless is in some instances preventable and in others curable, these facts should be given to the public.

As an example of misinformation the following may be cited. When I was playing golf recently in Mississippi, the ball was driven into a small ditch of water. The bare-footed colored boys tried to locate it with golf clubs. When it was suggested that they wade in and feel for the ball with their bare feet, the answer was: "No, sir, lampreys are in this water, and when they bite you they kill you."

This was misinformation, and the question was how to correct it so the boys would understand and act accordingly at once. The answer was:

"Boys, if you have been told this, you are right to refuse to wade in these dangerous waters. But, boys, we, when students at the university, dissected lampreys. We handled them dead and alive; we gathered them ourselves from muddy waters; we were bitten. The bite of the lamprey is no more dangerous than the bite of a blood-sucker, and much less dangerous than the sting of a mosquito."

What was the result? The boys waded in whistling, found the ball and asked for no reward.

Correct Information.—The medical profession has made every effort to test the accuracy of the facts contained in the message to the people. We also have ample proof that if these facts are understood and acted on, the number of deaths from cancer will be greatly reduced.

What is Cancer?—Recently in Mississippi I was asked to address the young men and women teachers of a large nor-

mal school and found myself confronted with numerous children of the ages of seven to twelve. When I asked the president to let the children go and enjoy a recess, he replied: "They have come of their own accord to hear the lecture."

What can be said about cancer that children will understand? Help in this emergency came by remembering a conversation with my daughter, aged seven, who asked: "Father, how can you tell cancer?" I replied: "How can you tell your father and mother?" Answer: "Because I see them so often." Reply: "That is how doctors can tell cancer."

Question: "Father, why have you not removed the black mole on aunt's shoulder?" Answer: "Because it is the kind of a mole that does not become cancer; if it were, I would have removed it years ago." "Father, when are you going to take the mole off of my shoulder?" Answer: "Never, because it is the same kind of a mole as that on your aunt's shoulder."

"Father, Cousin ——— told me that you are going to remove the nodule on his face after he is twelve years of age. Why not do it now?" Answer: "It is not dangerous now, but after he is older, it is the kind that may become cancer. Therefore, it is safer to remove it before it becomes cancer."

Mushrooms and Cancer.—Children and every one should know that when some kinds of mushrooms are eaten, one becomes very ill and even may die. But when other mushrooms are eaten, no harm results—they are good and safe food. Therefore, when you want to eat mushrooms, you must find out from some one who knows what kinds are not dangerous.

Beginnings of Cancer.—Cancer never begins in a healthy spot. There is always something in this spot first that is not healthy, but is not cancer. Cancer may or may not begin in such a sore spot. Every one will be aware, by seeing or feeling, of this sore spot that may, like the mushroom, be harmless or dangerous.

Therefore, when any one becomes aware of such a sore spot, he should at once seek the advice of a medical practitioner and let him find out whether it is dangerous or harmless.

The beginnings of cancer are black moles, warts, scaly areas, sores, unhealed wounds on the skin or in the lining of the mouth; lumps or nodules which can be felt beneath the skin, as a rule not painful, or swelling or pain in a bone or joint. These beginnings are external and easily seen or felt. When the little sore spot is within the abdomen it can not be seen and is rarely felt. But every one with such a sore spot concealed within the abdominal cavity, or belly, will always receive a distinct message, because every part of the body is connected with the brain by nerves (wires); the sore spot irritates the nerves and the nerves carry the message to the brain. This message may be pain, discomfort, a sensation of heat or weight.

You feel something in a part of your abdomen which you never felt before. It may come and go. It may persist. The same message may give rise to indigestion, belching of gas, or even vomiting of food.

The sore spot may give warning of its presence by an unusual discharge, as a rule bloody.

These beginnings which we have described always give warning, but no one but a well trained doctor can distinguish between the one that is harmless and the one that may become cancer.

Examination First.—When any one becomes aware of any of these warnings the most important thing is to consult your medical adviser and request a thorough examination.

There is Always Hope.—In giving this correct information to the public we do not wish to take hope of a possible cure from any one who is suffering from cancer in an advanced stage and knows that he has delayed. The present methods of treatment have, in the past, accomplished cures, but the number has been relatively small.

The medical profession feels that the public must know for its own protection that the same methods of treatment in the early and less advanced stages of cancer promise a large per cent of cures and in many instances the individual, when he seeks advice early, may be fortunate in having a condition which is not yet cancer, and now cancer can be prevented.

CANCER OF THE MOUTH, A PREVENTABLE DISEASE

(Journal of the American Medical Association, July 16, 1921, Vol. 77, p. 220.)

Cancer of the lip, mouth and tongue always attacks men who use tobacco in excess, who have ragged, dirty teeth and never see a dentist. There is always a warning by a sore spot, a white patch, an area of irritation. Examination and treatment at once protect from cancer.

