CONCLUSIONS

The results obtained from the study of the cases forming the basis of this report justify the following conclusions:

1. The tuberculous nature of conjunctivitis eczematosa is established and this opinion is supported by the results obtained in the cases subjected to tuberculin, both diagnostically and therapeutically, and by the majority of the other essential clinical findings.

2. The cutaneous diagnostic tuberculin test of von Pirquet is a dependable method for the recognition of tuberculosis, particularly in children.

3. Tuberculin as a therapeutic agent in the treatment of conjunctivitis eczematosa is an agent of distinct and special value and should be employed faithfully, judiciously and perseveringly in this class of cases.

I wish to express my indebtedness to Dr. J. B. Murphy for suggesting to me the use of tuberculin in this class of cases; to Dr. H. Woodruff, surgeon to the Illinois Charitable Eye and Ear Infirmary, and chief of our clinic, for permission to conduct the major part of these observations; also to Doctors Schenck, Hoffman and Smith, of the house staff of the infirmary for valuable assistance in carrying on the observations.

32 North State Street.

THE "EXCITING CAUSES, MEANS OF PREVENTION AND EARLY TREATMENT OF CANCER OF THE UTERUS"

A. E. BENJAMIN, M.D.
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The cancer problem is unquestionably the most important one before the medical profession to-day. Cancer has always been dreaded by every human being. Owing to the public belief in the incurability of cancer, and the apparent failure, up to the present time, of the surgeon to demonstrate the contrary, there has been a lack of cooperation between public and physician in the endeavor to wipe out this disease. Little progress, therefore, has been made.

There has been a steady increase in the number of cancer victims. According to statistics of the Aetna Life Insurance Co. from 1870 to 1906, of the total deaths in 1870, 426, or 2.6 per cent., were caused by cancer; while in 1906, of 1,514 deaths, 111, or 7.3 per cent., were caused by cancer.

Southgate Leigh reports that there were about 70 per cent. of deaths from cancer to 100,000 people in the United States in 1906. The rate of increase according to Coley since 1868 has been 22 per cent. for males and 44 per cent. for females. In England, in 1909, there were 34,053 deaths from cancer, this being within 2,000 of as many as from tuberculosis.

It is estimated that there are 80,000 cases of cancer in the United States and 40,000 deaths annually from this disease. Cancer causes more deaths in women at the present time than tuberculosis. Of 10,000 women in England and Wales dying during a certain period, 2,209 died of cancer of the uterus. In Japan, according to the report of K. Sato, of 6,430 patients, 33.53 per cent., had cancer of the uterus.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911

CAUSES

Coley, Paget, Bilroth, Magraw and many others believe that a large percentage of cancer cases are due to local irritation. It is noted that the working class and those exposed to traumatism are more subject to cancer than the idle or those working indoors. Coley makes the statement, based on over 1,200 personal observations, that "local trauma of any kind from chronic irritation to a single local contusion is not infrequently the direct cause of malignant tumors of all types." Physiologists have been reluctant to acknowledge or to accept injury or irritation as the exciting cause of cancer, but there are enough authentic cases to establish this fact quite well.

Various causes, such as anemia, hard work, uncleanness, etc., prevent healing of raw surfaces in lacerations of the uterus and of ulcers. If such an ulcer existed elsewhere on the body, the patient would not rest until it was cured. These ulcers remain on the cervix for months and years, although much more dangerous than on the outside of the body. E. E. Montgomery says, "Everyone recognizes the fact that a damaged and lacerated cervix is a factor in the development of cancer which is to be heeded, and that such injury is to be treated and cured." The segregation of epithelial cells in the healing of cervical ulcers or lacerations has been offered as an important factor in the cause of cancer of this portion of the uterus.

Dr. Victor Bonney says, that out of 1,876 patients investigated at the Middlesex Hospital Cancer Research Laboratory, 1,796 had been married. Only 9 per cent. had not borne children, and clinically a case in an undoubted virgin was almost unknown. "Every case seemed to be founded on a chronic cervicitis." This belief is shared by many.

The relationship between malignant disease of the cervix, marriage and child-bearing is extremely important from the social standpoint, and in fact is an unjust penalty on the natural function of woman.

PREVENTION

Mayo Robson says, "The arrest or relief of known causes as well as the abolition of discoverable pre-cancerous conditions wherever or however occurring constitute the true preventive treatment."

