to correct this situation but it is easy to fall into the error of making the "remedy worse than the disease." For example, if it were desired to simply unify the results insofar as positive or negative reactions were concerned, a simple modification of the original Wassermann reaction could be made to fulfill the requirement. In other words by adopting a technic capable of detecting only relatively large amounts of "reagin" the weakly positive or doubtful cases which constitute those giving varying results, would be weeded out by giving negative reactions. Only gross technical errors would interfere with uniform results under these conditions, but is such a reaction worth while? Are not the truly syphilitic cases in the latent stages worthy of detection even though antiluetic treatment may not be given? Should not a reasonable attempt be made to make treatment as thorough as possible? When treatment is being guided by the complement fixation reaction, should not the test be made as sensitive as is possible with practical specificity in order that a truly positive reaction may be the last symptom to disappear and the first to return if complete sterilization has not been accomplished?

I have not called our new test a standardized test because it must earn that designation by common consent. But experience with it has been favorable, and I am hoping that it may, at least, prove a starting point toward the adoption of a standardized technic. A new antigen and many technical improvements have been included to give the technic five qualifications as follows: (1) as high degree of sensitiveness as is permissible with practical specificity; (2) technical accuracy and uniformity in results insofar at least, as positive or negative reactions are concerned (slight variations in the degree of positiveness will occur but these do no harm as long as the primary question of whether a serum does or does not yield a positive or negative reaction is answered); (3) yield a truly quantitative reaction in order to give an index of spirochetic activity and the influence of treatment; (4) be technically simple in order to reduce the minimum of error and (5) economical of time and materials insofar as this is consistent with the best work. Simplicity is but a relative term; for the inexperienced any technic is apt to be complicated but for the experienced, my new test is simple. It is not a short cut method and has never aimed to be, because too many sources of error require attention and correction to fulfill the primary aim of sensitiveness and specificity.

Standardization is desirable if these aims are served and satisfied. The first purpose should be to secure as good a technic as is possible to evolve in the light of our present knowledge. Mere unification of results in Wassermann tests in different laboratories means little or nothing unless the test is technically correct and as sensitive as is possible with practical specificity. Even under these conditions individual variation in the scientific attainments and accuracy of different serologists will ever be modifying factors, if the test aims to be a sensitive one, but I believe standardization is possible under these conditions and my own efforts have been, and will continue to be, dedicated to that end.

Facts and Figures About Cancer

By U. G. Dailey, M.D., Chicago, Ill.

Cancer is the broad term used to denote every kind of malignant growth or tumor.

One of every 13 men, and one of every 11 women die of cancer. In the British Isles the rate is even higher, being one of every 8 men, one of every 6 women. These figures are for all ages. Past the age of 35, one of every 10 persons, male or female die of cancer.

The disease is markedly on the increase. **Thus,** in the regions of registration throughout the world, the combined figures show that in 1871, the cancer death rate per 100,000 was 47.5. In 1921, it is estimated to be 90 per 100,000; nearly double in 50 years!

Cancer is not limited to man but occurs widespread in the animal as well as in the vegetable kingdom.

Cancer is a growth, beginning locally. This fact is of great importance, because if true, early and complete removal should result in cure. There are some who believe that it is a constitutional disease from its inception. The fact that early and complete removal does cure the disease, tends to disprove the theory that it is a systemic disorder.

Cancer is neither infectious nor contagious. It is not "catching." Not only has the germ not been discovered, but the disease does not exhibit the characteristics of infectious diseases as we know them at present. It must be confessed that doctors argue among themselves on this point and there are some very good men who believe that it is an infection. Several investigators in various parts of the world have announced the discovery of a germ, but these "discoveries" have none of them been corroborated. So the burden of proof is still with those who contend for the germ origin. But all

are agreed that it is *not contagious*. No one has ever seriously claimed, with proof, that he has seen a case of cancer caught from another person suffering with the disease, in the way that measles, diphtheria, smallpox or even tuberculosis is. No surgeon or nurse has ever been known to contract the disease from a patient. That should allay the fears of those who refuse or loathe to nurse a patient with open cancer.