One of the large surgical clinics of this country has just completed a study of some 265 cases of areas on the tongue that were cancer and of areas that were not cancer. In the first decade, up to 1900, but one individual (3 per cent of the total) consulted this clinic for a sore on the tongue which was not cancer. In the third decade, from 1910 to 1920, 71 individuals, or 48 per cent, came for advice before cancer had started. Since the beginning of the fourth decade, 1920, 19 men, or 55 per cent, have, because of the educational movement, come under observation before the cancer had started.

Therefore, among 265 men who thought they had cancer of the tongue, in 105, or 40 per cent, protection from cancer has been accomplished by the dissemination of information only.

In the first decade up to 1900 there was but one man treated in whom the cancer was in its early stage, representing but 3 per cent of the total number, while in the fourth decade, since 1920, due to education, the number of early cases has increased from 3 to 23 per cent.

In this early stage treatment, that is, complete excision of the involved area of the tongue, has cured 62 per cent.

In advanced cancer the probability of a cure is not more than 12 per cent, and the number of these cases has fallen from 43 per cent in the first decade to 11 per cent in the fourth decade.

In the first decade 44 per cent of the men—due to ignorance of the danger of delay—came for treatment when the cancer had become hopeless. In the last decade there were 11 per cent of such cases.

This thirty years' experience gives definite evidence that cancer of the tongue is a preventable disease, that in the early

stages we cure 62 per cent, in the late 12 per cent.

The warnings of cancer of the tongue are definite and in the beginning they are not cancer. They are white patches, bad teeth, areas of irritation and ulcers.

The same is true of cancer of the lip, lining of the mouth and the gums about the teeth.

Any individual who is informed of these warnings, seeks immediate examination and has the cause removed, will be protected from cancer.

CANCER OF THE SKIN, A PREVENTABLE DISEASE

This form of cancer never begins in a healthy spot on the skin. There is always first a diseased spot which is not cancer—a black mole, a wart, scaly area, sore, unhealed wound, a burn, lump or nodule. Everyone knows of its presence. It can be seen and felt. It may have been present since birth. It may have just appeared. But, like the mushroom, no one but a good, experienced doctor can tell whether it is of the dangerous kind, and whether it should be removed. If it is of the dangerous kind, its proper removal will protect from cancer.

Should you consult a cancer quack who advertises that he cures cancer, he will call it cancer, no matter what it is. If it is not cancer, you will go through a painful procedure and have an ugly scar unnecessarily. If it should be cancer this treatment usually fails. If the treatment is in the hands of an experienced surgeon it should never fail, if it is early cancer.

There is no question that cancer of the skin is a preventable disease, and early cancer of the skin should invariably be cured, if the proper treatment is followed by an experienced surgeon.

CANCER OF THE BREAST

Every woman over twenty-five years of age should know that if she feels a lump in her breast her protection depends upon an immediate examination.

As yet we have no evidence that cancer of the breast is a preventable disease, but in the thirty years since its operative treatment was established by Halstead of Johns Hopkins, there is ample proof that a cancerous nodule in the breast operated

upon immediately after its first discovery is usually curable in more than 70 per cent. If the woman delays until the low axillary glands are involved the per cent falls to 25, and when the highest glands are involved, it falls to 10.

In my own recent experience so many women are seeking advice at once after they feel the lump that I am able to give some very interesting and hopeful figures.

First, the woman may feel a lump, but on careful examination there is no lump, or the lump is indefinite or one of many indefinite lumps in both breasts, or there may be only slight enlargement in the breast tissue in the axilla, or there is only a slight discharge from the nipple. Operation is not indicated. These women run no more risk of cancer than any other woman of the same age.

Second, the lump which the woman felt is a definite lump. The operation should be performed at once. The lump is explored. If it is benign, the lump is removed and the breast saved. If it is cancer, the breast and the complete operation is done, and the woman's life is usually saved.

In the last few years among the women seeking examination at once, in almost 50 per cent nothing is found, or only indefinite lumps in both breasts, or discharge from the nipple. When the definite lump is found and explored in almost 50 per cent the lump is either a benign cyst, or an encapsulated adenoma. When the explored lump is found to be cancer, in almost 50 per cent of the cases the glands are not involved.

The great increase in the number of women who seek advice and in whose breasts after careful examination nothing is found, is entirely due to the educational movement.

The greatest increase of benign tumors when the lump is explored is undoubtedly due to the fact that the cyst is a disappearing tumor. In former years, when women waited, the cyst usually disappeared and only those with benign encapsulated adenoma and definite cancer came for treatment.

The increasing number of definite cancers without metastasis to the axilla is entirely due to earlier intervention.