The most important and efficient means of preventing this disease is to educate the public and the general practitioners. Women should understand that the cervix should be as clean and as free from ulcers, lacerations or abrasions as any other mucous membrane, as a means of preventing local disease. Leukorrhea, menorrhagia and metrorrhagia are abnormal conditions, and medical advice should be obtained at the earliest possible time by women suffering with these complaints. The very location of the uterus makes infection and disease more possible, especially in women who have borne children with a resulting lacerated perineum, gaping vulva and a torn cervix.

When a lacerated perineum is present, it should be repaired so as to make a closed canal below the uterus, thereby preventing infection from the bladder or bowel. The lacerated cervix should be repaired directly after the child is born. This is a condition that has been too long neglected by the profession. In most instances, unless a post-partum hemorrhage or some positive indication of serious uterine trauma calls attention to this organ, the cervix is not inspected after childbirth.

Polypi should be removed as well as fibroids that are degenerating, causing bleeding or enlargement of the

uterus. Acute, semi-acute or chronic inflammation of the uterus or adnexa, as well as any displacement or enlargement of the uterus, should be investigated thoroughly and corrected, if possible, as any disease of any or all of the pelvic organs may lower the vitality and interfere with the proper function of the uterus and thereby lead to ulceration or the development of carcinoma later.

The American Medical Association should take immediate steps to inaugurate a movement similar to the one that has been started in Germany by Professor Winter. The aim should be to enlighten the public, as well as physicians, in general on this subject, and in plain, but comprehensive language, bring before the people the subject in its true light. The laity, as well as the physicians, should be encouraged to fight and overthrow this malady with the methods of cure and means of prevention at our disposal.

The public should be acquainted with the cause of cancer. Confidence in the physician should be restored; the people should be taught to shun quacks, who by encouraging their patients in the promise of a cure, postpone the day when help might be secured to the sufferer. Pamphlets should be sent to every citizen of the United States, through the boards of health, and I am inclined to think that every physician in the United States should also receive one, as many of them ought to be enlightened on this subject or at least reminded of their responsibility in this matter.

Without a doubt in time a serum will be discovered which will have a specific effect on cancer. In the meantime, the disease is steadily increasing, and a multitude of lives are being sacrificed that might be saved if a proper understanding of the subject existed in the minds of the people and the physicians in general. Every family doctor should acquaint himself with the known means of prevention and cure of cancer. There are comparatively few who understand that about 90 per cent. of cancer patients die of the disease, and that fully 80 per cent. of the cases are either preventable or curable. Nevertheless, this is the fact obtained from authentic sources. Physicians should urge local examination in every suspicious case, and refuse to take any responsibility if the patient does not follow his advice.

DIAGNOSIS

Leigh Watson says, "As a rule, a cancer of the uterus that can be diagnosed by the history of profuse or bloody flow for several weeks, or if a tumor can be felt, has progressed beyond the border-line between possibility and impossibility of cure."

Cervical cancer is about five times as frequent as that of the body and runs a more rapid course. It soon involves the lymphatics and extends into adjacent tissue. Especially is this the case when it is of the adenocarcinoma type. The size of the growth does not always indicate the amount of involvement of the lymph-nodes. The growth may appear to be quite recent and yet metastases may be present. The growth may seem quite extensive, yet remain local. When induration is felt in the parametrium it may be due to an inflammatory process.

THE EARLY TREATMENT

At first it would seem unnecessary to advise in strong terms the treatment of this disease in the early stage. Nevertheless, at the present time, surgeons have experiences which indicate that the general practitioner, as well as many of the patients, are not cognizant of the

importance of this matter. Surgeons have patients come to them on whom no local examination has been made, and in whom the disease has progressed so far that no assurance of a cure by an operation can be given.

This state of affairs may not be due to the lack of concern or interest on the part of the patient herself, but to the failure of the attending physician to attach importance to the symptoms complained of. Patients are dismissed daily by doctors without an examination or investigation into the real cause of their trouble.

A woman is often told that the symptoms arise in her particular case from a "cold," "congestion" or "menopause," etc. The patient, being assured that her fears are groundless, is mentally relieved and returns home. In time local symptoms and her general appearance urge the woman to seek the counsel of the physician again, with the result that he makes the long-delayed investigation and finds it necessary to turn her over to the surgeon, who in many instances has to declare it a "non-operative case."