Cancer is not a blood disease, like syphilis, or "pox." This may sound like a superfluous statement, but there are those who look upon it as a "bad" disease.

For all its loathesomeness in the advanced stages, only the ignorant and superstitious can look upon it as a retribution or punishment.

Is cancer hereditary? An unfortunate difference of opinion exists on this vital point. It is our personal opinion, that it is now definitely proved that cancer *is* hereditary. No one who is familiar with the 15 years experimental work of Dr. Maude Slye of the University of Chicago with mouse cancer, can remain in doubt on this question.

The cause remains unknown. As suggested, some espouse the germ theory, others believe in Cohnheim's theory of the displacement of cells in intrauterine life of the infant. This much is certain: chronic irritations, jagged teeth, prolonged pipe smoking, hot fluids in the stomach, cracked nipples, lacerated wounds, etc., seem to favor the development of cancer at certain sites.

At the beginning, cancer is painless. It is treacherous, it is deceiving. It starts so innocently—therein lies the great danger.

Cancer may begin in any tissue or organ of the body, but the stomach, breast and uterus are the most frequent locations.

It is estimated that 30 per cent of all cancers in men, and 22 per cent of all in women occur in the stomach. W. J. Mayo believes that drinks too hot to be comfortably borne in the mouth have influence in causing stomach cancer. "Persistent indigestion in middle life with loss of weight and change of color, vomiting or diarrhea, call for thorough investigation as to the possibility of internal cancer." (Am. Soc. for Cancer Control pamphlet.)

Every persisting lump in the breast should be looked after. Not all of them by any means are cancerous, but they *may be*. A competent physician should decide the question. This can be done by microscopic examination and other means. It is estimated variously that 40 to 60 per cent are not cancerous. But 90 per cent of those that *begin* past the age of 40 (the cancer age) are malignant. After the cancer age, if a mistake is made, it is far better to have a benign growth out under the impression of malignancy, than to leave a cancerous growth in, or even to take it out with the feeling that it is not cancerous. Unyielding corset stays, irritating over a long period of years has been believed to start cancer growth. "It seems a well established fact that in the countries in which the breasts are exposed to the air without covering, cancer of the breast is extremely rare, and the incidence is in direct ratio to the amount of covering and the pressure exerted upon it." (Mayo).

Before concluding the subject it should be mentioned that cancer occasionally occurs in the male breast.

From middle life on, blood in the stools should not be dubbed "bleeding piles" without careful consideration. It may mean cancer of the bowel.

In women, continued, persistent bleeding or unusual discharge, especially if there is loss of weight, at about the time of menopause, should not be lightly passed over due to the "change." Countless lives have been lost by this very prevalent fallacy. Cancer of the uterus should always be suspected. No doubt should be entertained, but a complete examination and diagnosis should be insisted upon.

Any sore in persons past middle life that refuses to heal should be regarded as possible cancer until proved otherwise. This is especially true if seated about the mouth, tongue or lips. Ill advised cauterization or irritations that do less than absolutely destroy the disease are dangerous. No home remedies here. Better not try quack pastes. Get the *best possible* advice, and act upon it promptly. It should be mentioned that syphilitic sores are sometimes confused with cancer, and *vice versa;* in these locations, therefore give the doctor *all* the facts, and submit to bloodtests, and such other procedures as your physician may request, to clear up the diagnosis.

Warts and moles are to be watched. If they show evidences of sudden and unexplained inflammatory change, they should be taken to the doctor if they don't heal up properly.

Doctors and institutes which advertise "Cures without the knife" play upon the fear of operation and often make the patient lose the golden opportunity for cure.

Avoid cancerphobia. It is farthest from the intention of this educational propaganda to frighten people into unnecessary operations and treatments. Not every indigestion means cancer, nor does every nodule in the breast mean it; the point is, you should know when to suspect the possibility of it, and when to seek proper advice about it. Never be in doubt, until every resource for making the decision has been exhausted. The physician who would take advantage of a patient's fears and do an operation he knows unnecessary, is a criminal.