Here we have definite evidence of the value of giving women correct information in regard to the danger of delay after they feel a lump.

Our better results today are not due to improvement in our operative treatment, but to the intelligent response of women who in one way or another receive this correct information.

CANCER OF THE UTERUS

In addressing a public audience of women, what should the doctor say about this disease which causes more than 12,000 deaths annually in this country?

In my opinion we should speak to the audience as we do to the individual in our consulting room in the presence of her family.

We are not yet certain, but the evidence strongly suggests that cancer of the cervix of the uterus (the most common form) is a preventable disease.

This form of cancer usually attacks women who have borne children and who therefore have had an examination and should not shun it.

In every woman after childbirth the injuries of labor should be immediately repaired, and she should submit to an examination by a competent obstetrician or gynecologist, or the doctor who attended her during childbirth, at regular intervals.

Every woman over twenty-five years of age who observes any change in her monthly periods, or any discharge (as a rule bloody) between the periods, or who after the change of life notices a recurrence of the periods of discharge, should seek examination at once.

Women should know that in the great majority of cases this warning is not cancer. It may be a condition that will never develop into cancer, or one that usually develops into cancer. In a few instances it may be the first warning of an early cancer.

Protection against cancer absolutely depends upon a careful examination. In some cases it may be necessary to go to the hospital for a minor operation which can be performed under very light gas or ether anesthesia. Pieces of tissue are removed from the cervix and examined under the microscope.

Should early cancer be revealed by the microscope the chances of a permanent cure are very large. At the present time there is some difference of opinion whether the treatment should be radium, or operation alone, or both. This must be decided by the gynecologist responsible for the treatment.

Cancer of the cervix very quickly infiltrates beyond the area that can be removed by operation. The operative cures of late cancer of the cervix are not more than 10 per cent.

The experience of the medical profession up to date seems to indicate that proper treatment with enough radium in the late stages of cancer of the cervix, offers a much larger probability of a cure than operation.

But no treatment can promise as much as the treatment applied the moment the examination is made immediately after the first warning.

The hope of reducing the number of deaths from cancer of the uterus in women depends chiefly on giving them this correct information, and their intelligent co-operation.

CANCER WITHIN THE STOMACH

The most common situation is the end of the stomach and the large intestine (the colon). Here is a local area or sore spot which is, or may develop into, cancer and is concealed. It is rarely felt as a lump, except in the late stages.

When one studies the recorded histories of individuals with cancer of the stomach or colon, one is impressed that, with few exceptions, everyone has been warned. But a complete examination has been delayed, often until it is too late.

Fortunately there is hopeful evidence. In a few clinics in the past ten years, and in many clinics in the past five years, many individuals have come for examination early, and at operation the number in which the cancer could be removed with a large insurance of a cure, is increasing rapidly.

In former years no one was cured of cancer of the stomach or colon unless by some fortunate accident the growth had produced obstruction at the pylorus, or in the colon, and the symptom of vomiting

was so urgent that they came immediately for operative relief.

Unfortunately obstruction is a variable possibility and it is as often late as it is early in the course of the disease.

The other warnings are just as definite, but not as urgent. Unfortunately, they do not differ from the warnings of diseases within the abdomen that are not cancer and never will be cancer. But like the mushroom, no one except an experienced diagnostician after careful examination, always with the aid of the x-rays, can determine it.

Indigestion, belching of gas, discomfort within the abdomen, even pain and occasional vomiting, tenderness, unexplained diarrhea and constipation are such common experiences of adult life and usually pass away with or without treatment, that the majority of individuals, uninformed and ignorant of the dangers, delay, take domestic remedies, buy patent medicine, or demand treatment of their physician without examination.

It is the object of this renewed intensive educational campaign to bring this correct information to a larger number of people with the hope that they will understand it and when their warnings come, seek and demand an immediate and thorough examination.

We have ample evidence that many have already done this, and have been or will be cured of cancer of the stomach or colon, which was revealed in such an early stage that it could be completely removed.

The danger of removing a portion of the stomach or colon if the cancerous mass is in the early stages of its growth, is very, very small, while the hope of a cure is very large.

CANCER OF BONE

The chief message to the public is the importance of an immediate x-ray. The laity are educated to have an x-ray taken after a fracture, but not after a bruise to a bone or joint.

The warnings of diseases of bone are local pain, swelling, a limp, or impaired function. Now is the time for an immediate x-ray.

As diseases of bone produce either bone destruction or bone formation, the x-ray at the very onset pictures the beginnings of the disease.

The advantage of immediate examination after any of the warnings mentioned is that this offers the only hope of increasing the number of cures of sarcoma of bone, whether the treatment is amputation, resection, radium or x-rays.