When the disease is local it may cause very little discomfort and no loss of weight, or produce symptoms which seem not to be at all serious. The severe symptoms seldom appear before the case is inoperable. Andrews says, "The risk of recurrence in malignant cases increases in the ratio of the square of the growth."

OPERATIVE TECHNIC

The operative technic for uterine cancer is becoming so perfect and the results so good in the early stages that very little can be added along this line. I would suggest, however, that a radical operation should not be performed in cases in which we are certain of a poor result or serious outcome.

Every death or lack of cure deters many from seeking the advice of the surgeon, if they suspect cancer in their particular case, until it is too late to do any good. Not being able to differentiate in individual cases, they naturally fear operations.

The operability of a case depends as much on the skill of the surgeon as on the condition of the patient. In cases that are not operable, the use of acetone, calcium carbide or cautery, antiseptics and caustics have been of much temporary benefit, and in the slow-growing squamous-celled variety, with the aid of self-established immunity, some have remained free from recurrence from one to twenty years.

In half of the cases seen at the present time, the disease has extended beyond the uterus; therefore, it is imperative that when an operation is undertaken it should be a thorough one, and in my opinion a complete hysterectomy should be performed when there is any suspicion of cancer, as there are numerous cases on record in which cancer had developed in the cervical stump subsequent to the partial hysterectomy.

OPERATIVE MORTALITY

According to the Johns Hopkins statistics for fifteen years prior to 1904, 19 per cent. of all patients operated on by hysterectomy for cancer were reported well five years or longer after operation, and about 20 to 30 per cent. are operable when first seen. No doubt many patients recorded as cured five years after the operation die later from a recurrence.

The object of this paper is to point out the ravages of this disease and to awaken a more profound interest on the part of the profession and the laity in the cancer problem. Physicians in general can help solve some

uncertainties by making a thorough investigation in every case coming under their observation. They should record every symptom and condition arising in each case, and preserve these records for future reference in summing up all the etiologic factors and preventive means in relation to this disease. Pathologists cannot settle this question alone, but the laboratory studies, together with clinical data, will finally clear up a number of questions.

The laity, if once aroused to the importance of this disease, will, as they have in tuberculosis, lend its support by giving freely for the endowment of research laboratories, and will cooperate with physicians and national boards of health in wiping out this almost wholly preventable disease.

ABSTRACT OF DISCUSSION

Dr. J. S. BAER, Camden, N. J.: I believe I am not exaggerating when I say that of 400 cases of cancer of the uterus that I have seen, only six patients are alive. That speaks, perhaps, against my ability to deal with them. But only six were seen at a time when the disease was amenable to cure and in four the disease was in the fundus in women who had never borne children. All of the 400 cases of cancer except the four which occurred in the fundus had had a previous laceration of the cervix. Primary repair of the cervix, if one has aseptic surroundings and good assistance, should be done. I have operated many times for palliation, but have ceased to undertake to operate on a patient whose case can be readily diagnosed clinically. The microscopic stage of the disease is the time to get hold of it, and therefore I make a plea for the close investigation of any irregular discharge from the uterus, especially near the menopause. A man should not be satisfied with the clinical manifestations entirely, but a section of the cervix in every doubtful case should be secured and the diagnosis made in that way. I especially want to emphasize the necessity for the education of the public, as has been suggested in the paper, and not only of the public, but of the profession at large. The words "It is only the change of life" have been responsible for innumerable deaths, and I believe that every case of cancer can be saved if we get it when it is local, for in the beginning it is a purely local disease. Two years ago I read a paper similar to the one read to-day in which I pleaded for the early recognition and investigation of all cases in which there is an irregular discharge from the vagina.

Dr. ARTHUR E. HERTZLER, Kansas City, Mo.: Nearly all the patients who present themselves for examination have been flooding for months and even for years before the general practitioner awakens to the fact that perhaps something ought to be done. The last patient I saw before starting for this meeting was one who gave the history of bleeding for a year, a case in which a fungous mass filled the vagina and the posterior wall down to the perineum. I fully agree with Dr. Benjamin that something ought to be done in the way of publicity. It is easy enough in a broad general statement, but when we come to consider what we would present in such a pamphlet it is much more difficult to come to any conclusion. The laity has been taught that hemorrhage, pain, etc., are symptoms of cancer of the uterus. These conditions ought to be reserved for the post-mortem protocol and ought to have no place in the clinical discussion of cancer of the uterus.