Treatment: 1st, Preventive: good dentistry, good

midwifery, avoidance of prolonged irritations, hot foods, etc. The hereditary factor and matrimony may well be borne in mind.

2nd Curative (in the order of importance): 1. Early surgery. 2. Radium. 3. Electro-coagulation. 4. Serums.

Early surgery is possible only if people are educated to pay due regard to early suggestive symptoms and potential lesions. Cancer is curable in 80 per cent of cases when surgery is done while the disease is still local. It is 100 per cent incurable where it has developed far enough that the diagnosis can be definitely made without thorough examination; though surgery and other measures may be employed to prolong life.

If every person with a possible cancer could be taught to seek competent advice immediately upon the appearance of suggestive—or even suspicious—symptoms or lesions, nearly all could be cured. This is especially true of the outside cancers.

An increasing number of cases are being cured by electro-coagulation, X-ray and radium; but it must be understood that these are largely adjuncts. Our chief hope at present lies in eradicating the disease while it is still localized.

Rickets

THE SURGICAL TREATMENT OF THE CHRONIC DEFORMITIES OF, WITH EMPHASIS ON BOW-LEGS AND KNOCK-KNEES*

BY ROSCOE C. GILES, M.D., Chicago, Ill.

We must not lose sight of the fact, in presenting a paper on the surgical treatment of rickets, that rickets is and will always remain primarily a disease best treated by medical therapy. While there are many problems which remain to be solved with regard to its etiology and its pathogenesis, preventive medicine has made rapid strides in the alleviation of the morbidity and mortality of this disease, to say nothing of the prevention of deformities which offend the aesthetic sense and interfere with locomotor efficiency.

Our object is to present for your consideration, and to stimuate interest in, a method of treatment available in correcting a great group of deformities in civil life which are unsightly and incapacitating. especially at a time when we hear so much of reconstruction surgery.

In reviewing the literature of this subject, one is struck by its meagerness and secondly by the fact that many of the operative procedures are old and to date have not been improved upon. We are indebted to the English for most of our knowledge of the surgical treatment of rickets, possibly because of the prevalence of this disease in England. So prevalent was rickets in England that W. Goebel made it a subject of a remarkable treatise, in which he dubbed rickets "Die Englishe Krankheit," a synonym which has persisted to this day.

In the pre-antiseptic and pre-aseptic age, for many years it was customary to treat the deformities of rickets solely by mechanical appliances of various sorts. A few surgeons on the Continent, bolder than their fellows, had attempted open operation usually with disastrous results because of infection. With the advent of Lord Lister and his teachings, interest in surgical interference was revived. It was at this time that a group of English surgeons took recourse in operative treatment with a large measure of success. Dr. William John Little of London, in 1842, wrote a book of principles for surgical treatment, many of which hold good to this day. MacEwen of Glasgow, a contemporary, described his classical technique for supracondylar osteotomy, a technique which as yet has not been improved upon and one which has remained the standard.

Statistics—Of 42,124 cases tabulated by Taylor of the Hospital for the Ruptured and Crippled of New York, 15 per cent of the cases tabulated were rickets or the deformities of rickets, and these cases constituted one fifth of the total number of orthopedic cases. One half of these cases were for bow-legs or out-knees, one fourth were knock-knees or in-knees and the rest were anterior tibial curves, rachitic spines, pigeon breasts, etc. Taylor states that the cases were largely among the Italians, Negroes, Russians and Polish Jews, possibly because of unhygienic surroundings, improper feeding and especially prolonged lactation even in the latest stages of pregnancy.

Before discussing any of the operations in detail, it is necessary for us to consider some general principles. (1) The deformities of rickets usually reach their peak during the second and third years, the active period of rickets, and become fixed during the succeeding stage of bone hardening or

*Read before the Louisville meeting of the National Medical Association, August, 1921.