In the *Journal of Radiology* for March, 1920 and in other papers, the references to which are given in the *SOUTHERN MEDICAL JOURNAL* for December, 1920 (vol. 13, p. 987), I have recorded that amputation for periosteal sarcoma had accomplished but two cures, less than 4 per cent, and the results after amputation for central sarcoma are about 8 per cent.

What the results will be when we are able to apply our treatment earlier, is only conjecture, as up to the present time there are only very few early cases.

The new and important fact for the profession to know in regard to lesions of bone are, that when the public is educated and seeks advice immediately after the first warning, the x-ray will reveal both periosteal and central lesions which in the past have rarely or never been seen, because these diseases came to spontaneous recovery and when the patient delayed, the medical profession was given no opportunity to examine them clinically or with the x-ray.

Again, sarcoma of bone is rare, while the benign lesions, the bone cyst, the central giant-cell tumor, the myxoma, the chondroma, the various types of exostosis and ossifying periostitis, tuberculosis and osteomyelitis, are common, and these benign lesions in their early stages are difficult to distinguish from the malignant.

For this reason the past records of cures by amputation for sarcoma of bone have incorrectly recorded a larger per cent of cures, due to incorrect diagnosis. For example, in 1899 an American report claimed 49 per cent of cures after amputation.

The same difficulty of differential diagnosis in recent years may explain some of the cures by x-ray or radium and the toxins treatment.

Therefore, in view of the greater difficulties of diagnosis in the early stage, in view of the possibility that it may be a periosteal or central lesion of the type which recovers spontaneously, or of the benign type which can be cured without amputation, and in view of the fact that up

to the present time amputation has accomplished but a small per cent of cures, the surgeon, the roentgenologist and the pathologist should make every effort to establish at once a certain diagnosis before proceeding with any mutilating treatment such as amputation.

The details of the diagnostic procedure are given in the papers referred to.

CONCLUSIONS

The educational campaign to inform the public in regard to the early warnings of things that may be cancer, has been going on for some years and was intensified during Cancer Week, and undoubtedly will be followed up by a continuous educational movement.

There seems no question that the public must be informed on preventive medicine and also that our methods of treatment promise better results if applied early, and these methods of treatment cannot be applied early unless the people are informed. The uninformed individual rarely if ever, seeks advice in the early period. When the disease is one from which the public cannot be protected, as from typhoid fever, it must receive education on the earliest signs and symptoms.

We already have evidence of the intelligent response of the people to this correct information, and we have positive proof of the better results. But also we have ample evidence that it has increased the difficulties of diagnosis.

Diseases which heretofore we have rarely seen, because they recovered spontaneously, are becoming common. All lesions of the same tissue in the same locality when left alone tend, as time goes on, to differentiate themselves, so that diagnosis is not difficult. It is minor diagnosis and major treatment. The same lesions in the early stages are not so differentiated, and we are confronted with major diagnosis and minor treatment.

The medical profession must prepare itself for these difficulties in diagnosis, and also for the larger responsibility of treatment.

First, there is the danger of diagnosing malignancy and performing a mutilating operation when there is no malignancy. Second, there is the greater danger of diagnosing benignity, when there is really malignancy in its early stage, and either

delaying treatment, or performing an incomplete removal.

Incomplete removal of malignant disease is the worst treatment possible.

Then, again, there is the danger of diagnosing early malignancy and treating the lesion incorrectly. For example, choosing radium instead of excision, when the latter offers most, or, when excision is chosen, removing too small an area.

In this country the technic of surgery is good and equal to the treatment of malignant disease in its late stages. But the diagnosis of the same disease in its early stage, is by no means as developed as the operative technic.

As technicians we can find no fault with our colleagues using radium and x-rays, but we can with their judgment as to its application. The same can be said of operators who choose operation when x-rays and radium offer more. This is probably now true in cancer of the cervix, in myoma with hemorrhage, frequent curetting for uterine bleeding when one application of x-rays or radium will check the bleeding; in extensive operations for Hodgkins' and lymphosarcoma when we know that surgery offers nothing and x-ray and radium more. How much more, we do not yet know. Complete excision of the upper jaw for malignant disease with the knife has no recorded cures to justify its continuance.

There is much surgery done with the knife that should be done with the cautery.

We are on the threshold of interpreting our evidence as to the combination of attack with the x-rays, radium, knife, cautery.

The fault is not with individuals throughout the country, but with the great clinics who have the material and the records, which, if carefully analyzed and placed in the literature would be most helpful in an intelligent attack on malignant disease after a more or less assured diagnosis.

In many great clinics this material lies dormant like gold in a vault, ready for circulation. There is demand for it. The question is how to get this dormant material of life-saving facts in print and accessible for our combined study and attempts to reduce the number of deaths from malignant disease.