What shall we teach the laity? Any unusual discharge about the menopause, particularly bloody, should lead to an examination. That is about as far back as we will be able to go in a pamphlet. Where a carcinoma produces active discharge the extent of the growth is already considerable, pressing very closely the problem of a possible cure. So that it strikes me that in this question of operative cure of uterine cancer we are limited almost to those that we stumble on. I have never yet seen in practice a uterine cancer that could not be diagnosed clinically that could be diagnosed with the microscope. I have seen many uteri in which carcinoma was

diagnosed microscopically and removed, which after all were not carcinoma. While I agree with Dr. Benjamin that publicity is necessary, yet I believe the outcome is nothing like as hopeful, or that it does not have the broad possibilities that the pamphlet of Winter might lead us to believe.

Dr. JOHN OSBORN POLAK, Brooklyn: The question of publicity is one that interests us very much in New York. In the Obstetrical Society, some months ago, working on the plan suggested by the Prussian government, we appointed a committee to draw up a leaflet which should be distributed broadcast. It was headed "What Every Woman Should Know to Prevent Death from Cancer of the Uterus." With the cooperation of the Board of Health of the city of New York this pamphlet is to be distributed just as the tuberculosis pamphlets were, and we are even now beginning to see earlier cases of cancer than we saw a few years ago. Fifteen years ago we sent out to physicians in the greater city of New York 10,000 postal cards, repeated weekly and monthly, asking them to send to our clinics cases of operable and inoperable cancer, stating on these cards some of the very early symptoms; and it was surprising, even after that amount of labor, how few physicians sent us really operable cases. My own experience is almost like that of Dr. Baer. I have four patients alive who were operated on for cancer, after fifteen years of active surgery. Three of these were operated on after the method of the late Dr. Byrne. One was a fundal carcinoma. While the acetone method is of some value, it is inferior to the cautery. Few of you appreciate what can be done by the use of the Byrne method even in the so-called inoperable cases. I have a patient under my observation at the present time in whom we sacrificed most of the floor of the bladder to get beyond the limits of the growth over three and a half years ago. I subsequently operated for the vesicovaginal fistula and the woman is comfortable and as yet there is no recurrence. Even in the so-called inoperable cases, if we follow out the galvanocautery method as it should be carried out, we will be surprised to find occasional cure. I am in accord with the point which Dr. Benjamin has brought out, that it has brought great discredit on our surgery to operate on inoperable cases with the possible promise of cure. I believe that operability is largely a personal element. The gynecologic surgeon of to-day who is doing a large amount of work is capable of doing an extensive operation. It is the selection of the case and the adaptability of the individual operation to that case which we must decide. I find few cases in which I can say, this is a patient who is operable and can be cured. It is only in these cases that we will do hysterectomy.

Dr. LAURA H. BRANSON, Iowa City, Iowa: During the earlier years of my practice I was brought face to face with a number of cases of cancer which had become inoperable and I decided to do my little toward prevention. I was interested in the strong advice the speaker gave us in regard to operating for lacerations of the cervix immediately following labor. There has always been some question in my mind whether to operate at that time or later, so I am glad that his advice was so positive. I have followed the routine in my practice of not only operating immediately after labor when it seemed advisable, but also of examining every patient thoroughly, whether operating or not, about two months after labor, in order to see, in case of operation, if the results were all right, or if anything had been overlooked. This is to me a very satisfactory method in regard to prevention.

Dr. CHARLES D. LOCKWOOD, Pasadena, Cal.: I think it is wise advice that operation be done on lacerations immediately after labor if the case is in the hands of a competent surgeon. As a general surgeon I have seen many patients who have been operated on after labor with the most disastrous results. I have seen the worst cases of sepsis following attempts to repair these lacerations after labor by incompetent men. I think it is unwise advice to give the average obstetrician unless he is skilled in the best aseptic technic. Moreover, to repair these cervixes gives at a subsequent pregnancy much worse laceration than at the first. In the end there is more scar tissue and more likelihood of the productive factors of carcinoma than if we had not operated or had left the operation until after the child-bearing period.

DR. T. MITCHELL BURNS, Denver: The advising of immediate repair of laceration of the cervix is the only objection I have to the paper. I have had some little experience with repair of lacerations of the cervix, both primary and secondary. I do not believe it is good practice to examine the cervix in every patient. The cervix should be examined after the use of the forceps, after manual dilatation, when the cervix is prolapsed and when there is hemorrhage which is not easily checked. Furthermore, it is not always an easy operation to repair the cervix, especially when the cervix is very thin. I have had excellent results in immediate repair when the cervix was thick. Probably it is much better to wait four or six weeks after labor and then, if the laceration has not healed, to repair it.

DR. JAMES T. REDDICK, Paducah, Ky.: I think it is not good advice to give the obstetrician, that he shall repair the cervix immediately after labor. There is too much danger of sepsis; and again, the cervix is frequently in an edematous condition and one cannot get the results that are possible later on. It is true that those who do more or less surgery—and a good many general practitioners do more or less surgery—and understand surgical technique are capable of giving their patients such attention as to asepsis that they get good results. But to the general practitioner, to the country doctor, I do not believe should be given the advice to repair a lacerated cervix immediately after labor. I do believe, however, that every one doing obstetric work should make it a routine practice to examine his patients two, three or four months after labor to see whether or not there is laceration.

DR. TITIAN COFFEY, Los Angeles: I make it a routine practice to examine all of my patients at the end of the eighth or ninth day to ascertain if there has been any laceration of the cervix. In 50 per cent. of my cases, especially in primiparae, I find that more or less damage has been done. I do not believe in immediate repair of the cervix after delivery, except in cases of hemorrhage. But as a matter of routine, I think it is a good idea to examine all patients at the eighth or ninth day and make repair at that time. It is astonishing if this method is carried out routinely to see the changes that have taken place in the involution of the cervix. Under 10 per cent. cocaine it is possible to freshen the surfaces and apply sutures and the results are very remarkable indeed. The parts are practically insensible and the placing of the sutures gives the patient little or no discomfort. Only in cases of extreme nervousness have I found it necessary to administer a general anesthetic.

DR. HENRY PARKER NEWMAN, San Diego, Cal.: It is good surgery to repair lacerations of the cervix immediately following labor but not always practicable to do so with safety to the woman. With hospital facilities it certainly ought to be done. You thus save the woman weeks and months of delayed involution of the uterus and that means much. But if it must be done under unfavorable conditions it had better be left undone. Granulation tissue will cover and protect the torn surfaces for the time and the repair can be made later.

The subject of cancer of the uterus is of much interest to all of us and particularly the prophylactic handling of cancer. It goes without saying that of all our methods of treating cancer the most reliable is surgery, done early, even prophylactic surgery, correcting long-standing irritation and erosion of the cervix. In these cases, if operation is done early and done properly, it will save many. The torn cervix with its continued irritation is what might be called a cancer-bearing area and it should be better protected. Early operative work means saving a large number of these women. Delayed operation means only palliation at best.

DR. W. P. BURKE, Redlands, Cal.: In a meeting of this kind we should arrive at a definite conclusion with regard to any subject that is under discussion. We all have individual customs that work out very well in our own way, but I believe that under the general conditions that surround obstetric practice as a whole we should discourage the immediate repair of the cervix and follow the suggestion of Dr. Coffey to examine and operate if necessary on the eighth or ninth day. With regard to education along carcinoma lines, I believe that the ordinary physician is many times at fault in not realizing the necessity of operation. I have seen a

patient refuse operation when four well-known and prominent men had advised operation for carcinoma of the cervix, because one man in her own town—a general practitioner—advised against it. People do not want operations, and if they can get one man to say it is not a good thing, they will take that man's advice. I believe that if the propaganda were spread abroad, educating people of the many signs of cancer, we would have a more intelligent treatment of these conditions.

DR. W. B. DORSETT, St. Louis: I never have yet put a needle in the cervix immediately after labor, except for checking hemorrhage. I do not believe it is a proper thing to do, first, because we cannot always tell what involution is going to do for the cervix. Some bad lacerations heal very kindly, and again some of them do not. The majority, however, do. In the second place, we cannot with any degree of certainty approximate the edges of the tear immediately after labor as we can subsequently. A third reason is that the patient has already gone through a terrible ordeal and to subject her to an additional strain, even if the operation is done under cocaine, is hardly justifiable, inasmuch as it can be done later and to better advantage.

As to the curettage or scraping out of the crater of an old carcinoma, I might mention two cases which were instructive to me. One was a case in which the patient was brought to me from southeast Missouri. I mention the locality to emphasize the fact that a great many of my patients with carcinoma of the cervix come from swampy districts. Just what bearing this may have on carcinoma of the uterus I am not able to say. I simply know that the majority of my patients who come from a certain neighborhood along the swamps of the Mississippi Valley have carcinoma of the uterus. Two of these cases were examined and pronounced carcinoma by a competent pathologist. In my effort in one case to scrape out the crater, the whole uterus came out. We simply had a ring-like margin which was cauterized with the actual cautery, the soldering iron used by Charles Mayo in his work. I told the physician that probably the only thing to do was to let the patient die under the use of morphine. To-day, twelve years later, the woman is absolutely well. In another case from the same neighborhood in which the pathologic report was carcinoma I scraped with the sharp curet, leaving the body of the uterus, and used the actual cautery. I told the doctor to bring the patient back within a year. One morning he called me up as he came from the train and said he would like me to operate that morning. I went down to the hospital not knowing that it was the same patient and found her there looking and feeling well. She said she came back to have the other operation. She was put on the table and examination showed complete healing. With thorough curettage and the actual cautery we sometimes see patients entirely recover.

DR. A. E. BENJAMIN, Minneapolis: I had two objects in writing the paper: (1) To bring out a few statistics on carcinoma to show how prevalent it is and what percentage of cases die, and (2) the percentage that can be prevented or cured. When we realize that between 80 and 90 per cent.—so estimated by good authorities—can be either prevented or cured, there is something wrong, for cancer is increasing. If we know as practitioners of medicine or surgery that cancer is preventable and curable to that extent, there is something wrong, either with us as a profession or with the laity. It has been my sincere desire and the object of the paper to offer something which will so arouse this Section and the American Medical Association that something may be presented to the public and to the profession tending to wipe out this unnecessary percentage of deaths. I would say that it would be just and right if this Section would forward to the House of Delegates some resolution which will bring about the publication of pamphlets which can be circulated widely among the physicians who do not attend these meetings. I know physicians who send me patients who do not know how cancer can be prevented or cured. Those are the physicians whom we should reach. I am glad to hear reports on the operation on cancer by the curet and cautery by Dr. Dorsett who has exactly expressed my view, that the curet and cautery can do great good in certain cases instead of doing hysterectomy. I have seen reputable surgeons try to do vaginal hysterectomy

with a cancer spread out all over the vaginal wall. The curet and cautery in such a case would have done some good.

Now about operation for prevention. It will be some time before the light will break on the profession in general, but I prophesy that in five years you can nearly all be with me on laceration of the cervix. I do not contend that every case of lacerated cervix shall be operated on by any and every practitioner. I mean to say that it should be operated on every time if you get a competent man to do it. It has been the practice of a few physicians in our town who realize the importance of laceration of the cervix to call in a surgeon. The average obstetrician or general practitioner is not capable of doing these operations correctly. It is an easy operation if you do it as a routine measure. I maintain that every tear, no matter in what part of the body, should be sewed up, provided it is not already infected. Why not the cervix? If you approximate clean-cut edges you do no harm if it is done under aseptic precautions and with plenty of help. You do not need to give an anesthetic for any length of time. I claim that it is the right thing to do provided you have the facilities and are capable of doing it.

PREVENTIVE MEDICINE SECTION COMMITTEE REPORTS

REPORT OF COMMITTEE ON HOUSES FOR WORKING PEOPLE *

The Committee on Houses for Working People undertook to secure data by writing to the secretaries of the state boards of health, the health officers of the larger cities, the U. S. Public Health and Marine-Hospital Service, the National Housing Association, the Bureau of Labor, the National Association for the Study and Prevention of Tuberculosis, the Russell Sage Foundation, city housing associations, and other civic and philanthropic organizations, besides a number of industrial organizations and individuals whom we had reason to believe were interested in this work.

From these reports, it is apparent that the interest in this subject is wide-spread and that many movements are in contemplation regarding the best housing conditions for working people, others are being inaugurated, while a few places have done active work.

It appears from the reports received that the tenement-house plan, even the so-called model tenement-house, has not proved satisfactory, the consensus of opinion apparently being in favor of houses for individual families, or approaching this as nearly as possible. The houses must be adapted to climatic conditions where they are to be used. They should be located conveniently near occupation, or cheap and satisfactory transportation should be available.

All buildings should be of good sanitary construction and equipped with modern conveniences. To encourage the occupants to take advantage of such provision, they should be educated to the proper care of these houses and the proper use of the provisions for their welfare. To this end, the entire system should be placed under the jurisdiction of competent, tactful health authorities, with sufficient funds and authority to carry these provisions into effect. These health authorities should be chosen so as to be as free as possible from political domination. If such conditions can be brought about, men will be encouraged to make public sanitation a specialty, as they may then hope to follow this branch of medicine and at the same time be provided with a living. The work must be practicable and adapted to the conditions to be met. Where bad conditions exist which cannot at once be eradicated, they should as far as possible be improved. Where new work is to be undertaken, the best should be demanded.

* Read in the Section on Preventive Medicine of the American Medical Association, at its Sixty-Second Annual Session, held at Los Angeles, June, 1911.

* Owing to limitations of space, there have been omitted from this article a somewhat extensive bibliography, and a number of illustrations showing plans for model houses. These all appear, however, in the Transactions of the Section and in the authors' reprints.

Throughout the civilized world, people are awakening to the fact that responsibility for much of the crime, disease, poverty, industrial inefficiency and political degradation is to be attributed to the wretched housing conditions of the poor, especially of the larger cities. While these conditions are most urgent, on account of the large number of people affected in our larger centers of population, the smaller cities, villages and country districts are by no means free from these evils. It has been said: "It is more important to have adequate sanitary inspection than to provide homes and clothing; instructive nursing may be better than grocery tickets; the city may better spend money in the health department than supply outdoor relief."

The agitation for the prevention of tuberculosis, together with its kindred topic, the lessening of infant mortality, have been important factors in awakening general interest in public sanitation.

With the passing of the idea that this question could be solved by the model tenement house, emphasis is being placed on laws which will control the situation by the more normal plan—laws providing for more careful and thorough sanitary inspection; providing for garden cities and small houses; one house for one family, as nearly as possible; instructive visitation and teaching of the elements of hygiene in the school, with teaching and practical demonstrations in the home.

The problem involves:

1. Municipal planning and plotting, where new territory is to be occupied, or alteration and reconstruction of undesirable sections undertaken.

2. Regulation by proper authorities of the construction of buildings.

3. Transportation.

For city planning, it may be necessary to have legislative enactment, granting cities the privilege of purchasing and disposing of real estate, and possibly in some instances providing loans for the erection of improvements, as has been done in some instances.

Land should be plotted with reference to model houses for the homes of wage-earners, certain districts being set aside for manufacturing and industrial purposes, other districts for commercial interests, while still other districts may be reserved for residence only.

Land should be so plotted that every dwelling will have sunlight in every room and that there will be a garden and lawn. Factories and commercial establishments should also be properly lighted and ventilated.

The plans of the buildings should be submitted to a building commission, which should be selected from or by the health authorities, for their approval in regard to sanitary construction.

In addition to sanitary measures, as ordinarily understood, the buildings should be fire-proof, at least as far as their exterior is concerned, so that fire would not spread from building to building. The building material will differ in different communities. Brick has long been a favorite in many sections; hollow tile has its advantages, and concrete is receiving much attention where material for making the concrete is easily obtainable. It is claimed that buildings may be erected of one or the other of these materials in many places at a cost not to exceed 10 or 20 per cent. above the cost of construction with wood. The plan of Thomas Edison has been so thoroughly discussed by the public press that it needs only to be mentioned. It may be possible that under certain conditions it may prove to be of service at a low cost. Some of the objections which have been urged are the expense of the molds and the expense of moving them; also the difficulties of pouring the concrete into the large molds and getting perfect cohesion. Many other suggestions have been made for the use of concrete by means of concrete blocks molded and built together.

Mr. Thomas Fellows of Los Angeles has recently developed a plan which is worthy of more than passing notice, which has been described in several publications recently, among others the *Southwest Contractor and Manufacturer*, of April 15, 1911, from which we quote a brief description of the first house constructed on this plan: