

mission, each very largely dependent upon the others, sets forth an effective, workable program, complete as to detail and broad in scope. Its adoption would unquestionably go far in lifting the health standards of our State from among the worst in many respects to rank substantially with the best.

5. Far from being an expensive adventure, I feel certain it would prove a profitable investment and that North Carolina with its highly satisfactory treasury can well afford to spend the necessary funds. In the years to come we will receive handsome dividends in the form of ample health and medical care facilities and personnel; healthier children and families; a better, more progressive citizenship, a greater North Carolina!

RALPH H. SCOTT

PRESIDENT, N. C. DAIRY PRODUCTS ASS'N., INC.

BURLINGTON, N. C.



I am interested in the promotion of Good Health in North Carolina. Progressively, as research science and invention go hand in hand, seeking ever to improve the mind and body by preventing treatment and control of disease and injury through the agency of medicine and surgery.

North Carolina has made progress but we are at the place now that we must make the forward move as outlined in the report of the Medical Care Commission and promoted by the North Carolina Good Health Association.

I favor the entire program as it is, if at all possible, to finance. We cannot afford to neglect the health of our people.

FRANK SHARPE, M.D.

PRESIDENT-ELECT, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

GREENSBORO, N. C.



A complete and expert survey has been made of North Carolina's health needs. The findings have been presented to the people, along with the recommendations for their correction. It hardly seems just for those of us surrounded with the essential safeguards of our lives to deny the same to our less fortunate neighbors. The program before us is the best offered and I urge its entire adoption.



R. FLAKE SHAW
 EXECUTIVE SECRETARY, N. C. FARM BUREAU
 FEDERATION
 GREENSBORO, N. C.

The North Carolina Farm Bureau, realizing the extreme need for a greater health care in North Carolina, hereby endorses the following recommendations of the Medical Care Commission of North Carolina as being most important and urges that the Legislature make it possible for them to be put into effect in order named.

1. That the State appropriate one-third of the cost of constructing the necessary hospitals and equipment for approved hospitals and Health Centers in the state so that every county may have either a hospital or one or more Health Centers.
2. That the State provide a Loan Fund to help worthy North Carolinians to study Medicine.
3. That we urge the promotion of voluntary or Blue Cross "Group Insurance" Plans.
4. We also endorse: The expansion of the medical school of the University of North Carolina to a four (4) year school, for the training of doctors, nurses, and technicians and the construction of a centralized hospital with such equipment as may be needed therefor, as the need arises and the financial structure of the state will permit.

J. B. SLACK
 STATE FHA DIRECTOR
 RALEIGH, N. C.



I favor adoption of the Medical Care Commission plan in its entirety because to eliminate or postpone any phase of the Health Plan proposed by the Commission will seriously weaken and impair the Health Program to the point that it will not serve effectively the people of North Carolina who need it most. Nothing in my opinion could enhance the economic and social advancement of this State during the coming years any more than the adoption of the complete Health Program as proposed by the Commission.

For the past 11 years I have been privileged to serve in a program that has as its aim assistance to farm people who fall in the low-income brackets. From the beginning of this program it was apparent that one of the major handicaps of many of these low-income farm people was poor health and lack of medical care and hospital care. This condition was not the fault of the people themselves nor was it the fault of the medical profession

or the hospitals. The persons affected simply did not have the means to secure adequate clothing, food and shelter or the means to acquire adequate medical and hospital care. In many areas of the State the absence of doctors and hospitals to serve the people living in those areas made the problem even more difficult. Recognizing the condition that existed, the program with which I have been affiliated has attempted to work out ways and means whereby the low-income farm families participating in the program could secure reasonably adequate medical and hospital care at a cost within their ability to pay. In this program we have the cooperation of many members of the medical profession and hospitals throughout the State. The availability of medical and hospital care to these families has resulted in the complete rehabilitation and financial independence of thousands of low-income farm families in North Carolina. Had these services not been available to them and bad health and physical conditions not corrected, a great many of these families would have become and remained a financial burden on the State of North Carolina.

The Good Health Program as proposed by the Medical Care Commission is of the greatest importance to all of the people in North Carolina. No group, however, needs this program more than do those of our citizens who live in the rural areas of the State. North Carolina is primarily an agricultural state. We can not, therefore, afford to overlook or put off any longer a program which is so vital to the welfare of the rural population of the State who are engaged in the State's primary industry—that of agriculture. A Good Health Program can not reach those people in our rural areas unless hospital and medical centers are disseminated throughout the State in such a way that every rural person in the State has access to either a hospital or a medical center. Such hospitals and medical centers, however, without the necessary doctors and other technically trained personnel will be of no assistance to the rural people. Consequently, it is of the utmost importance that the State establish a four-year medical school with a central hospital and the other facilities necessary for the training of personnel to man the hospitals and medical centers and serve the people in rural areas as well as the urban areas of the State.

I do not believe that the State of North Carolina can afford to depend upon privately endowed institutions and other states which support medical schools to train all of the doctors and other technicians to furnish the necessary professional services to its citizens. If it is a proper function of the State to train technicians in other fields (engineering, agriculture, law and the like), certainly it is just as important for the State to furnish the necessary facilities for the training of persons to take care of the health needs of its citizens.

I have already mentioned the great need for more medical and hospital services for farm people in North Carolina, however, it is interesting to note the lack of farm reared boys and girls from this State who enter college for the purpose of studying medicine. This is not as it should be. Could it be that the lack of a State supported medical school is one of the reasons for this? At any rate, the State of North Carolina can no longer afford not to take any and every step that will result in the correction of a situation that will mean so much to the welfare of its citizens as the adoption and execution of the complete Health Program now recommended by the Medical Care Commission.



C. C. SPAULDING

PRESIDENT, NORTH CAROLINA MUTUAL
LIFE INSURANCE COMPANY

DURHAM, N. C.

I favor adoption of the Medical Care Commission Plan in its entirety because it is a recognized fact that health conditions in North Carolina are a reflection on this progressive State of ours, and a condition that could be greatly remedied were a plan such as that of the Medical Care Commission adopted.

The fact that North Carolina practically leads the nation in maternal and infant mortality, with its exceptionally high death rate, and the deplorable showing made by the youth of the State in the selective screening, is ample evidence that the bettering of health conditions in our State is our Number One problem. Surveys that have been conducted fix the cause of our State's unfavorable health showing on the fact that there is an alarming shortage of doctors, hospitals, and medical personnel. It also should be recognized that as important as it is to cure, it is of equal importance to awaken a desire to make possible better statewide health conditions through public understanding and cooperation. As I see it, the soundest and most practical approach to the problem is through the plan of the Medical Care Commission.

In the interest of better health for the citizens of the State, I heartily endorse the Commission's plan in its entirety.

HENRY L. STEVENS, JR.

SUPERIOR COURT JUDGE

WARSAW, N. C.



The time for talking is now nearly over and the time for action is now practically at hand and I want you to know that I favor the adoption of the Medical Care Commission Plan in its entirety because our State is in a disgraceful position, in relation to our sister states, in the lack of health by our citizenship and we now are in the financial position to right that wrong.

When one becomes ill and in need of medical help one does not debate with himself as to whether he will call a doctor or take a chance on dying from the malady. This is especially true when one has the money with which to pay the physician.

When the immortal Charles B. Aycock began his campaign to redeem North Carolina from the darkness of illiteracy there were

those that said "Education is good but we cannot afford it"; when Governor Morrison, Frank Page and others initiated the Good Roads Program that pulled North Carolina out of the mud, there were those who said "Good Roads are a great convenience and we should have them but can we afford?" Today, all North Carolinians point with pride to Aycock and our schools and Morrison and our roads and it has been these two things primarily that have made North Carolina the most progressive of states in the Southland. Now, today, we hear the same old defeatist question in regard to Good Health. Can we afford it? The answer to that question is: **WE CAN NOT AFFORD NOT TO AFFORD IT.** Education, Good Roads, Good Health—Aycock, Morrison, Cherry. Let's have the third phase of a triumvirate that will raise North Carolina and its people to the very topmost heights in competitive living with the people of the other forty-seven states.

WILLIAM B. UMSTEAD

MEMBER OF U. S. SENATE

DURHAM, N. C.



I favor the adoption of the Medical Care Commission's plan in its entirety, because, in my opinion, the welfare of the people of North Carolina requires it, and because it will make a powerful contribution to the health, happiness, prosperity, and general well-being not only of the present generation, but of generations to come.

CAPUS WAYNICK

DIRECTOR, NORTH CAROLINA SOCIAL HYGIENE SOCIETY, INC.

RALEIGH, N. C.



It is not too easy to put in a nutshell the reason why I favor the adoption in full of the health plan of the North Carolina Medical Care Commission. Through the associations I have had during the past four years I have seen enough of the health problems of this State to be convinced that improved health is a must if we are to progress socially or economically.

I have seen no reason for confusion of the present issue by trying to pit school needs against this plan for a share of the State's funds and it seems to me that the Commission's health plan

is a very modest proposal for realization of the political concept that something positive and powerful should be done to promote good health in this State.

I am for the plan as it stands and would not be adverse to some amplification of it, so, here is the nutshell expression of this viewpoint:

I favor the adoption of the Medical Care Commission Plan in its entirety because this minimum compensation of a great need is demanded by political pledge, informed public opinion, and the State's ability to pay.



PAUL F. WHITAKER, M.D.

PAST PRESIDENT OF MEDICAL SOCIETY OF
THE STATE OF NORTH CAROLINA

KINSTON, N. C.

I favor adoption of the Medical Care Commission Plan in its entirety because there is a deep and compelling need for all parts of it to be carried to its full fruition. The indisputable need has been determined,

and measures to meet the need have been recommended. Deep in the soul of every human being there is an intense desire for betterment. In North Carolina and, in fact, all over the world, men are on the march physically, intellectually and spiritually. Better informed, they are demanding necessary and worthwhile services, and have less and less patience with lip service and empty promises. They are demanding, and rightfully so, an adequate and economical distribution of medical care. Surely in one way or another it will be made available to them. This demand is deep-seated and urgent and will not be long denied.

The central objective of the plan of the North Carolina Medical Care Commission is to effectuate an adequate and economical distribution of medical care to all the people of the state. All phases of the plan are important parts of the complex mosaic necessary to accomplish the objective. Innumerable medical experts have overwhelmingly endorsed the plan as basically sound. Many of the North Carolina fiscal experts and political leaders have stated that the State is fully able to initiate and maintain the program recommended. It has the support of people in all walks of life and has been truly described as the third great epic movement in the history of our commonwealth.

If the high purpose envisioned by the plan to solve an admitted humane need is accomplished it must be carried out in its entirety. It is expertly tailored to the needs of North Carolina. The need is evident; the plan to solve the need is sound; the state can afford it.

I therefore endorse, recommend, and support the plan in its entirety and believe with deep conviction that if it is to succeed it must be carried out, not in part, but as a whole. Every Legislator who supports the plan to a successful eventuation will have the inner glow and happiness that comes from useful service and lasting accomplishment.

Let us remember the ancient, beautiful and hope-inspiring promise, "Seek and ye shall find, knock and it shall be opened unto you." Let us seek the solution of the problem of good health. The goal is a necessary requisite to life, liberty, the pursuit of and the realization of happiness for our people. Toward the practical fulfillment of the ideal of better opportunity for good health for all of our citizens, the sound, humane, and practical plan of the North Carolina Medical Care Commission has been projected. The plan in its entirety is necessary to achieve the goal. The entire plan therefore deserves the support of all the citizens of our State.

W. E. WILLIAMS

STATE COMMANDER, AMVETS

HAVELOCK, N. C.



I favor adoption of the Medical Care Commission Plan in its entirety because of the shortage of medical attention necessary for the health of the people of North Carolina. Comparison of the facilities for providing medical care with those of other states, places this state at an embarrassing and low level. Since North Carolina can afford such a plan, it is still more embarrassing.

By adopting the Medical Care Commission Plan, North Carolina will soon be able to meet its desperately urgent need for more hospitals, doctors, nurses, and technicians, thereby decreasing the suffering and death rate of our citizens. This will in turn build up the health of our state, increase its wealth and as a result pay dividends to the state's investment.

I wholeheartedly endorse the plan and wish to cooperate in any way possible to further the movement for more adequate facilities for training our sick and the invalid.

O. C. WILLIAMSON

MODERATOR OF THE SYNOD OF N. C. OF THE
PRESBYTERIAN CHURCH IN THE U. S.

CHARLOTTE, N. C.



I favor adoption of the Medical Care Commission Plan in its entirety because North Carolina's greatest asset is the life and health of its citizens.

The report of the Poe Commission has revealed the fact that although God has given us in the old North State one of the finest climates in our nation we must hang our heads in shame

when we consider how we stand in comparison with the other states in our health program. Our magnificent resources and material wealth mean little unless we develop to the fullest extent possible the lives of our people. Good health is absolutely necessary to this development. The loss to God, to Country, and to our people themselves by reason of ill health is a staggering one. Such a condition as revealed in the report can not be allowed to continue. It is not a question of whether or not we can afford the program suggested. Money spent in this way will pay such rich dividends in every way that we can not afford not to adopt the program. Our self-respect, our pride in our native state and our love for our fellowmen all demand that the program be carried out. I believe our Master who spent a great deal of His time in the days of His flesh healing the sick would look with favor upon this program. I urge its adoption in its entirety.

WM. M. YORK

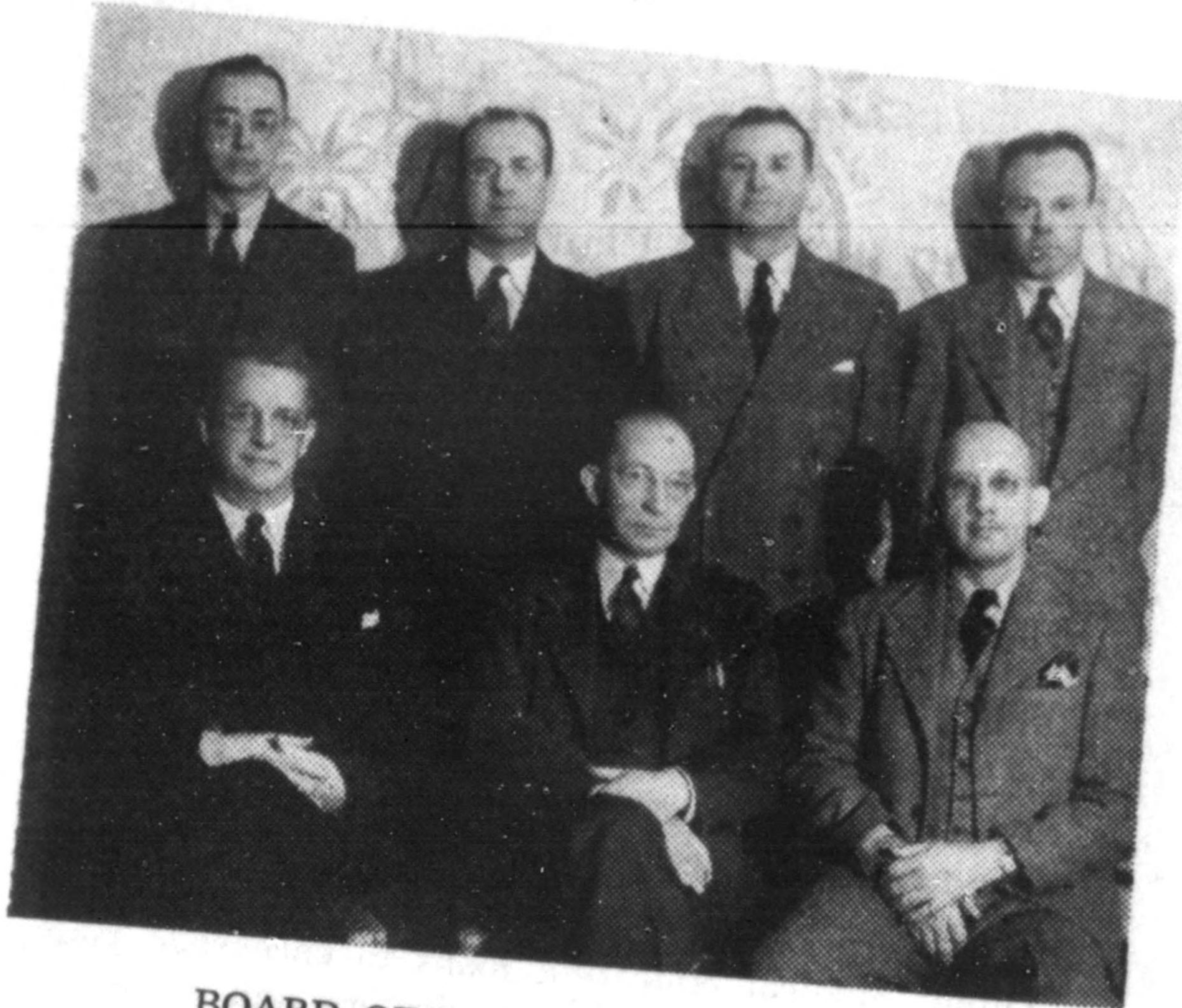
STATE COMMANDER, AMERICAN LEGION
GREENSBORO, N. C.



I, personally, favor the Medical Care Commission plan for increasing the number of hospitals and providing additional doctors and nurses and other medical personnel because I understand its adoption will bring about a better distribution of medical care over the State and do much to improve health conditions among all of our citizens. The large number of Selective Service rejections for physical defects during the recent war reveals the great need for a Good Health Program in North Carolina. Our Government spends billions in time of war to save the lives of its warriors. We must take steps to meet the health needs of our heroes at home. By providing the additional facilities, doctors, nurses, and other medical personnel recommended by the Medical Care Association, we can wage a real war against disease in our State.

The Raleigh News and Observer: "The people, and especially the rural people of North Carolina know from experience that we need more hospital beds for sick people and also more doctors, nurses, and medical technicians." . . .

Durham Morning Herald: "Good health is North Carolina's Number One need. North Carolina may become the Number One Good Health State. It will take money. The State has the money. Why further delay?"

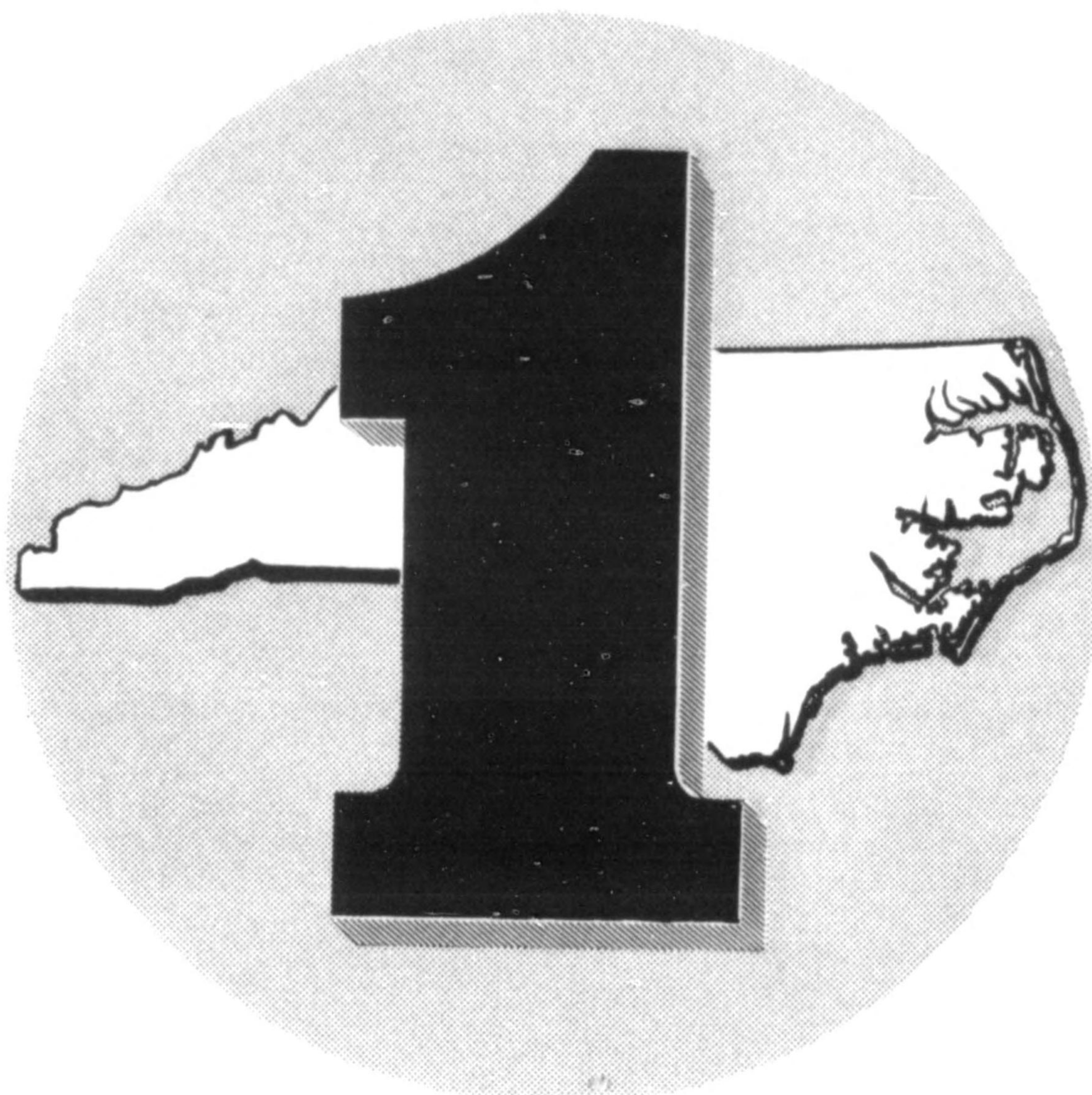


**BOARD OF MEDICAL EXAMINERS
OF THE
STATE OF NORTH CAROLINA**

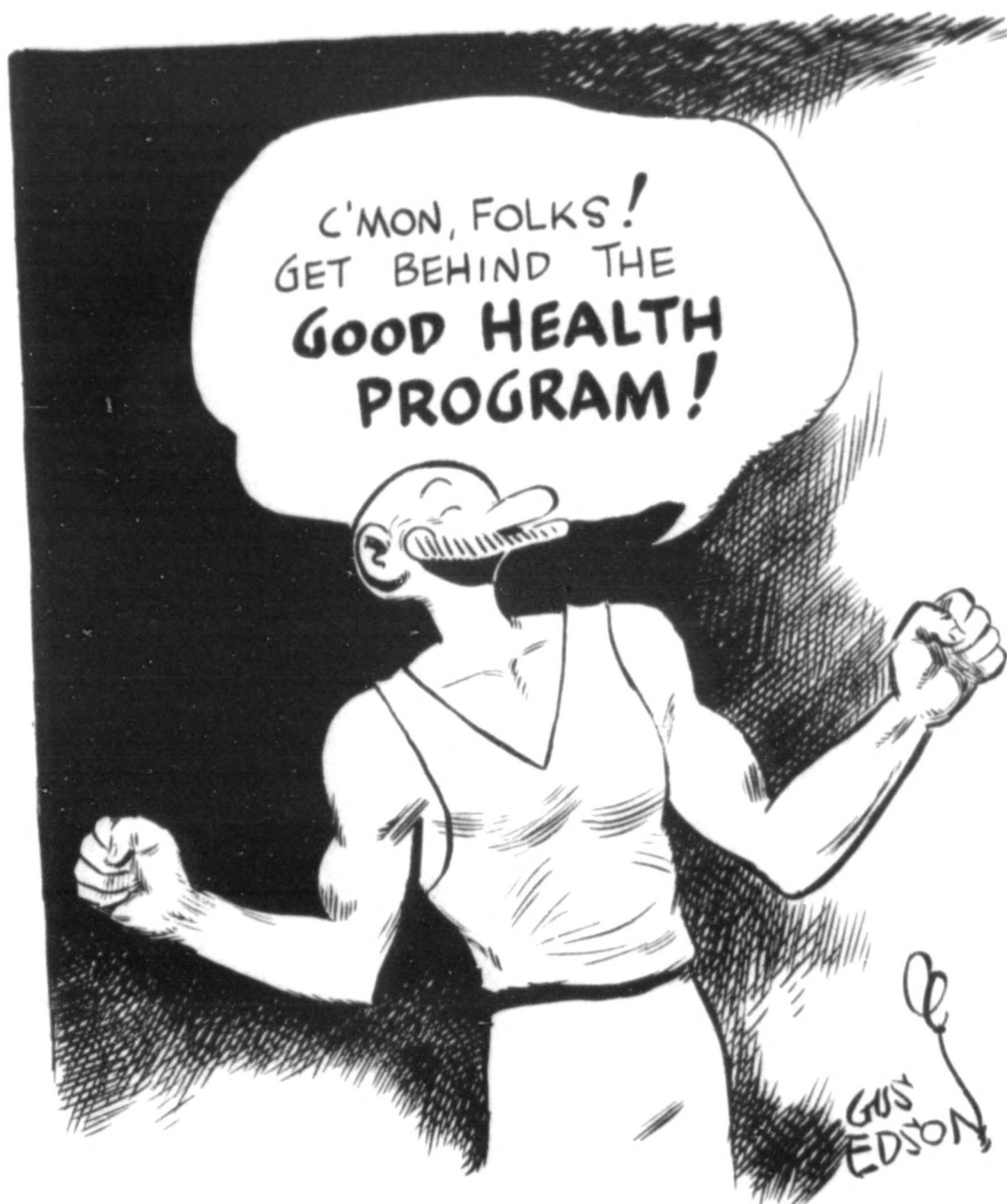
BE IT RESOLVED: That the State Board of Medical Examiners endorses the entire plan as recommended by the Medical Care Commission. The board realizes that the Medical Care Commission has made a thorough study and outlined a competent program based upon the great need for additional facilities and medical personnel in North Carolina. The State Board of Medical Examiners realizes the fact that an adequate number of physicians have not been obtained by the sources available within and outside of the state.

- DR. PAUL PARKER, Erwin
- DR. M. D. BONNER, Jamestown
- DR. ROY MCKNIGHT, Charlotte
- DR. M. A. PITTMAN, Wilson
- DR. LESLIE LEE, Kinston.
- DR. CHAS. W. ARMSTRONG, Salisbury
- DR. IVAN PROCTOR, Raleigh

"North Carolina's #1 Need--Good Health."



This is the official insignia of the current Good Health campaign being conducted in the State of North Carolina.



This cartoon drawn for and contributed to the Good Health campaign in North Carolina by Gus Edson, creator of the world-famous "Andy Gump" comic strip.

A SMALL TOWN DOCTOR IN NORTH CAROLINA IS AWAKENED BY AN EMERGENCY CALL---

WHAT? YOUR WIFE IS GOING TO HAVE A **BABY**? BE THERE AS QUICKLY AS POSSIBLE!



IF ONLY THIS AND OTHER SMALL TOWNS IN NORTH CAROLINA HAD SUFFICIENT DOCTORS TO SERVE PEOPLE OF RURAL AREAS---



30 MINUTES LATER

I HOPE IT ISN'T TOO LATE. I'LL HAVE TO PERFORM AN EMERGENCY OPERATION!



SOMETIME LATER

YOU HAVE A HEALTHY SON. I AM SORRY ABOUT YOUR WIFE. IF THERE HAD BEEN A HOSPITAL NEARBY, WE MIGHT HAVE BEEN ABLE TO SAVE HER.



THIS IS ONE OF THE MANY REASONS WHY WE NEED MORE **PHYSICIANS, NURSES, HOSPITALS AND MEDICAL CENTERS** TO MAINTAIN **GOOD HEALTH IN NORTH CAROLINA!**



775013

PRICE TAG ON GOOD HEALTH FOR NORTH CAROLINA

PERMANENT IMPROVEMENTS

	FIRST BIENNIUM		SECOND BIENNIUM	
	1947-1948	1948-1949	1949-1950	1950-1951
HOSPITALS				
LOCAL HOSPITALS	3,000,000	2,500,000	2,300,000	2,000,000
HEALTH CENTERS	375,000	375,000	0	0
TEACHING HOSPITAL	1,375,000	1,375,000	840,000	0
STATE OF NORTH CAROLINA	4,750,000	4,250,000	3,140,000	2,000,000
UNITED STATES..... <small>WILL-BURTON ACT GRANTS</small>	4,062,000	3,562,000	2,425,000	2,000,000
COUNTY and LOCAL	2,575,000	2,875,000	2,300,000	2,000,000
PEOPLE WILL GET	12,187,000	11,687,000	7,865,000	6,000,000

Dr. John A. Ferrell, left, executive secretary of the North Carolina Medical Care Commission, and James H. Clark, chairman of the Commission, study a chart showing the estimated cost of permanent improvements called for in the State's proposed five-year Good Health Plan.

"SWEETHEART OF HEALTH IN NORTH CAROLINA"



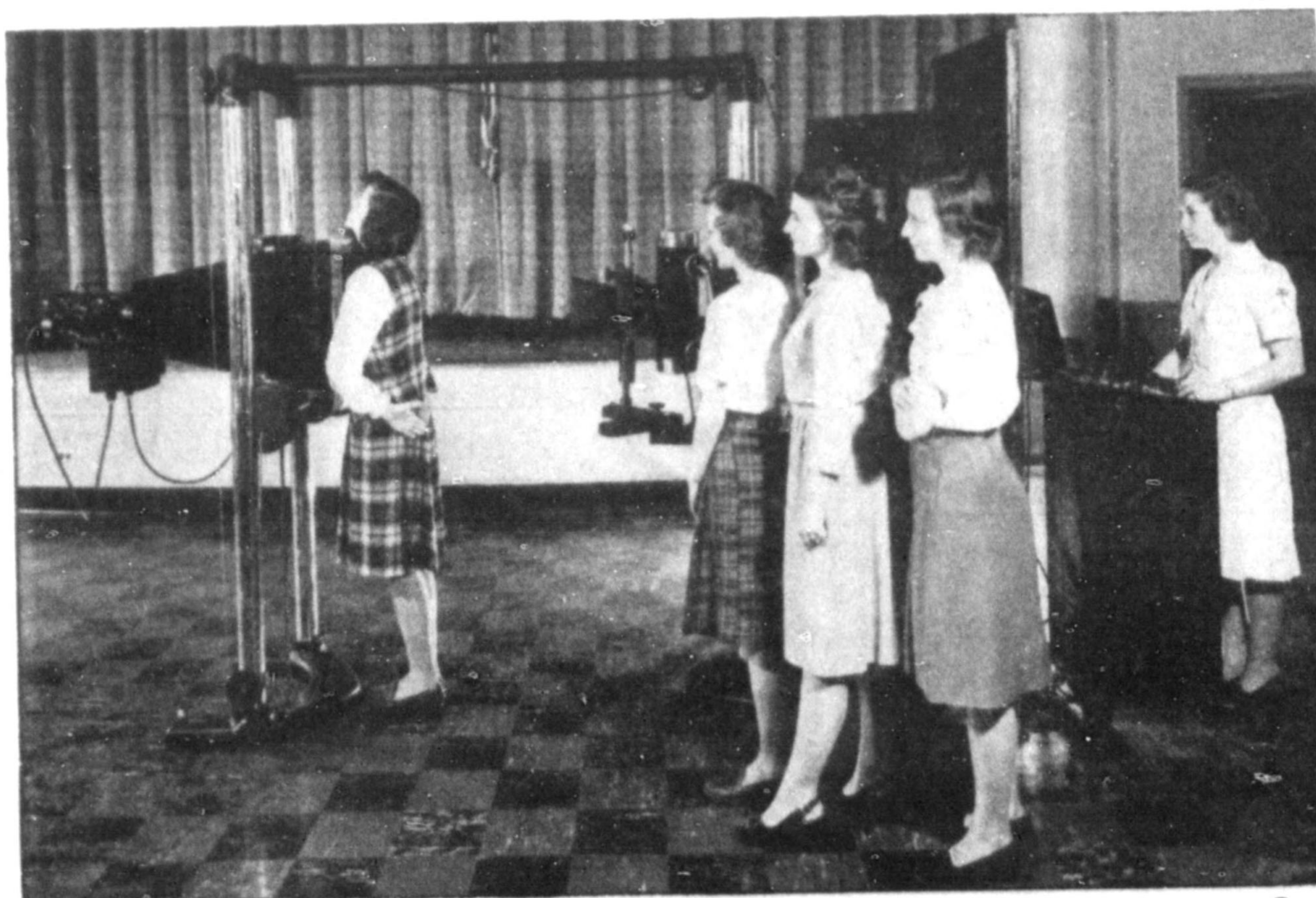
Aug.

Maryland HEALTH BULLETIN

STATE DEPARTMENT OF HEALTH
R. H. Riley, M.D., Dr. P.H., Director 2411 North Charles Street, Baltimore
Volume 18 September, 1946 Number 7

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Courtesy of the Maryland Tuberculosis Association

Entered as second-class matter, May 12, 1930, at the Post Office at Baltimore, Maryland, under the acts of August 24, 1912. Published monthly

THE TUBERCULOSIS PROGRAM OF THE COUNTIES OF MARYLAND

Maryland has the distinction of being the first State to require official notification concerning persons suffering from tuberculosis. This gave recognition to the fact that tuberculosis is a communicable disease and, therefore, one which should respond to preventive measures. In fact, shortly previous to this time, the discovery of the tubercle bacillus by Robert Koch and Edward Livingston Trudeau's demonstration in this country of the value of sanatorium care had proven the disease to be both preventable and curable.

In the years that have passed, remarkable progress has been made. Tuberculosis has been reduced from its place as Captain of the Men of Death, as Dr. Osler used to refer to it, to seventh place in the list of causes of death. In spite of this progress, last year 1,218 residents of Maryland died of tuberculosis. Of this total, 773 were residents of Baltimore City and 445 resided in the counties. Maryland's 1945 death rate for tuberculosis on the basis of the best available population figures was 61. This is considerably above the national average.

These figures emphasized the need for an all-out campaign to free our State of this disease which has caused so much unnecessary suffering, death and economic loss. A successful program for the control of tuberculosis can be developed only through cooperative effort. It must, of course, also be considered part of a larger plan to improve continually the health and welfare of our citizens. Eventual eradication of tuberculosis will require the cooperation of each and every citizen of our State. There are, however, special groups, agencies or organizations particularly concerned with carrying out a tuberculosis program. It might be of interest to list them and then briefly reveal how they fit into a complete program. They are:

1. The State Tuberculosis Sanatoria
2. The Tuberculosis Associations
3. The Welfare Department
4. The Rehabilitation Service of the Department of Education
5. The State and County Health Departments

It should, however, be pointed out that the private physician is the key figure around whom all phases of the program are built. It is to the physician of his choice that an individual first looks when he is ill. The physician may call on any or all of the agencies listed to assist in rendering a complete service to his patient.

One of the aims of the Department of Health is to help coordinate the activities of all agencies in the over-all Tuberculosis Control Program. This has been done by frequent conferences between representatives of these agencies and by referring those found to have tuberculosis to the organization that can best render the service needed.

The finding of all active cases of tuberculosis obviously must be one of our first objectives. Experience has shown that if the majority of these cases are to be found in the early stages the x-ray must be used more widely. In cooperation with the County Health Departments and with the State and County Tuberculosis Associations, this Department is striving to make x-ray services available to physicians and their patients at all times when the County Health Department is open. This has already been accomplished in several counties. In a number of instances individuals have been employed and given a sufficient period of training to enable them to take satisfactory chest x-rays.

There is little value in finding tuberculosis by chest x-rays if there are not adequate facilities for follow-up of the newly discovered cases. Con-

THE TUBERCULOSIS PROGRAM OF THE COUNTIES OF MARYLAND

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sequently, the case finding program must continue to center around the chest clinic. Chest clinics are now held at least once a month in each of the twenty-three County Health Departments.

All clinics are conducted by physicians with training in tuberculosis, most of them being connected with the tuberculosis sanatoria. Recommendations are given as to diagnosis, treatment and follow-up care. Most patients are referred by their private physicians. A report of the examination is sent to the physician and the patient continues under his care unless he specifically requests the health department to provide supervision. These clinics are sponsored jointly by the Tuberculosis Association and by the State and County Health Departments.

Public health nurses, under the supervision of the County Health Officer and with the consent of the private physician, visit the homes of tuberculosis patients as frequently as is necessary to advise them in regard to care and treatment. They also assist in preparing the patient for admission to a sanatorium when necessary. Their education of the family and assistance in referring contacts for examination are essential to the total program.

Pneumothorax clinics are now being conducted in two counties and plans are being completed to establish them in several other counties. Their use in conjunction with the already existent chest clinics will make possible the adequate care and supervision of all patients discharged from the sanatoria and unable to afford private medical care.

Two 70mm. photofluorographs have been purchased by the State Department of Health. One of these has already been delivered and is being used for chest x-ray surveys in the counties. The other will be mounted in a tractor trailer unit with its own electric generator and will make it possible to bring chest x-ray surveys to any desired part of Maryland. Mass chest x-ray surveys of selected groups of people with this type of equipment uncover a surprisingly high percentage of unsuspected tuberculosis, as well as other chest diseases. An outstanding advantage of this case finding procedure is that over one-half of the cases discovered have tuberculosis in its early stages. In contrast to this our sanatoria report that 80-90 per cent of their admissions now have tuberculosis in its advanced stages. Reports of positive findings found as a result of these surveys are sent to the patient's private physician. Any necessary further diagnostic study is then done by the physician or the local chest clinic. Plans are now being completed to send a notice directly to the patient in all instances where the chest x-ray reveals no abnormal findings.

The full benefits of early diagnosis can only be realized if sanatorium facilities are available. Maryland was one of the first States to develop a State program for the hospitalization of the tuberculous and is very fortunate in having Dr. Victor F. Cullen as superintendent of its sanatoria system. He has held this position since shortly after the opening of the first building. Four sanatoria are maintained and operated by the State; they are under the immediate supervision of the Board of Managers of the Maryland Tuberculosis Sanatoria. Together these provide 793 beds for the care of white and 496 beds for the care of colored patients. Approximately one-half of these beds are reserved for residents of the counties. In addition there are two semi-private sanatoria to which county residents may be admitted, though most of their admissions are residents of Baltimore City. At present the urgent need is for more beds for colored patients. This need has been recognized and plans made for increasing such facilities as soon as possible.

Probably no disease interferes more with normal family relationships and causes more financial difficulties than does tuberculosis. The granting

of financial assistance to families of the tuberculous is, of course, a function of the Department of Public Welfare. Assistance is obtained by direct application to local County Welfare Departments. Frequently, however, these departments are unable to grant as much assistance as is desirable because they lack sufficient funds.

A diagnosis of active tuberculosis and a recommendation for sanatorium care—whether the patient is the family bread winner, a young mother or a student just out of high school—create many problems not solved by financial assistance alone, though the importance of this cannot be overstressed. There are many situations best handled by a competent social worker. For this reason the State Department of Health has employed a Medical Social Consultant who is devoting full time to working with tuberculosis patients and is now assigned to the State Sanatorium. The value of this type of service has already been demonstrated and it is hoped that a similar worker may soon be obtained to work with colored people.

Frequently it is necessary for those who have had tuberculosis to change their occupations or, in the case of students, to change completely their plans for a lifetime career. The Division of Vocational Rehabilitation of the State Department of Education is able to render an invaluable service to these individuals. Vocational Rehabilitation Consultants regularly visit the sanatoria. Their services are also available to private physicians or County Health Departments upon request. This vocational service is rapidly expanding and should soon be able to meet all requests received.

We are all aware of the frequent misconceptions prevalent in regard to illness and proper measures necessary to improve one's health. The education of the public concerning health is one of the activities continually carried on by all physicians in their daily contact with patients. Nurses, especially those in public health work, are also active in health education. A large proportion of our population, however, does not have frequent enough contact with physicians and nurses to receive as much health instruction as is desirable. The frequency of preventable illnesses and correctable defects testifies to this fact. The State and County Health Departments have always pursued an active policy of health education through the daily contacts with the public of all members of their staffs, the regular release of bulletins to the press and the provision of speakers, motion pictures, etc., for schools and other groups. In order that this program of education may be further extended, Dr. R. H. Riley, Director of Health, has appointed Dr. Allan W. Freeman as Health Education Consultant. Dr. Freeman, with his exceptional background and experience in public health work will undoubtedly be of great assistance in bringing about a better understanding of tuberculosis and other health problems, thereby increasing the effectiveness of each phase of the program outlined.

MEDICAL CARE PROGRAM: PROGRESS REPORT

DEAN ROBERTS, M.D., *Chief, Bureau of Medical Services*

The Maryland Medical Care Program was one year old on July 1, 1946. A review of this first year of experience is indicated in order that we may critically evaluate the program in its present form and plan constructively for the future.

The Council on Medical Care was organized in May, 1945 and has guided the State Board of Health in the development of every phase of the program. The Council is composed of fourteen members, and includes representatives named by the official medical, dental, pharmaceutical, nursing and hospital associations, as well as representatives of both Maryland medical schools and official State health and welfare agencies. Nine of the

fourteen members are physicians. Members of the Council receive no remuneration and many of them have to travel considerable distances to attend the regular monthly meetings. They have given generously of their time, and their deep interest in the program is responsible for whatever success has been achieved.

Since Maryland was the first State to initiate a general medical care program for the needy under health department auspices, there was little experience from other areas to serve as a guide. It has been necessary to proceed very cautiously, realizing that some errors would be made, which would have to be corrected in the light of larger experience. The first action of the Council was to recommend that administration of the program be decentralized and that local administrative responsibility be placed in the County Health Departments.

County Advisory Committees, composed of physicians, dentists, pharmacists, and representatives of health and welfare agencies and the Board of County Commissioners, were organized in each county to assist the Health Officer in organizing the program and carrying it out. The Council asked these committees to analyze local medical care needs and to make recommendations as to how best to meet these needs. The recommendations from the counties were studied by the Council during the summer of 1945 and basic principles for the Program were gradually developed.

Counties were given a wide latitude in the determination of services to be offered. All counties elected to provide such services as office and home visits by physicians, care of acute dental conditions and prescribed drugs. However, there is a wide variation from county to county in other services, such as surgery, maternity, consultations, elective dentistry, nursing care, and diagnostic laboratory services. These variations in county programs are largely accounted for by the limitations imposed by an inadequate budget. Each county knew the amount of money available to it and the scope of services offered had to be tailored to fit the budget. Also, certain services, such as surgical care, consultation, and diagnostic laboratory services, were already available in some counties and did not need to be duplicated. Nursing services were omitted in several counties because of the shortage of nursing personnel.

The law establishing the Medical Care Program refers to both the indigent and medically indigent groups. The Council recommended that first consideration be given to the indigent, that is, individuals who are receiving public assistance from the Welfare Department. During the first six months of the program, 95% of the patients were indigent and only 5% medically indigent. Since January 1946, however, there has been a steady increase in medically indigent patients, that is, persons not on relief, but who lack sufficient income to pay for the medical care they need. By June 1946, the number of medically indigent patients had increased to 12%. The size of this group will undoubtedly increase markedly as knowledge of the program is disseminated among the poor. One of the early problems of the Council was that of determining who should be eligible for care in the medically indigent group. No simple rule of thumb could be found that was satisfactory. Obviously the income of the family and the number of persons dependent on this income are factors of major importance. But there are other factors, one of the most elusive being the significance, both medically and financially, of the particular illness from which the person is suffering. Thus a family may be well able to pay for a few home visits for Johnny's measles, but at the same time be totally unable to finance a long disabling illness of the wage earner involving an expensive operation. After careful study, the Council recommended a series of basic principles which take into careful consideration the important financial, social and medical

factors involved. The County Health Officer, who is responsible for certification of eligibility of the medically indigent, uses these principles as a general guide in reviewing applications for medical care.

Eligible persons, whether indigent or medically indigent, are given an identification card, which they are instructed to present to the physician of their choice if they become ill. The physician renders whatever services are needed just as he would for any of his patients. The only difference is that at the end of the month, instead of billing the patient, he sends a brief report on a special form to the County Health Department. The physician is then paid on a fee-for-service basis, in accordance with a uniform fee schedule adopted after consultation with the County Advisory Committees on Medical Care. If the doctor feels that he has been underpaid, or has any other complaint, he may ask for a hearing before the County Committee. It should be noted that the patient has absolute freedom of choice of physician, of dentist and of pharmacy. There is no interference in the traditional physician-patient relationship, the only change being in the source of payment.

GROWTH OF THE PROGRAM

The steady growth of the program is shown clearly by the following table of the number of persons receiving medical care each month.

1945: July	45	1946: January	1,138
August	85	February	1,409
September	225	March	1,965
October	332	April	2,157
November	563	May	2,379
December	851	June	2,442

The extent of the growth of the program is reflected by the fact that the volume of services rendered in the single month of June was approximately one-third greater than the volume of services rendered in the entire first six months of operation. During June, there were 3,185 visits to the offices of physicians; 1,915 home visits and 215 hospital visits. In addition 2,132 prescriptions for drugs were filled and 94 patients were treated by dentists. Dental services included 102 fillings, 306 extractions, 16 x-rays and 32 dentures. Another measure of the growth of the program is in terms of the participation of professional groups. The following table shows the number of physicians, dentists, and pharmacies, who are participating in the program by rendering services:

	Number practicing in counties	Number participating in program	Percent
Physicians.....	627 (1941 estimate)	437	69.7
Dentists.....	200	108	54.0
Pharmacies.....	217	198	91.5

During the year many counties have altered their programs, usually to include services not previously provided, such as consultation services and maternity care. Arrangements have been worked out with local hospitals for special diagnostic laboratory examinations for ambulatory patients. Several of the Branch Laboratories of the State Department of Health have been equipped and their staffs trained to do clinical laboratory tests, such as complete blood counts, urinalysis, and blood chemistry determinations requested by physicians. Each County Health Department is equipped with x-ray machines which can be used as needed, particularly for chest work.

CHARACTERISTICS OF PATIENTS

Patients under the Medical Care Program do not represent an average cross section of the population. During June 1946, 60% of the patients were 60 years of age or older, whereas only 10% of the general population of Maryland is in this age group. At the other end of the age scale, only 16% of patients were under age 20 as compared to 33% of the general population. An analysis of the race of patients shows 22% Negroes, whereas the population of the counties is only 14% Negro. The low economic status of Negroes in the counties accounts for the relatively large number in the program. Of the 2,442 patients treated in June, 398 or 16% had heart disease, 272 or 11% had hypertension, and 113 or 5% had arteriosclerosis. Added together, 32% of the patients had some disease of the circulatory system. This is not surprising in a predominantly elderly group. Arthritis and diseases of the digestive organs were frequently diagnosed, each accounting for about 6% of the total. Other illnesses occurring frequently include bronchitis, nephritis, tonsillitis, sinusitis, diabetes, asthma and diseases of the eye.

COST OF PROGRAM

The program is in effect in all counties of Maryland, but does not cover Baltimore City, which is not in any county. The Maryland State Planning Commission in its 1944 report estimated the probable cost of the program for the indigent population of the counties to be \$1,373,000 per year. The estimated population of the counties is slightly over 1,000,000. The persons receiving public assistance and, therefore, automatically eligible for care number approximately 15,000. Actual expenditure for services (excluding administrative expense) during the first year was approximately \$100,000. This figure is low because development of the program was deliberately slow and gradual. Expenditures for the first six months amounted to only \$13,407, but by June 1946 the cost had increased to about \$19,000 per month. After a careful study of the trends, the Council on Medical Care estimated the probable cost for the year, July 1946-June 1947, at approximately \$370,000. The appropriation is only \$200,000 and additional funds must be obtained from the Legislature in January for the program to continue throughout the year.

OBJECTIVES

The primary objective of the program is to bring adequate medical, dental and nursing care to the poor. Inability to pay must not prevent people from getting good medical care early in the course of disease. It was not expected that this goal would be fully achieved in the first year. The program has many deficiencies which must be overcome by carefully planned extensions to meet the most pressing needs. Emphasis must be placed on early diagnosis and treatment. Early diagnosis frequently depends on the health facilities available to the physician. It will be important for the health department to provide essential diagnostic facilities in communities where they are not otherwise available. The importance of staffing and equipping the branch laboratories for the performance of clinical laboratory tests cannot be over-estimated. Many counties have requested consultation clinics. Shortage of personnel has made this impractical until now, but it should soon be possible to bring consultation services in the major medical specialties to every county, either through visiting consultants or through qualified local consultants, either dental or medical. Although the dental phase of the program has made great progress, it still meets only a small fraction of total dental needs of the poor. Even

(Continued to page 63)

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TABLE 1. Reported Cases of Notifiable Diseases in Maryland, July, 1946

AREA	Typhoid fever	Rheumatic fever	Rocky Mountain spotted fever	Undulant fever	Tularemia	Measles	Scarlet fever	Chickenpox	German measles	Whooping cough	Mumps	Diphtheria	Septic sore throat	Vincent's angina	Influenza	Dysentery	Diarrhea	Polio myelitis	Epidemic meningitis	Tuberculosis (all forms)	Syphilis	Gonorrhea and Chancroid	Other venereal diseases	Gonorrheal ophth.	Ophthalmia neon. non venereal	Tetanus	Malaria*	Infectious hepatitis	Bronchopneumonia	Lobar pneumonia	Pneumonia unspecified	Total	
Maryland State.....	5	12	17	2	1	663	31	43	29	110	39	17	7	2	2	2	7	17	2	286	739	642	2	2	2	1	(4)	1	30	28	13	2,754	
Baltimore City.....	1	11				542	12	25	7	83	20	14	6	2	2	1	7	2		142	556	399	1	2	2	1	(4)	1	20	15	8	1,890	
Total Counties.....	4	1	17	2	1	121	19	14	22	27	19	3	1			1			15	2	144	183	243	1				10	9	5	864		
Allegany.....			1			6	2													3	7	5									1	43	
Anne Arundel.....		1	4			1				3										9	15	7					(1)			3	1	217	
Baltimore.....	2		1			66	2	3	21	5	9	1	1							59	22	20						1			3		
Calvert.....							1													1	8	5					(1)				1	16	
Caroline.....			2																	6	1	3									1	22	
Carroll.....	1		1			3														6	2	5										5	
Cecil.....			1				4	1												2	2									1		20	
Charles.....									3			1								2	10	2										6	
Dorchester.....					1															3		2											
Frederick.....																				4	23	108					(1)			1		139	
Garrett.....							2													1	3	1	2									11	
Harford.....											3		1							4	4	5										15	
Howard.....			1																	4	4	5										84	
Kent.....	1																			7	12	26					(1)		2			67	
Montgomery.....			1	1		16	5	1		9	4									7	18	8								1	1	8	
Prince George's.....						9	1	3		5	2									3	2										1	28	
Queen Anne's.....						1					1									1	9	5									1	16	
St. Mary's.....			1			9	1						1							2	7	2										14	
Somerset.....										1										3	4	2									1	31	
Talbot.....			3			1														8	2	10								1		59	
Washington.....						6	1	2				1								6	27	24										19	
Wicomico.....						3				1		1								5	6	2											
Worcester.....				1																													

*Malaria cases were contracted outside the U.S.A.

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TABLE 2. Births, Stillbirths and Deaths, Under One Year. Preliminary: Corrected for Residence Only Within State. July, 1946

AREA	Births (exclusive of stillbirths)																			Deaths of infants under one year (exclusive of stillbirths)									
	All births	Color		Attended by						Stillbirths		Color			Age				Deaths by cause and list number										
		White	Colored	Physician		Midwife		Other		All stillbirths	White	Colored	White	Colored	Under 1 day	1-29 days	1-11 months	Infectious diseases (1-44)	Respiratory diseases (104-114)	Diarrhea and enteritis (119)	Premature birth (159)	Injury at birth (160)	Other early infancy (158,161)	All other causes					
				White	Colored	White	Colored	White	Colored																				
Maryland State.....	4,054	3,354	700	3,280	543	66	155	8	2	137	93	44	114	79	35	37	50	27	4	6	7	40	19	12	26				
Baltimore City.....	1,758	1,370	388	1,342	348	28	40	..	..	59	37	22	58	37	21	15	27	16	4	3	3	21	8	7	12		
Total Counties.....	2,296	1,984	312	1,938	195	38	115	8	2	78	56	22	56	42	14	22	23	11	..	3	4	19	11	5	14				
Allegany.....	218	213	5	209	5	..	..	..	..	9	9	..	6	5	1	3	2	1	..	..	..	..	..	..	..
*Cumberland.....	121	117	4	115	4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anne Arundel.....	188	146	42	145	29	1	13	..	..	5	5	..	3	3	..	1	1	..	..	..	..	..	..	..	..
*Annapolis.....	47	37	10	36	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Baltimore.....	495	455	40	452	39	3	1	..	..	5	3	..	2	2	1	1	1	..	..	..	..	..	..	..	..
Calvert.....	26	7	19	7	8	..	..	..	..	2	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Caroline.....	38	31	7	29	3	..	..	..	..	12	10	..	2	2	..	..	..	..	..	..	..	..	..	..	..
Carroll.....	63	58	5	57	5	2	4	..	..	2	2	..	13	12	1	3	7	3	..	..	..	..	..	..	..
Cecil.....	78	72	6	72	6	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Charles.....	41	21	20	17	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dorchester.....	44	31	13	30	8	4	19	..	..	4	3	..	1	1	..	..	..	..	..	..	..	..	..	..	..
*Cambridge.....	18	14	4	14	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Frederick.....	109	93	16	90	5	3	11	..	..	2	1	..	2	2	1	1	2	..	..	..	..	..	..	..	..
*Fred. City.....	35	28	7	28	2	..	..	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Garrett.....	28	28	..	22	..	..	..	..	..	5	4	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Harford.....	110	98	12	98	12	..	..	..	..	1	..	..	2	2	1	1	1	..	..	..	..	..	..	..	..
Howard.....	32	28	4	28	4	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Kent.....	20	14	6	14	4	..	..	..	..	2	1	..	2	2	1	1	1	..	..	..	..	..	..	..	..
Montgomery.....	186	170	16	169	15	1	1	..	..	3	3	..	1	1	1	1	2	..	..	..	..	..	..	..	..
Prince George's.....	144	135	9	129	6	6	3	..	..	2	2	..	2	2	1	1	1	..	..	..	..	..	..	..	..
Queen Anne's.....	21	19	2	19	2	..	..	..	..	6	3	..	5	4	1	1	1	..	..	..	..	..	..	..	..
Saint Mary's.....	77	46	31	41	9	5	20	..	..	2	1	..	4	3	1	1	3	..	..	..	..	..	..	..	..
Somerset.....	41	34	7	34	5	..	..	..	..	2	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Talbot.....	29	19	10	17	5	2	5	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Washington.....	173	172	1	171	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*Hagerstown.....	94	93	1	93	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Wicomico.....	100	80	20	74	15	..	..	..	..	8	8	..	2	2	..	..	..	..	..	..	..	..	..	..	..
*Salisbury.....	66	60	6	54	3	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Worcester.....	35	14	21	8	..	13	6	..	..	1	1	..	2	2	..	..	..	..	..	..	..	..	..	..	..

*Town of over 10,000; data are also included in county figures. (Baltimore City is not part of any county.)

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
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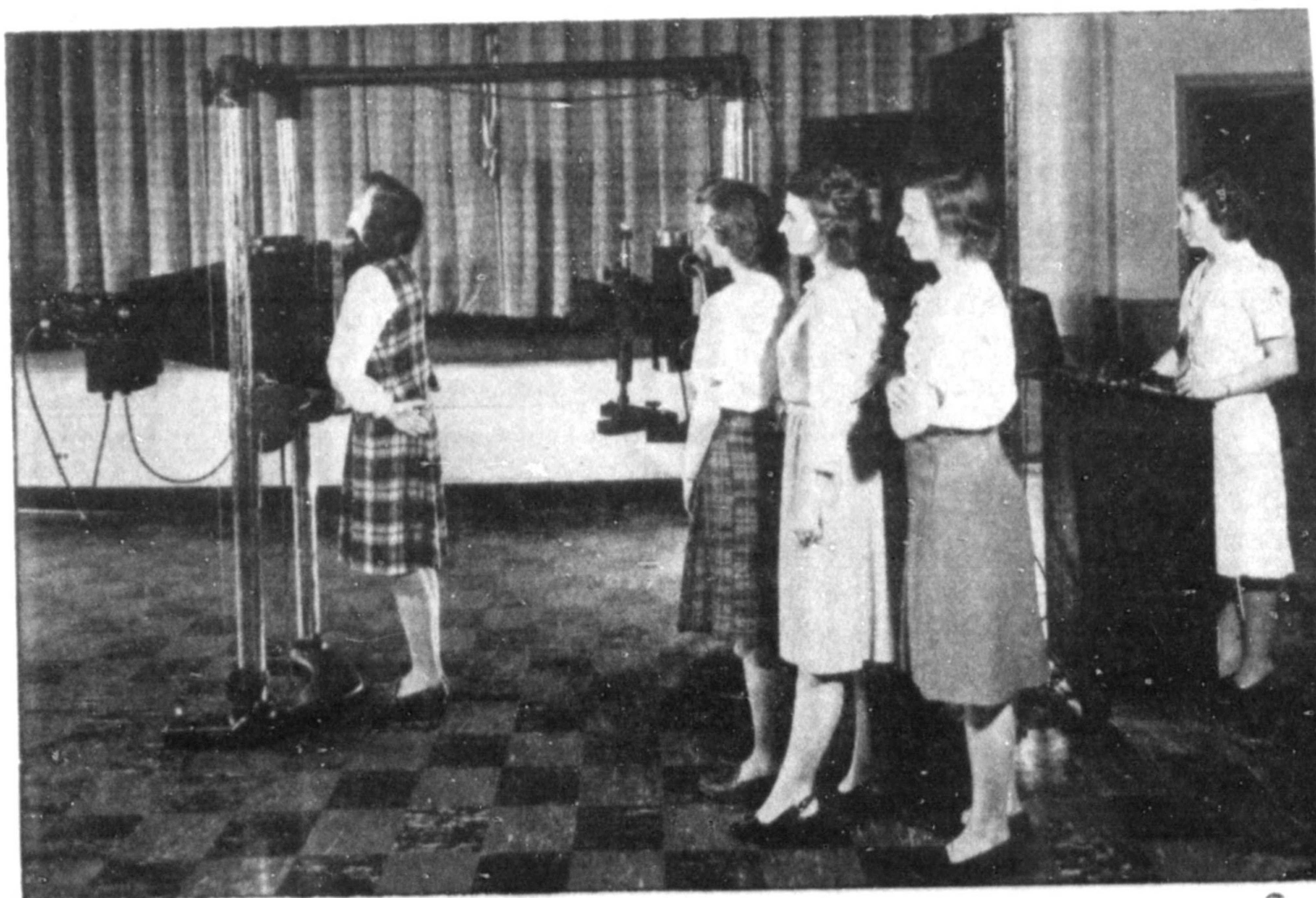
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Maryland HEALTH BULLETIN

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Courtesy of the Maryland Tuberculosis Association

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THE MARYLAND TUBERCULOSIS ASSOCIATION:
ITS OBJECTIVES AND PROGRAM

G. CANBY ROBINSON, M.D., *Executive Secretary*

The Maryland Tuberculosis Association is a voluntary health agency of physicians and laymen, who are united in conducting a persistent campaign against tuberculosis in the State of Maryland by the stimulation, promotion and maintenance of work in every field which concerns the eradication of the disease. The Association is affiliated with the National Tuberculosis Association, and with local associations in the counties of Maryland, and under the general direction of the National Association, it cooperates and assists the Health Departments of Maryland and of Baltimore City in the control of tuberculosis.

The Tuberculosis Association is especially concerned with the development and employment of effective methods of health education, and in carrying on activities for the promotion of community health. It is supported by the sale of Christmas Seals, representing voluntary contributions of many people in all parts of Maryland.

The Board of Directors of the Association contains representatives of various counties of the State, as well as of Baltimore City.

At the present time, the Maryland Tuberculosis Association is expanding its activities along lines that have been suggested by representatives of the National Association, who recently made a thorough study of the operations of the Maryland Association. It has added to its staff a director of health education in order to develop a more intensive study and program in Baltimore City, a field organizer to improve the work in the counties of the State, and a Negro social worker, especially trained in tuberculosis work, to augment the program of the Association among the Negro population.

Health education is carried on in high schools and colleges with the use of motion pictures, charts and pamphlets, lectures having been given to over 25,000 students last year. Similar talks are also given to clubs, community organizations, church groups and to social welfare and professional groups.

The Association is giving particular emphasis to its cooperation with the City and State Health Departments in case-finding and in the diagnosis of tuberculosis. It is assisting in holding chest clinics in every county of Maryland, and in working with the Health Departments in the organization and conducting of mass x-ray surveys. The Association makes use as far as possible, of these surveys as opportunities for health education, and endeavors to create an understanding of their value, so that a wide participation and organized cooperation is prepared before each x-ray survey is begun.

The photofluorographs now being operated by the City and State Health Departments will allow, not only thousands of chest x-ray examinations to be made each year, which will discover many cases of tuberculosis in an early stage when there is the best chance for successful treatment, but the surveys will also serve to bring the problem of tuberculosis and its control to many people.

The Association is concerned with this awakened interest, and makes an effort to put it to good advantage in the promotion of community health. The control of tuberculosis requires teamwork between all official and non-official health agencies and the general public. Helping the public to gain an enlightened point of view and a sound understanding of tuberculosis and related problems of health is a major objective of the Maryland Tuberculosis Association.

THE TUBERCULOSIS PROGRAM OF THE COUNTIES OF MARYLAND

Maryland has the distinction of being the first State to require official notification concerning persons suffering from tuberculosis. This gave recognition to the fact that tuberculosis is a communicable disease and, therefore, one which should respond to preventive measures. In fact, shortly previous to this time, the discovery of the tubercle bacillus by Robert Koch and Edward Livingston Trudeau's demonstration in this country of the value of sanatorium care had proven the disease to be both preventable and curable.

In the years that have passed, remarkable progress has been made. Tuberculosis has been reduced from its place as Captain of the Men of Death, as Dr. Osler used to refer to it, to seventh place in the list of causes of death. In spite of this progress, last year 1,218 residents of Maryland died of tuberculosis. Of this total, 773 were residents of Baltimore City and 445 resided in the counties. Maryland's 1945 death rate for tuberculosis on the basis of the best available population figures was 61. This is considerably above the national average.

These figures emphasized the need for an all-out campaign to free our State of this disease which has caused so much unnecessary suffering, death and economic loss. A successful program for the control of tuberculosis can be developed only through cooperative effort. It must, of course, also be considered part of a larger plan to improve continually the health and welfare of our citizens. Eventual eradication of tuberculosis will require the cooperation of each and every citizen of our State. There are, however, special groups, agencies or organizations particularly concerned with carrying out a tuberculosis program. It might be of interest to list them and then briefly reveal how they fit into a complete program. They are:

1. The State Tuberculosis Sanatoria
2. The Tuberculosis Associations
3. The Welfare Department
4. The Rehabilitation Service of the Department of Education
5. The State and County Health Departments

It should, however, be pointed out that the private physician is the key figure around whom all phases of the program are built. It is to the physician of his choice that an individual first looks when he is ill. The physician may call on any or all of the agencies listed to assist in rendering a complete service to his patient.

One of the aims of the State Department of Health is to help coordinate the activities of all concerned in the over-all Tuberculosis Control Program. This has been done by frequent conferences between representatives of these agencies and by referring those found to have tuberculosis to the organization that can best render the service needed.

The finding of all active cases of tuberculosis obviously must be one of our first objectives. Experience has shown that if the majority of these cases are to be found in the early stages the x-ray must be used more widely. In cooperation with the County Health Departments and with the State and County Tuberculosis Associations, this Department is striving to make x-ray services available to physicians and their patients at all times when the County Health Department is open. This has already been accomplished in several counties. In a number of instances individuals have been employed and given a sufficient period of training to enable them to take satisfactory chest x-rays.

There is little value in finding tuberculosis by chest x-rays if there are not adequate facilities for follow-up of the newly discovered cases. Con-

sequently, the case finding program must continue to center around the chest clinic. Chest clinics are now held at least once a month in each of the twenty-three County Health Departments.

All clinics are conducted by physicians with training in tuberculosis, most of them being connected with the tuberculosis sanatoria. Recommendations are given as to diagnosis, treatment and follow-up care. Most patients are referred by their private physicians. A report of the examination is sent to the physician and the patient continues under his care unless he specifically requests the health department to provide supervision. These clinics are sponsored jointly by the Tuberculosis Association and by the State and County Health Departments.

Public health nurses, under the supervision of the County Health Officer and with the consent of the private physician, visit the homes of tuberculosis patients as frequently as is necessary to advise them in regard to care and treatment. They also assist in preparing the patient for admission to a sanatorium when necessary. Their education of the family and assistance in referring contacts for examination are essential to the total program.

Pneumothorax clinics are now being conducted in two counties and plans are being completed to establish them in several other counties. Their use in conjunction with the already existent chest clinics will make possible the adequate care and supervision of all patients discharged from the sanatoria and unable to afford private medical care.

Two 70mm. photofluorographs have been purchased by the State Department of Health. One of these has already been delivered and is being used for chest x-ray surveys in the counties. The other will be mounted in a tractor trailer unit with its own electric generator and will make it possible to bring chest x-ray surveys to any desired part of Maryland. Mass chest x-ray surveys of selected groups of people with this type of equipment uncover a surprisingly high percentage of unsuspected tuberculosis, as well as other chest diseases. An outstanding advantage of this case finding procedure is that over one-half of the cases discovered have tuberculosis in its early stages. In contrast to this our sanatoria report that 80-90 per cent of their admissions now have tuberculosis in its advanced stages. Reports of positive findings found as a result of these surveys are sent to the patient's private physician. Any necessary further diagnostic study is then done by the physician or the local chest clinic. Plans are now being completed to send a notice directly to the patient in all instances where the chest x-ray reveals no abnormal findings.

The full benefits of early diagnosis can only be realized if sanatorium facilities are available. Maryland was one of the first States to develop a State program for the hospitalization of the tuberculous and is very fortunate in having Dr. Victor F. Cullen as superintendent of its sanatoria system. He has held this position since shortly after the opening of the first building. Four sanatoria are maintained and operated by the State; they are under the immediate supervision of the Board of Managers of the Maryland Tuberculosis Sanatoria. Together these provide 793 beds for the care of white and 496 beds for the care of colored patients. Approximately one-half of these beds are reserved for residents of the counties. In addition there are two semi-private sanatoria to which county residents may be admitted, though most of their admissions are residents of Baltimore City. At present the urgent need is for more beds for colored patients. This need has been recognized and plans made for increasing such facilities as soon as possible.

Probably no disease interferes more with normal family relationships and causes more financial difficulties than does tuberculosis. The granting

of financial assistance to families of the tuberculous is, of course, a function of the Department of Public Welfare. Assistance is obtained by direct application to local County Welfare Departments. Frequently, however, these departments are unable to grant as much assistance as is desirable because they lack sufficient funds.

A diagnosis of active tuberculosis and a recommendation for sanatorium care—whether the patient is the family bread winner, a young mother or a student just out of high school—create many problems not solved by financial assistance alone, though the importance of this cannot be overstressed. There are many situations best handled by a competent social worker. For this reason the State Department of Health has employed a Medical Social Consultant who is devoting full time to working with tuberculosis patients and is now assigned to the State Sanatorium. The value of this type of service has already been demonstrated and it is hoped that a similar worker may soon be obtained to work with colored people.

Frequently it is necessary for those who have had tuberculosis to change their occupations or, in the case of students, to change completely their plans for a lifetime career. The Division of Vocational Rehabilitation of the State Department of Education is able to render an invaluable service to these individuals. Vocational Rehabilitation Consultants regularly visit the sanatoria. Their services are also available to private physicians or County Health Departments upon request. This vocational service is rapidly expanding and should soon be able to meet all requests received.

We are all aware of the frequent misconceptions prevalent in regard to illness and proper measures necessary to improve one's health. The education of the public concerning health is one of the activities continually carried on by all physicians in their daily contact with patients. Nurses, especially those in public health work, are also active in health education. A large proportion of our population, however, does not have frequent enough contact with physicians and nurses to receive as much health instruction as is desirable. The frequency of preventable illnesses and correctable defects testifies to this fact. The State and County Health Departments have always pursued an active policy of health education through the daily contacts with the public of all members of their staffs, the regular release of bulletins to the press and the provision of speakers, motion pictures, etc., for schools and other groups. In order that this program of education may be further extended, Dr. R. H. Riley, Director of Health, has appointed Dr. Allan W. Freeman as Health Education Consultant. Dr. Freeman, with his exceptional background and experience in public health work will undoubtedly be of great assistance in bringing about a better understanding of tuberculosis and other health problems, thereby increasing the effectiveness of each phase of the program outlined.

MEDICAL CARE PROGRAM: PROGRESS REPORT

DEAN ROBERTS, M.D., *Chief, Bureau of Medical Services*

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Since Maryland was the first State to initiate a general medical care program for the needy under health department auspices, there was little experience from other areas to serve as a guide. It has been necessary to proceed very cautiously, realizing that some errors would be made, which would have to be corrected in the light of larger experience. The first action of the Council was to recommend that administration of the program be decentralized and that local administrative responsibility be placed in the County Health Departments.

County Advisory Committees, composed of physicians, dentists, pharmacists, and representatives of health and welfare agencies and the Board of County Commissioners, were organized in each county to assist the Health Officer in organizing the program and carrying it out. The Council asked these committees to analyze local medical care needs and to make recommendations as to how best to meet these needs. The recommendations from the counties were studied by the Council during the summer of 1945 and basic principles for the Program were gradually developed.

Counties were given a wide latitude in the determination of services to be offered. All counties elected to provide such services as office and home visits by physicians, care of acute dental conditions and prescribed drugs. However, there is a wide variation from county to county in other services, such as surgery, maternity, consultations, elective dentistry, nursing care, and diagnostic laboratory services. These variations in county programs are largely accounted for by the limitations imposed by an inadequate budget. Each county knew the amount of money available to it and the scope of services offered had to be tailored to fit the budget. Also, certain services, such as surgical care, consultation, and diagnostic laboratory services, were already available in some counties and did not need to be duplicated. Nursing services were omitted in several counties because of the shortage of nursing personnel.

The law establishing the Medical Care Program refers to both the indigent and medically indigent groups. The Council recommended that first consideration be given to the indigent, that is, individuals who are receiving public assistance from the Welfare Department. During the first six months of the program, 95% of the patients were indigent and only 5% medically indigent. Since January 1946, however, there has been a steady increase in medically indigent patients, that is, persons not on relief, but who lack sufficient income to pay for the medical care they need. By June 1946, the number of medically indigent patients had increased to 12%. The size of this group will undoubtedly increase markedly as knowledge of the program is disseminated among the poor. One of the early problems of the Council was that of determining who should be eligible for care in the medically indigent group. No simple rule of thumb could be found that was satisfactory. Obviously the income of the family and the number of persons dependent on this income are factors of major importance. But there are other factors, one of the most elusive being the significance, both medically and financially, of the particular illness from which the person is suffering. Thus a family may be well able to pay for a few home visits for Johnny's measles, but at the same time be totally unable to finance a long disabling illness of the wage earner involving an expensive operation. After careful study, the Council recommended a series of basic principles which take into careful consideration the important financial, social and medical

factors involved. The County Health Officer, who is responsible for certification of eligibility of the medically indigent, uses these principles as a general guide in reviewing applications for medical care.

Eligible persons, whether indigent or medically indigent, are given an identification card, which they are instructed to present to the physician of their choice if they become ill. The physician renders whatever services are needed just as he would for any of his patients. The only difference is that at the end of the month, instead of billing the patient, he sends a brief report on a special form to the County Health Department. The physician is then paid on a fee-for-service basis, in accordance with a uniform fee schedule adopted after consultation with the County Advisory Committees on Medical Care. If the doctor feels that he has been underpaid, or has any other complaint, he may ask for a hearing before the County Committee. It should be noted that the patient has absolute freedom of choice of physician, of dentist and of pharmacy. There is no interference in the traditional physician-patient relationship, the only change being in the source of payment.

GROWTH OF THE PROGRAM

The steady growth of the program is shown clearly by the following table of the number of persons receiving medical care each month.

1945: July	45	1946: January	1,138
August	85	February	1,409
September	225	March	1,965
October	332	April	2,157
November	563	May	2,379
December	851	June	2,442

The extent of the growth of the program is reflected by the fact that the volume of services rendered in the single month of June was approximately one-third greater than the volume of services rendered in the entire first six months of operation. During June, there were 3,185 visits to the offices of physicians; 1,915 home visits and 215 hospital visits. In addition 2,132 prescriptions for drugs were filled and 94 patients were treated by dentists. Dental services included 102 fillings, 306 extractions, 16 x-rays and 32 dentures. Another measure of the growth of the program is in terms of the participation of professional groups. The following table shows the number of physicians, dentists, and pharmacies, who are participating in the program by rendering services:

	Number practicing in counties	Number participating in program	Percent
Physicians	627 (1941 estimate)	437	69.7
Dentists	200	108	54.0
Pharmacies	217	198	91.5

During the year many counties have altered their programs, usually to include services not previously provided, such as consultation services and maternity care. Arrangements have been worked out with local hospitals for special diagnostic laboratory examinations for ambulatory patients. Several of the Branch Laboratories of the State Department of Health have been equipped and their staffs trained to do clinical laboratory tests, such as complete blood counts, urinalysis, and blood chemistry determinations requested by physicians. Each County Health Department is equipped with x-ray machines which can be used as needed, particularly for chest work.

CHARACTERISTICS OF PATIENTS

Patients under the Medical Care Program do not represent an average cross section of the population. During June 1946, 60% of the patients were 60 years of age or older, whereas only 10% of the general population of Maryland is in this age group. At the other end of the age scale, only 16% of patients were under age 20 as compared to 33% of the general population. An analysis of the race of patients shows 22% Negroes, whereas the population of the counties is only 14% Negro. The low economic status of Negroes in the counties accounts for the relatively large number in the program. Of the 2,442 patients treated in June, 398 or 16% had heart disease, 272 or 11% had hypertension, and 113 or 5% had arteriosclerosis. Added together, 32% of the patients had some disease of the circulatory system. This is not surprising in a predominantly elderly group. Arthritis and diseases of the digestive organs were frequently diagnosed, each accounting for about 6% of the total. Other illnesses occurring frequently include bronchitis, nephritis, tonsillitis, sinusitis, diabetes, asthma and diseases of the eye.

COST OF PROGRAM

The program is in effect in all counties of Maryland, but does not cover Baltimore City, which is not in any county. The Maryland State Planning Commission in its 1944 report estimated the probable cost of the program for the indigent only in the counties to be \$1,373,000 per year. The estimated population of the counties is slightly over 1,000,000. The persons receiving public assistance and, therefore, automatically eligible for care number approximately 15,000. Actual expenditure for services (excluding administrative expense) during the first year was approximately \$100,000. This figure is low because development of the program was deliberately slow and gradual. Expenditures for the first six months amounted to only \$13,407, but by June 1946 the cost had increased to about \$19,000 per month. After a careful study of the trends, the Council on Medical Care estimated the probable cost for the year, July 1946—June 1947, at approximately \$370,000. The appropriation is only \$200,000 and additional funds must be obtained from the Legislature in January for the program to continue throughout the year.

OBJECTIVES

The primary objective of the program is to bring adequate medical, dental and nursing care to the poor. Inability to pay must not prevent people from getting good medical care early in the course of disease. It was not expected that this goal would be fully achieved in the first year. The program has many deficiencies which must be overcome by carefully planned extensions to meet the most pressing needs. Emphasis must be placed on early diagnosis and treatment. Early diagnosis frequently depends on the diagnostic facilities available to the physician. It will be important for the health department to provide essential diagnostic facilities in communities where they are not otherwise available. The importance of staffing and equipping the branch laboratories for the performance of clinical laboratory tests cannot be over-estimated. Many counties have requested consultation clinics. Shortage of personnel has made this impractical until now, but it should soon be possible to bring consultation services in the major medical specialties to every county, either through visiting consultants or through qualified local consultants.

Although the dental phase of the program has made great progress, it still meets only a small fraction of total dental needs of the poor. Even

(Continued to page 63)

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TABLE 1. Reported Cases of Notifiable Diseases in Maryland, July, 1946

AREA	Typhoid fever	Rheumatic fever	Rocky Mountain spotted fever	Undulant fever	Tularemia	Measles	Scarlet fever	Chickenpox	German measles	Whooping cough	Mumps	Diphtheria	Septic sore throat	Vincent's angina	Influenza	Dysentery	Diarrhea	Polio-myelitis	Epidemic meningitis	Tuberculosis (all forms)	Syphilis	Gonorrhea and Chancroid	Other venereal diseases	Gonorrheal ophth.	Ophthalmia neon. non venereal	Tetanus	Malaria*	Infectious hepatitis	Bronchopneumonia	Lobar pneumonia	Pneumonia unspecified	Total	
Maryland State	5	12	17	2	1	663	31	43	29	110	39	17	7	2	2	2	7	17	2	286	739	642	2	2	2	1	(4)	1	30	28	13	2,754	
Baltimore City	1	11				542	12	25	7	83	20	14	6	2	2	1	7	2		142	556	399	1	2	2	1			20	15	8	1,890	
Total Counties	4	1	17	2	1	121	19	14	22	27	19	3	1		1		15	2	144	183	243	1				(4)		10	9	5	864		
Allegany			1			6	2													3	7	5										24	
Anne Arundel		1	4			1				3										9	15	7	1					1		1		43	
Baltimore	2		1			66	2	3	21	5	9	1	1					1		59	22	20				(1)		3	1		217		
Calvert										1											1											3	
Caroline			2				1													1	8	5				(1)						17	
Carroll	1		1			3														6	1	3										16	
Cecil			1	1			4	1												6	2	5										22	
Charles																			1	2	2	5										5	
Dorchester					1			3			1									2	10	2							1			20	
Frederick																				3		2										6	
Garrett																																	
Herford							2																										
Howard			1							3		1								4	23	108				(1)			1			139	
Kent	1							1												3	1	2										11	
Montgomery			1	1		16	5	1		9	4									4	4	5										15	
Prince George's						9	1	3		5	2						12			7	12	26				(1)		2				84	
Queen Anne's						1					1									3	2									1	1	67	
St. Mary's			1			9	1					1								1	9	5									1	8	
Somerset																				2	7	2							4	1		28	
Talbot			3			1				1										3	4	2										16	
Washington						6	1	2												8	2	10								1		31	
Wicomico											1									6	27	24										59	
Worcester			1			3			1		1									5	6	2										19	

*Malaria cases were contracted outside the U.S.A.

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TABLE 2. Births, Stillbirths and Deaths, Under One Year. Preliminary: Corrected for Residence Only Within State. July, 1946

AREA	Births (exclusive of stillbirths)									Stillbirths			Deaths of infants under one year (exclusive of stillbirths)													
	All births	Color		Attended by						All stillbirths	White	Colored	All infant deaths	Color		Age			Deaths by cause and list number							
		White	Colored	Physician		Midwife		Other						White	Colored	Under 1 day	1-29 days	1-11 months	Infectious diseases (1-44)	Respiratory diseases (104-114)	Diarrhea and enteritis (119)	Premature birth (159)	Injury at birth (160)	Other early infancy (158,161)	All other causes	
				White	Colored	White	Colored	White	Colored																	
Maryland State	4,054	3,354	700	3,280	543	66	155	8	2	137	93	44	114	79	35	37	50	27	4	6	7	40	19	12	26	
Baltimore City	1,758	1,370	388	1,342	348	28	40	..	..	59	37	22	58	37	21	15	27	16	4	3	3	21	8	7	12
Total Counties	2,296	1,984	312	1,938	195	38	115	8	2	78	56	22	56	42	14	22	23	11	..	3	4	19	11	5	14	
Allegany	218	213	5	209	5	2	..	2	..	9	9	..	6	5	1	3	2	1	..	..	1	2	2	..	1
*Cumberland	121	117	4	115	4	..	..	2	..	5	5	..	3	3	..	1	1	1	..	..	1	..	2	..	1
Anne Arundel	188	146	42	145	29	1	13	..	..	5	3	2	1	1	..	1	..	..	..	..	1	..	..	..	..
*Annapolis	47	37	10	36	9	1	1	..	..	2	..	2	1	1	..	1	..	..	..	..	1	..	..	..	..
Baltimore	495	455	40	452	39	3	1	..	..	12	10	2	13	12	1	3	7	3	..	1	..	3	2	3	4
Calvert	26	7	19	7	8	..	11	..	..	2	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..
Caroline	38	31	7	29	3	2	4	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Carroll	63	58	5	57	5	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	..
Cecil	78	72	6	72	6	..	..	..	..	4	3	1	2	1	1	..	2	..	..	..	..	..	..	..	..
Charles	41	21	20	17	1	4	19	..	..	1	..	1	2	1	1	1	1	1	..	1	..	1	1	..	..
Dorchester	44	31	13	30	8	1	5	..	..	2	1	1	2	1	1	1	..	1	..	1	..	1	1	..	..
*Cambridge	18	14	4	14	2	..	2	..	..	1	1	..	1	1	1	1	1	1	..	1	..	1	1	1	1
Frederick	109	93	16	90	5	3	11	..	..	5	4	1	4	2	2	1	2	1	..	1	..	1	1	1	1
*Fred. City	35	28	7	28	2	..	5	..	..	1	..	1	2	1	1	1	1	..	..	..	1	1	..	..	..
Garrett	28	28	..	22	..	6	..	..	..	2	1	1	2	1	1	2	..	..	..	..	1	1	..	..	..
Harford	110	98	12	98	12	..	..	..	..	3	3	..	1	1	..	1	..	..	..	..	1	..	..	..	..
Howard	32	28	4	28	4	..	..	..	..	2	2	..	2	1	1	1	1	1	..	1	..	..	..	..	1
Kent	20	14	6	14	4	..	2	..	..	2	2	..	2	1	1	3	1	1	..	..	1	..	..	..	3
Montgomery	186	170	16	169	15	1	1	..	..	6	3	3	4	3	1	1	3	1	..	..	1	1	2	..	..
Prince George's	144	135	9	129	6	6	3	..	..	5	4	1	4	3	1	2	1	1	..	..	..	..	..	..	..
Queen Anne's	21	19	2	19	2	..	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Saint Mary's	77	46	31	41	9	5	20	..	2	4	2	2	..	..	..	..	..	..	..	..	..	..	..	..	1
Somerset	41	34	7	34	5	..	2	..	..	1	..	1	1	1	..	1	..	..	..	..	..	..	..	..	1
Talbot	29	19	10	17	5	2	5	..	..	..	..	..	1	1	..	1	1	..	..	..	1	..	..	..	1
Washington	173	172	1	171	1	1	..	..	..	8	8	..	2	2	..	1	1	..	..	..	..	..	..	..	..
*Hagerstown	94	93	1	93	1	..	..	..	..	2	2	..	2	2	..	1	1	..	..	..	1	1	..	..	..
Wicomico	100	80	20	74	15	..	5	6	..	2	2	..	2	2	..	1	1	..	..	..	1	1	..	..	..
*Salisbury	66	60	6	54	3	..	3	6	..	1	1	..	1	1	..	1	1	..	..	..	1	1	..	..	..
Worcester	35	14	21	14	8	..	13	..	..	2	..	2	1	..	1	1	..	..	..	..	..	..	..	..	..

*Town of over 10,000; data are also included in county figures. (Baltimore City is not part of any county.)

TABLE 3. Maternal Mortality. Preliminary: Corrected for Residence Only Within State. July, 1946

AREA	All maternal deaths	Deaths by cause and International List Number									
		Color		Infection (140,147)		Accidents and hemorrhage (141, 143, 146)		Toxemias (144, 148)		Other causes (142, 145, 149, 150)	
		White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
Maryland State.....	3	1	2	..	..	..	..	1	1	..	1
Baltimore City.....	2	..	2	..	..	..	..	..	1	..	1
Total Counties.....	1	1	..	..	..	..	..	1	..	..	..
Baltimore.....	.1	1	..	..	..	..	..	1	..	..	..

The counties omitted from the table had no maternal deaths.
 *Town of over 10,000; data are also included in county figures. (Baltimore City is not part of any county.)

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though money were no problem, there are not enough dentists to do the work needed. The program is caring for a predominantly elderly group whose teeth have been neglected for many years. It is impractical to provide the fillings, extractions, and dentures required for good dental health. Instead, emphasis must be on relatively complete dental care for children and young adults, to prevent their teeth from becoming hopelessly decayed. Consideration must be given to limiting dental care for older age groups to acute conditions or conditions directly affecting general health.

The medical care law provides for bedside nursing for eligible persons. Due largely to the acute shortage of nursing personnel, virtually no progress has been made in providing this service. Many chronically ill persons now admitted to hospitals or nursing homes could be satisfactorily cared for at home with a reasonable amount of help from properly trained visiting nurses. This will necessitate a large increase in the nursing personnel of the health department, which will in turn be dependent on available funds.

So far the program has provided for only a small fraction of the medically indigent who need help in obtaining adequate medical care. Due largely to inadequate budget, over one-third of the counties are omitting care of the medically indigent entirely, although their need is probably as great as that of the indigent. With the return of normal unemployment levels they will present a problem which must be met.

In April 1944, the physicians of Maryland, through the Medical and Chirurgical Faculty, gave their full support to recommendations of the State Planning Commission for the Medical Care Program. This support was largely responsible for passage of the medical care law. The implementation of the program has been made possible by the fine spirit of cooperation of physicians, dentists and pharmacists who have provided the necessary services. Future progress will likewise depend largely on these professional groups for help in planning as well as carrying out the program.

TABLE 4. Death Rates and Deaths, All Ages. Preliminary: Corrected for Residence Only Within State. July, 1946

AREA	Total death rate per 1,000 population	Total deaths	Deaths by Color		Deaths by age			Deaths by cause and 1938 International List Number																		
			White	Colored	Under 25	25-44	45 and over	Typhoid fever (1,2)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Tuberculosis (13-22)	Syphilis (30)	Influenza (33)	Measles (35)	Cancer (45-55)	Diabetes (61)	Cerebral hemorrhage (83a,b)	Diseases of heart (90-95)	Pneumonia (107-109)	Diarrhea & enteritis under 2 years (119)	Nephritis (130-132)	Puerperal (140-150)	Motor vehicle (170)	Other accidents (169, 171-195)	All other causes
Maryland State.....	10.1	1,712	1,337	375	226	217	1,269		1	1	1	92	18	2	267	41	145	521	39	7	124	3	34	75	341	
Baltimore City.....	10.7	845	624	221	103	118	624		1	1	1	54	10	2	137	20	61	255	22	3	71	2	10	26	169	
Total Counties.....	9.7	867	713	154	123	99	645		1	1	1	38	8		130	21	84	266	17	4	53	1	24	49	172	
Allegany.....	10.1	70	68	2	14	5	51																		19	
*Cumberland.....	**	40	39	1	7	1	32																			12
Anne Arundel.....	7.8	51	38	13	5	5	41								10	2	5	22		1	6		1	3		
*Annapolis.....	**	13	9	4	1	2	10																			9
Baltimore.....	7.6	130	116	14	21	20	89					3	1													3
Calvert.....	10.0	9	5	4		3	6					1														26
Caroline.....	17.6	24	19	5	3	1	20					3			19	3	8	49	4		5	1	7	5		
Carroll.....	3.6	12	11	1		1	11								2		4	10								7
Cecil.....	9.5	26	24	2	5	6	15					1			4		1	6								2
Charles.....	9.5	16	9	7	3	3	10								4		2	7								8
Dorchester.....	12.1	25	13	12	3	2	20								2		1	10								2
*Cambridge.....	**	13	7	6	2	1	10					1			6		3	8								4
Frederick.....	11.1	49	41	8	7	1	41								2		1	6								2
*Fred. City.....	**	18	14	4	3	1	14								4	1	7	13								2
Garrett.....	14.6	23	23		3	4	16								1		5	4								10
Harford.....	9.9	36	30	6	9	4	23								3		3	7								5
Howard.....	7.6	12	11	1	2	1	9								6		8	7								7
Kent.....	18.0	20	15	5	2	1	17								3		2	3								4
Montgomery.....	9.8	87	79	8	12	8	67					1			3		10									2
Prince George's†.....	7.3	73	56	17	10	10	53								21	3	6	29	1							2
Queen Anne's.....	8.7	9	4	5		2	7								8	1	4	13	1							15
Saint Mary's.....	8.6	13	4	9	4	2	7					1			1	1	3	2	1							16
Somerset.....	12.3	18	14	4	3		15					1	1		1	1	2	1								
Talbot.....	17.5	24	15	9	2	3	19								1		1	5								2
Washington.....	10.6	63	63		6	3	54					1			1		4	3	7							9
*Hagerstown.....	**	26	26			1	25								10	1	9	20								2
Wicomico.....	15.0	42	32	10	5	9	28								4	1	4	10								11
*Salisbury.....	**	23	19	4	3	5	15								4		2	6								6
Worcester.....	21.5	35	23	12	4	5	26								4	1	4	10	1							8

*Town of over 10,000; data are also included in county figures. (Baltimore City is not part of any county.)
 †Includes 14 deaths in the Glenn Dale Tuberculosis Sanatorium for Washington, D.C. residents.
 **Rates omitted because population not available.

BETTER APPROACHES TO HEALTH EDUCATION THROUGH COMMUNITY HEALTH GROUPS*

RUFUS S. REEVES, M. D.

Director, Department of Public Health

A sound, well-rounded, health education program is one of the strongest foundation stones of a successful department of public health administration. By well-rounded is meant coverage of the many topics on public health carried to our citizens by qualified speakers—physicians, health educators, public health nurses, social workers, and brief movies, by the press and radio. Meetings should be arranged by all groups which are active in the health of every community.

Such a plan of health education was launched in Philadelphia in May, 1945. Many conferences and meetings preceded the launching at our Public Health Day meeting. From several years' experience in health education in our county medical society, and its Woman's Auxiliary, and as founder and director for eight years of its Post Graduate Institute, I laid out a broad program intended to reach all Philadelphians. Every organization active in health work was invited to send a representative to a meeting held in my office. Naturally, we included our five undergraduate and one graduate medical schools, the College of Physicians of Philadelphia, the Philadelphia County Medical Society and its Woman's Auxiliary, the Division of Medical Services of the Public Schools and—in the person of their Superintendent—the Parochial or Private Schools.

Some of the other organizations represented were: The Crime Prevention Association, The Philadelphia Child Health Society, The Municipal Court, The American Society for the Control of Cancer (Women's Field Army), The Lankenau Hospital Research Institute for the Promotion of Cancer Research (Women's Auxiliary), The Philadelphia Heart Association, The Accident Prevention Bureau, The Philadelphia Drug Exchange, The Better Philadelphia Committee, The Federation of Churches, The American Federation of Labor, The Congress of Industrial Organizations (C.I.O.), The Philadelphia College of Osteopathy, The Philadelphia County Dental Society, The Board of Jewish Ministers, The Public Health Society of the University of Pennsylvania, The Council of Social Agencies, The Federation of Jewish Charities, The Henry Phipps Institute, The Chamber of Commerce and Board of Trade, The Pennsylvania State Nurses Association, District No. 1, The Armstrong Association, The Philadelphia Diabetic Society, The Drexel Institute, The Federation of Women's Clubs, The Private School Teachers Association, The American Pharmaceutical Association, The Pennsylvania State Department of Health, The Philadelphia Metabolic Association, The Philadelphia Association of Retail Druggists, The Visiting Nurse Society, The Philadelphia Housing Association, The Philadelphia Nutrition Council, The American Legion, The Philadelphia Public Committee on Social Hygiene,

* Read at Seventy-fourth Annual Meeting of the American Public Health Association, Hotel Statler, Cleveland, Ohio, November 12-14, 1946.

Ag Health Councils

PHILADELPHIA
HEALTH BULLETIN

"Know the Facts About Health"

NOVEMBER, 1946



X *Better Approaches to Health Education Through
Community Health Groups*

Intensified Educational Campaign on Mental Hygiene

Rickettsialpox—A Newly Recognized Disease

Issued monthly by the
Department of Public Health of Philadelphia

HON. BERNARD SAMUEL
Mayor

RUFUS S. REEVES, M.D.
Director

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* Read at Seventy-fourth Annual Meeting of the American Public Health Association, Hotel Statler, Cleveland, Ohio, November 12-14, 1946.

The National Association for the Advancement of Colored People, The Junior Chamber of Commerce, The Academy of Medicine and Allied Sciences. They number about fifty and were called the Advisory Committee on Health Education of the Department of Public Health of Philadelphia.

Realizing that this was too large a group to function effectively, we appointed a Steering Committee composed of a Chairman (the representative of the Medical Services Division of the Board of Education), the Superintendent of the Parochial Schools, the Director of Welfare of Philadelphia, the President of the Women's Federated Clubs, and the representatives of the University of Pennsylvania, The Philadelphia Health and Tuberculosis Association, The Academy of Medicine and Allied Sciences—the Negro physicians group.

The remaining representatives were broken down into committees, most of whose Chairmen were physicians active in a topic to be presented. There was also appointed a Clubs Committee under the chairmanship of one of our very active, civic-minded women—again with the thought of securing requests for meetings. Parent-teachers associations were reached through our public schools.

The topics to be covered in this long-range program are: Tuberculosis, rheumatic heart disease, nutrition, venereal disease, cancer, child health, diabetes, respiratory diseases, neuro-psychiatric disease, industrial diseases, tropical diseases, communicable diseases, housing and sanitation, and geriatrics.

The general slogan for the program is "Know the Facts About Health" with a special one for each topic, such as "Is There Tuberculosis in Your Home? Find Out!" or for the rheumatic heart disease program "How's Your Heart?" The Philadelphia Transportation Company has carried large cards in our trolleys showing these slogans plus the fact that meetings can be arranged and literature given out by calling my office. Further, several of our radio stations have carried one-minute spot announcements for us and have volunteered to give us time to present pressing public health diseases, such as poliomyelitis. 11:15 to 11:30 every Saturday morning has been given us by Station WHAT for a speaker on the topic being highlighted. In addition, all of our newspapers have been most cooperative in carrying our releases. The County Medical Society has put on some programs on the subject we highlight.

Our method is to present one topic at a time and we have found that although a month, six weeks or two months may be planned, the interest stimulated by the various means just given results in meetings being arranged on the one topic after another one has been started.

We carry out the plan, using the first subject, tuberculosis, as an example, as follows: The Steering Committee, The Committee on Tuberculosis, the Clubs Committee, the Chief of the Division of Tuberculosis, and the Assistant Director met in my office. We decided on the slogan, the data to be given on a four-page fly sheet printed by the Department, titles of movies available through the cooperation of the Philadelphia Health and

Tuberculosis Association, and a committee was appointed to prepare a lead sheet on the subject for use by both physicians who might wish it and public health nurses; basic facts were included and technical medical terms were omitted as far as possible. This pattern has been followed for every public health subject presented so far and the results have been very encouraging. Radio station requests for the broadcast come in, as do letters requesting literature, in addition to requests for speakers. Our office cooperates with the Speakers Bureau of the Philadelphia County Medical Society.

Bearing in mind that the Health Department of every community is legally entrusted with the responsibility of guarding the health of all of its people, it seems logical that health education should stem from it. In a large city that is especially true because of the many groups both interested and active in health work. I am grateful to each group active in Philadelphia for their cooperation with my Department. Such support means teamwork which can make for better health in the community, with the definite proviso that its men, women, and children take every advantage offered them by the health education and other groups.

It is difficult to single out groups which are outstanding for the health of the community in Philadelphia because so many are doing so much. I would be remiss, however, were I not to say a few words about the support of the U. S. Public Health Service, which was working in the Venereal Disease Division when I took office and which has made further grants to this Division. In addition, Dr. Herman Hilleboe, Chief of its Division of Tuberculosis, has made available funds for one project to x-ray the chests of all admissions to both the hospital and out-patient department at the Philadelphia General Hospital, another, to do the same for all food-handlers, and a third, for a special study of Negro cases at the Henry Phipps Institute for Tuberculosis. The Philadelphia Health and Tuberculosis Association cooperated with our Division of Tuberculosis in mass surveys before our health education program was begun and their activities with it have been many. Another has been the Philadelphia Branch of the Heart Association, which did so much when we were presenting Rheumatic Heart Disease.

Far from last is our Council of Social Agencies. A look at the 1945-1946 Annual Report entitled "Through Council Windows" reveals an active Children's Division, an Education Recreation Division, Family Division, Health Division, Hospital Division, and Division for the Aged. In the Health Division, the Health Department is very active, its Director, a member of the Board of Health, and Division Chiefs being among the 100 delegates. Its monthly publication—the Health Calendar—has a mailing list of over 1,000, carrying a list of lectures, meeting places and radio talks for the ensuing month. Time does not permit enumerating other important activities which make our Council of Social Agencies in Philadelphia so prominent in the community.

B1

INTENSIFIED EDUCATIONAL CAMPAIGN ON MENTAL HYGIENE

During January and February, 1947, the Department of Public Health will conduct an intensified educational campaign on *Mental Hygiene*. Expert lecturers for interested groups or societies and literature may be obtained by applying to the office of the Director of Public Health, Room 503, City Hall Annex.

RICKETTSIALPOX: A NEWLY RECOGNIZED DISEASE

MYER SOLIS-COHEN, M. D.
Assistant Director of Public Health

Since February, 1946, a mysterious, non-fatal, "spotted fever" disease, which for many months defied identification, has been attacking the residents of a three block area of Regency Park, a section of Kew Gardens, in the Borough of Queens, New York. In this housing development, comprising 543 families, probably between 150 and 200 cases occurred during the summer. Few or no cases were reported in any of the surrounding areas, although the neighborhood was well populated. About 10 single cases were observed in the Boroughs of Manhattan and the Bronx. The ages of patients were from 6 months to 72 years.

Clinical Symptoms and Findings

As this disease may be observed in Philadelphia, it is well for all physicians to be acquainted with its symptoms.

The onset is indefinite. The first indication of any abnormality is the discovery of an area of erythema, about the size of a pea or smaller, which is slightly elevated and slightly tender and resembles an insect bite. (Yet none of the patients had any recollection of having been bitten.) This initial lesion is rapidly followed by slight tenderness and enlargement of the regional lymph-gland draining the area of the lesion. During the next eight days both the initial lesion and the regional lymph-node become enlarged and more tender and the patient begins to experience malaise, chilliness, occipital headaches, occurring particularly at night, and an evening rise of temperature that becomes progressively higher. As the patient usually does not feel very sick, he frequently continues at work and goes about as usual.

By the eighth or tenth day the patient is prostrated and has a fever which rises to between 102° F. and 104° F., with daily remissions to 99° F. to 100° F. He also very frequently suffers from frank chills, which may be repeated several times a day. The headache becomes very severe and backache occurs. At night the patient is acutely ill and presents the pinched "wrinkled brow" appearance of the victim of a Typhus headache. At about this time, or three or four days later, a punctate, pink, maculopapular rash appears over the abdomen, chest and upper extremities. There are 20 to 40

of these lesions, which are discrete. They do not fade on pressure and are not tender. Frequently on top of the macule there is a deep-seated vesicle with turbid contents, which may rupture with crust formation. No suppuration occurs, however. New maculopapules appear for several days. This acute stage lasts four days to a week, during which time the temperature remains 100° F. to 104°, the initial lesion enlarges to approximately 3 cm. in diameter, becoming edematous, red, irregular, and slightly tender, the regional node persists as a tender swelling, and, though the patient feels sick, he does not appear toxic. During the next six or eight days the temperature falls by slow lysis, the rash pales and slowly fades, and the patient improves generally. The initial lesion and the enlarged regional node persist for several weeks. One month after recovery the former still remains as a pigmented, slightly firm area, approximately 1 cm. in size, while the lymph-node is still palpable.

In about half the cases the spleen can be felt, although it never is very much enlarged. There also is some generalized adenopathy. The blood pressure is lower than that normal for the patient. There were no fatalities or complications in the New York cases.

The urine is normal as a rule. The white blood cells are diminished in numbers but the differential count is normal or shows a relative lymphocytosis. Blood culture is sterile and heterophile anti-bodies are not increased.

The sera of the patient were studied in both the acute and the chronic stages. There was no agglutination with typhoid, paratyphoid A or B, brucella, tularemia, *Proteus X₁₉* or leptospira. Complement-fixation tests were made for typhus fever, Rocky Mountain spotted fever, Q fever, scrub typhus and psittacosis, but all proved negative.

Laboratory Investigations

Although the initial lesion had not been proven to be an insect bite, it looked like one; and the possibility of its being the bite of an insect, carried by a rodent, received consideration. The possibility of the causative organism being a Rickettsia or virus, carried in a rodent parasite, was strongly suggested. A scientific investigation was participated in the U. S. Public Health Service, the Rocky Mountain Laboratory of the Division of Infectious Diseases of the National Institute of Health, the Bureau of Entomology of the U. S. Department of Agriculture, the New York Department of Health, and the Bell Exterminating Co.

Rats have been seen in a ball field adjacent to the houses. Insects, such as roaches, mosquitoes and flies, were present. In the apartments mice were noted in large numbers. Search of the cellars, incinerators and similar locations produced mites which were identified as *Allodermanyssus sanguineus*, a known parasite of rodents, capable of attacking man.

In two widely separated apartment developments in New York, where cases of this disease have occurred, a careful search established the presence of large numbers of mice and the *Allodermanyssus sanguineus* mites.

Several hundred specimens of *A. sanguineus* in various stages of development and engorgement were collected. Some of the mites were found on

freshly trapped house mice, but the majority of the mites were found crawling on the external walls of basement incinerators, as many as 100 mites being obtained from the walls of a single incinerator. No other rodents or rodent parasites were found at this location.

The engorged and the flat mites were separated and representative samples were used for mounting and identification.

The flat mites were fed on normal 1 to 10-day-old white mice and on the clipped or shaved abdomens of male guinea pigs. The period of attachment and engorgement varied from less than 15 minutes in some instances on guinea pigs to occasionally as much as 36 hours on the older mice. Most of the flat mites, when offered an opportunity, engorged promptly.

The freshly engorged mites, as well as those previously engorged, when collected, were put into vials, labelled as to source and placed in an incubator at 30° C. After approximately 4 days of incubation the various pools of mites were ground in a mortar, suspended in saline and inoculated intraperitoneally into adult Swiss mice and adult male guinea pigs.

Fifteen blood specimens, one bone-marrow specimen, one skin-lesion washing, and one lymph-node washing were inoculated into animals. An organism possessing morphological, cultural and staining characteristics of a rickettsia was recovered from the tissues of a single mouse, inoculated with blood drawn from a patient on the second day of fever. An organism having the morphological and cultural characteristics of a rickettsia was also isolated from a papule of this same patient. Antigens were prepared which fixed complement with convalescent sera drawn from typical cases. This reaction was apparently specific, insofar as tested, except for cross reaction with Rocky Mountain spotted fever. Later a second strain was isolated from the blood of another patient, which was culturally and immunologically indistinguishable from the first.

A number of mites were collected from the basement incinerator servicing the apartment of the first patient from whose blood the Rickettsia was isolated. Five subsequent cases, including the sister of this patient, subsequently occurred in the apartments serviced by this incinerator. From a mouse bitten by these mites a Rickettsia was obtained, identical with the one from the patient's blood.

The parasitologist of the U. S. Public Health Service developed the disease three weeks after collecting and processing large numbers of mites.

The recovery of apparently identical strains of rickettsia from a man ill with this new disease, and from the blood-sucking mites collected from his domicile, indicates that human infection is acquired from the mites, probably through biting. The isolation of this agent from mites has established further its characteristic as a micro-organism of the rickettsial group.

Because of the clinical resemblance of the rash of this newly recognized disease to chickenpox and because the organism isolated from patients has the morphological and cultural characteristics of rickettsiae, the name *rickettsialpox* has been given to this disease. The name suggested for the micro-organism is *Rickettsia akari* (Greek, mite).

RECORDED MORTALITY FOR MONTH OF OCTOBER
1945 and 1946*

<i>Cause of Death</i>	1945	1946*
Meningococcic meningitis	2	1
Whooping cough	1	1
Weil's disease	—	1
Tetanus	1	—
Tuberculosis of the respiratory system	77	65
Tuberculosis, other forms	10	7
Syphilis	23	29
Influenza	2	3
Acute poliomyelitis	6	—
Other infectious and parasitic diseases	3	9
Cancer	283	335
Non-malignant tumors and tumors of unspecified origin	27	21
Rheumatic diseases	3	6
Diabetes	53	55
Alcoholism	3	2
Other general diseases and chronic poisonings	26	12
Intracranial lesions of vascular origin	123	140
Other diseases of the nervous system	28	23
Diseases of the heart	707	674
Arteriosclerosis	40	36
Other diseases of the circulatory system	14	8
Bronchitis	13	7
Bronchopneumonia	38	26
Pneumonia	39	22
Other diseases of the respiratory system	24	14
Diarrhea and enteritis under 2 years of age	9	15
Appendicitis	9	1
Hernia and intestinal obstruction	13	24
Cirrhosis of the liver	35	20
Other diseases of the digestive system	39	37
Nephritis	143	143
Other diseases of the genito-urinary system	19	12
Puerperal infection	2	1
Other diseases of pregnancy, childbirth and the puerperium	6	2
Diseases of the cellular tissues, bones and organs of movement	5	4
Congenital malformations	26	27
Premature birth	48	40
Injury at birth	9	13
Other diseases peculiar to the 1st year of life	16	12
Senility	7	3
Suicide	16	8
Homicide	14	3
Motor-vehicle accidents	17	1
Other violent and accidental deaths	79	38
Ill-defined and unknown causes	3	1
Coroner's cases pending	—	100
Total deaths	2061	2002
Rate per 1,000 population	12.2	11.8

* All figures for 1946 are provisional and subject to change.

JS
DH

Food During Labor and the Puerperal State¹

Many women in rural areas have their babies in maternity homes or small hospitals. The food service in these small institutions is likely to be in charge of a person who has not had special training in dietetics and who has many responsibilities in connection with caring for the maternity patients. Workers in State health agencies that visit these hospitals have brought back word of the need for some simple statement on food for women during labor and the puerperal state. The suggestions that follow apply to normal conditions only. They are intended to assist the person responsible for carrying out the general directions of the attending physician in a maternity home or a small hospital and they may also be useful after home delivery or after a mother's early return from the hospital.

During labor.—Taking food in the early part of the first stage of labor helps to keep up the patient's strength. This is especially important in the case of prolonged labor.

Only liquid foods should be given during active labor, and foods with definite nutritive value should be chosen in preference to broths or tea and coffee. Carbohydrates are usually well tolerated but very sweet foods should not be given. Light corn sirup can be used to add energy value to fruit beverages without making them excessively sweet. For other foods consult the list of starred items in the suggested liquid diets on page 170. The preferences of the patient should be considered in deciding what kind of nourishment to offer her during the early hours of labor. Water should be offered at frequent intervals.

After delivery.—In order that the patient may regain her strength as quickly as possible it is important that she have enough of the right kinds of food during the days immediately following delivery. If the patient is not suffering from nausea, she may be offered some beverage such as tea or coffee shortly after the baby has been born. During the first 24 hours after delivery she will probably want only liquids. However, if she desires more food and there are no medical contraindications, she may be given a more substantial meal. On the second day, a patient who is getting along nicely may have a full diet—that is, any of the

foods that are suitable for a patient confined to bed—unless the physician prescribes soft diet for a day or two.

The nursing mother needs liberal quantities of protein, calcium, thiamine, riboflavin, and vitamin C; consequently, during the puerperium special attention should be given to including in her diet foods rich in these nutrients.

The following lists of foods and plans for sample meals—liquid, soft, and full diets—patterned after those given in hospital dietary manuals represent present-day practices. They are suggestive only and are intended to serve as a guide in meeting individual food needs as recommended by the attending physician.

LIQUID DIET

The physician may have either of two things in mind when he specifies a "liquid diet." He may wish the patient to have a *restricted* liquid diet, which excludes not only foods that are in solid form at the time they are eaten but also milk and its products, which form solids in the stomach. Or he may have in mind a *liberal* liquid diet, which includes milk and milk products and such semisolid foods as thin gruels and custards as well as beverages and clear broths. (In the list below, each food that belongs in a *restricted* liquid diet is marked with a star.)

- *Tomato juice, strained.
- *Fruit juice, strained; often sweetened.
- *Lemonade or orangeade.
- *Ginger ale.
- *Tea, sweetened if desired but without milk or cream.
- *Coffee, sweetened if desired but without milk or cream.
- *Broth and clear, strained soup.
- Milk.
- Cream.
- Milk shake.
- Eggnog (milk-and-egg shake).
- Cocoa.
- Custard.
- Rennet custard.
- Ice cream or sherbet.
- Gelatin dessert, clear or whipped.
- Cereal gruel.

A Meal Plan for a Day on a Liquid Diet

Breakfast..... Citrus-fruit juice.

¹Prepared by the Nutrition Unit of the U. S. Children's Bureau, with the cooperation of the Bureau's Obstetric Consultant.

	Cereal gruel with milk, and sugar if desired.
	Milk or coffee.
<i>Midmorning lunch..</i>	Milk.
<i>Noon meal.....</i>	Clear, strained soup. Rennet custard. Strained fruit juice.
<i>Midafternoon lunch</i>	Eggnog (milk-and-egg shake).
<i>Supper</i>	Broth. Vanilla ice cream. Strained fruit juice. Milk.
<i>Evening snack.....</i>	Milk.

	Baked potato. Mashed or sieved vegetable. Bread with butter or fortified margarine. Stewed fruit. Milk.
<i>Midafternoon lunch</i>	Lemonade or orangeade.
<i>Evening meal.....</i>	Cream soup. Cottage cheese. Mashed or sieved vegetable. Toast with butter or fortified margarine. Pudding. Milk.

SOFT DIET

In addition to the foods listed in the liquid diet, the following are included in the soft diet:

- Cream of vegetable soup (strained).
- Orange or grapefruit sections; cooked fruits without seeds, skins, or coarse fiber.
- Cooked cereals free from "branny" particles; rice; spaghetti or macaroni (plain or with a simple sauce, containing no solid particles, little fat or seasoning).
- Whole-grain bread and crackers if free from "branny" particles; enriched white bread, toasted or at least a day old.
- Eggs, cooked soft and served without being highly seasoned.
- Meat, fish, or poultry—ground, minced, or flaked (in the case of fish)—and cooked with little or no fat.
- White potatoes or sweetpotatoes, baked, boiled, mashed, or creamed.
- Other vegetables, cooked without fat. Vegetables with little fiber (carrots for example) can be mashed; others (such as greens and peas) should be forced through a sieve.
- Cottage and cream cheese.
- Desserts: Rice and bread puddings, fruit whips, corn-starch pudding, sponge cake, plain cookies.

A Meal Plan for a Day on a Soft Diet

<i>Breakfast.....</i>	Citrus-fruit juice or tomato juice. Cooked cereal with milk, and sugar if desired. Eggs. Toast with butter or fortified margarine.
<i>Midmorning lunch..</i>	Milk or coffee (or both).
<i>Noon meal.....</i>	Milk shake. Cream of vegetable soup (strained). Ground meat, pan-broiled.

FULL DIET

A full diet for a woman in the postpartum period should include the same foods that are included in a liberal diet for any healthy adult. Certain modifications may seem advisable, however, because of the patient's lack of activity but these are the same modifications that would be necessary in the case of any confining illness. The food needs of the average woman during the postpartum period will be met if she eats the following foods every day:

- Milk:* One quart (part can be used in cooking).
- Vegetables and fruits:* Six servings, including fruit juice. These need not be six *different* fruits and vegetables. It is important, however, that the woman eat at least one serving of:
 - (a) A green leafy, or a deep-yellow vegetable.
 - and
 - (b) A fruit or vegetable rich in vitamin C. (Orange, grapefruit, and tomato, or their juices, are best for the woman in bed.)

Whole-grain or enriched bread; whole-grain, enriched, or restored cereals (such as whole-wheat or enriched white bread, oatmeal, rolled-wheat cereal, enriched farina): Two servings.

Eggs: One egg.

Meat, poultry, fish: Two medium servings (one may be a meat alternate such as cheese).

Butter or fortified margarine: On bread and with cooked foods.

Additional foods: As needed to meet individual demands for energy.

Water: Six to eight glasses (part can be in the form of tea, coffee, and fruit juices).

As soon as the nursing mother is up and about she should increase the daily milk allowance to 1½ quarts; eat large servings of meat, poultry, or fish, or medium servings of meat,

plus an additional egg, dried beans, peas, or cheese; and take one or two additional servings of fruits and vegetables. Fish-liver oil or some other source of vitamin D, as directed by the physician, should also be included.

Sample Meals for a Day on a Full Diet

<i>Breakfast</i>	Stewed prunes. Shredded-wheat cereal with milk (sugar if desired). Scrambled eggs. Toast with butter or fortified margarine. Milk or coffee (or both).
<i>Midmorning lunch</i> ..	Milk (if not taken at breakfast).
<i>Noon meal</i>	Tomato juice. Baked ham. Scalloped potatoes. Green beans. Raw carrot sticks. Whole-wheat bread and butter or fortified margarine. Cup custard. Milk and coffee or tea (if desired)
<i>Midafternoon lunch</i>	Orange or grapefruit juice.
<i>Evening meal</i>	Tomato and cottage cheese salad. Biscuit with butter or fortified margarine. Apple sauce. Gingerbread. Milk and coffee or tea (if desired).

FOODS TO BE OMITTED OR SERVED SPARINGLY

It is not uncommon for a woman in bed to feel some discomfort after eating some foods that give her no trouble when she is up and about. The foods that are listed below are those that seem to disagree with a fairly large number of patients in bed and so they may well be used sparingly, if at all, in the diet of the woman during the puerperal period.

(a) *Foods high in fat*—fried foods, greasy gravies, large quantities of mayonnaise, dessert sauces containing much butter or heavy cream, rich pastries, nuts in large quantities.

(b) *Foods containing large quantities of coarse fibre*—bread or cereals containing considerable bran or other coarse particles, figs, blackberries, parsnips, kale, and other coarse vegetables.

(c) *Highly seasoned foods*—sausage and luncheon meats, pickles, and peppery or sour sauces.

(d) *Other foods that sometimes cause discomfort*—dried beans (except in soup), raw cauliflower, cucumbers, overcooked cabbage, raw onions, sauerkraut, turnips, and melons.

Foods to which the patient has a definitely allergic reaction should be reported to the person who is in charge of her meals so that they can be omitted from the diet.

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OBSERVATIONS ON TWO EPIDEMICS OF INFECTIVE HEPATITIS
IN PALESTINE AMONG RECENT IMMIGRANTS

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OBSERVATIONS ON TWO EPIDEMICS OF INFECTIVE HEPATITIS IN PALESTINE AMONG RECENT IMMIGRANTS*

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Special interest has been focussed in the last few years on the disease entity known as infective hepatitis or epidemic jaundice. The reason for this renewed interest is twofold. This affection is a disease of war and the present war is no exception. In the Middle East infective hepatitis is no less debilitating to the armed forces than is sandfly fever. The other reason is the series of outbreaks of jaundice which have occurred among people vaccinated against yellow fever or treated with convalescent serum as a prophylactic measure against measles or mumps. Neither the epidemic nor the serum type of jaundice has been transmitted to experimental animals and although there are many points of similarity in their clinical features there is as yet no experimental evidence that the two are identical. Nor is there any certain knowledge regarding their etiology or mode of causation. It is generally assumed that both forms of jaundice are caused by a virus, but the possibility of a toxic factor operating alone or together with a viral agent has not been excluded. In view of the paucity of knowledge any epidemiological data which can throw some light on one of these diseases are of interest, and it is the purpose of this paper to describe two distinctive epidemics of jaundice or infective hepatitis among new immi-

grants shortly after their arrival in Palestine.

Infective hepatitis is endemic in Palestine and from time to time local epidemic outbreaks have been recorded. Until 1941 the disease was not clearly defined and was variously designated as infectious or catarrhal jaundice. From time to time during the last 20 years urine from patients, as well as from rats caught in the vicinity where the infection occurred, was examined for *Leptospira* in our laboratory with negative results. Beginning with the fall of 1938 the outbreaks became more frequent, particularly among new young immigrants who settled in communal villages. The striking frequency of occurrence among new immigrants led several physicians to designate the disease as "Teutonic jaundice," since most of the newcomers were from Central Europe and Germany. Beginning with 1941 the epidemicity increased and the doctors agreed to adopt the English name—"infective hepatitis." It would seem that the upsurge in 1938 was due to immigration which increased the numbers of susceptible hosts, while that in 1940-42 was due to the wide dissemination of the virus by movements of troops.

In an area where a disease is endemic and where the population is being progressively immunized, it is difficult to define its epidemic constitution. Consequently it did not seem profitable to make an intensive study of the general epidemiology of the disease. A broad picture of the frequency and the seasonal occurrence was obtained from data supplied by Dr. Lefkovits and Dr.

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* The studies upon which this paper is based were conducted with the support of the International Health Division of The Rockefeller Foundation. Thanks are due to the Director of the Medical Services, Palestine Government, for permission to use and publish the data.

EPIDEMIC INFECTIVE HEPATITIS

Segal of the Workers Health Insurance Fund and from some supplied by the local village physicians.

The increasing incidence of the infection since 1938 among members of the W.H.I.F. is indicated by the figures in Table 1. The members of the Fund are distributed throughout the country in urban and rural areas. Being workers, the younger age groups predominate and as a consequence the incidence is probably not typical of the rest of the country. Until 1941, jaundice was classed together with liver and gallbladder diseases and consequently the earlier figures in the table cover the whole

TABLE 1.—Incidence of Infective Hepatitis among Members of the Workers Health Insurance Fund 1938-1943

Year	W.H.I.F. Number of Members	Infective Hepatitis	
		Number of Cases	Per Cent
1938	143,500	3,506	2.4
1939	159,163	3,702	2.3
1940	163,881	4,495	2.7
1941	172,784	5,977	3.5
1942	186,422	7,581	4.1
1943 (first quarter only)	187,000	3,002	

group of diseases. The rise in 1941 and 1942 is due, however, almost wholly to infective hepatitis.

From July 1, 1942, to March 31, 1943, there were 3,887 cases of hepatitis or an incidence of 2.08 per cent for the total insured population. These general figures do not however give a correct picture of the epidemicity of the disease. Most of the cases were among young people and particularly among groups of youth immigrants of ages 15-20 who had been in the country from 6 months to 3 years. The incidence in these groups varied considerably but nearly always assumed epidemic proportions. Some typical figures are quoted in Table 2 for purposes of comparison.

In these and similar groups outbreaks attacked one quarter to two thirds of the people. No detailed analysis has

TABLE 2.—Incidence of Infective Hepatitis among Young Immigrants

Place	Age Range	Years in Palestine	No. of Persons	No. of Cases	Period of Epidemic
M.	15-20	1.5	30	20	Aug. 1940-Jan. 1941
S.	15-20	2	24	7	Aug.-Dec. 1940
S.Y.	15-20	2	40	25	July-Dec. 1939
K.A.	15-25	2	40	20	Oct.-Dec. 1940
TL.	15-25	2	40	10	Oct.-Dec. 1940

been made of this material. Data collected by Dr. J. M. Shapiro (Medical Officer, Department of Health, Haifa) for the period 1938-40 are summarized in Table 3 and are probably typical of events in other parts of the country.

It appears therefore that the disease is epidemic among youths 15-20 years of age who have come fairly recently. There are milder outbreaks among children aged 1-5 born in Palestine. Among adults who have been in the country 10 years or longer sporadic cases occur, the incidence being comparatively low.

In general, the available data also clearly indicate that the disease has a well-defined seasonal frequency. Cases become more frequent in September and October, rise in November, reach a peak in December or January, and then drop abruptly. Information as to age and sex incidence is not satisfactory

TABLE 3.—Incidence of Infective Hepatitis among Groups in Haifa 1938-1940

Groups	Character	Number	Years in Country	Infective Hepatitis		
				No. of Persons	No. of Cases	Per Cent
Youth groups		18	1-3	1,174	269	22.9
Children epidemics		8	1-5	1,560	117	7.5
Adult groups		7	(born in Palestine) 10 plus	1,415	29	2.0

because of the incomplete data and of the nonuniform distribution of the population.

The epidemics to be described below are of special interest. They deal with apparently nonimmune groups of immi-

grants who came to the country by boat and shortly after their arrival were confined in a clearance camp during a sufficiently long period to provide data which can be analyzed. In a sense we deal with a mass infection in a susceptible population placed in an endemic environment under restricted conditions. In these respects the 2 epidemics are unique and, we believe, furnish information which is of some value in clarifying the epidemicity and mode of spread of the spontaneous type of infective jaundice.

First Epidemic

The detention camp was opened January 1, 1940. About 500 people were brought there from the quarantine camp North of Haifa, where they had been kept about 6 months, and as far as we could ascertain there had been no cases of jaundice among these people before they came to the new camp. January 8 another group of 502 young male adults were brought to the camp and January 29 an additional 511 men and 130 women were brought in. The last 2 groups came on separate boats and were sent directly from the boats to the camp. Additional groups of immigrants arrived on February 10 and 25, 1940. Most of these people came from Central Europe. On March 25 a census of the camp population gave the following figures:

Men	1,558
Women	341
Children 1-12	17
Children under 1	12
Total	1,928

No detailed lists giving ages, hut assignment, etc., were available.

No changes in or additions to the camp population occurred between February 25 and June 13. On the last date 40 women were brought from a camp in the south of Palestine where they had been about one year.

On July 21, 550 people were released and at the beginning of August most of the remainder were sent away, leaving only 370 new people who had been brought to the camp on July 18. During August and September no new people were introduced.

The first case of jaundice occurred on February 25, 1940, the day when the last batch of immigrants came to the camp. The second case appeared on March 20 and was followed closely by 5 others, on March 21, 24, 29, 29, 31. After that the number of cases rose to 14 in April, 12 in May, and 41 in June, the peak month.

It is not possible to say now how and where the first patient was infected. Few visitors were allowed and only later were cases reported among the guards. There was, however, contact between the immigrants and various people at the port of debarkation and the infection might readily have been contracted there and brought into the camp. That it probably was not present in the camp is shown by the 3 weeks' interval between the case in February and the 6 presumably secondary cases in March.

The data relating to this epidemic are far from satisfactory but they are presented here because of the peculiar seasonal occurrence. Usually epidemics of this disease occur in the fall and early winter months. But in this instance, presumably under the peculiar conditions of camp life and the intimate contact existing there, a spring epidemic developed involving 97 people in a total population of 1,928, or an incidence of 5.0 per cent. Despite this unusual seasonal occurrence the rate is significantly higher than the average recorded in the local insured population or in the small Army outbreaks.

The age, sex, and seasonal distribution of cases is given in Tables 4, 5, and 6.

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TABLE 4.—*First Epidemic of Infective Hepatitis. Distribution of Cases*

	Camp Population	Cases	Per Cent
Men	1,558	73	4.7
Women	341	21	6.2
Children (0-15 years)	29	3	10.3
Total	1,928	97	5.0

TABLE 5.—*First Epidemic of Infective Hepatitis. Cases by Sex and Age Groups**

Age	Male	Female	Total
6-10	1	1	2
11-15	1	0	1
16-20	15	5	20
21-25	19	9	28
26-30	24	3	27
31-35	7	1	8
36-40	4	0	4
41-45	0	0	0
46-50	2	0	2
51-55	1	0	1
56-60	0	0	0
61-65	0	1	1
Unknown	1	1	2
Total	75	22	97

* Grouping of total population according to age not available.

TABLE 6.—*First Epidemic of Infective Hepatitis. Cases Grouped According to Months (Both Sexes)*

Month	Number	Per Cent Total Population (1928)
January	0	0
February	1	0.05
March	6	0.32
April	14	0.73
May	12	0.62
June	41	2.13
July	19	0.99
August	2	0.10
September	1	0.05
October	0	0
November	0	0
December	1	0.05
Total	97	5.03

Age incidence.—Since no data on the age distribution of the population were available it was not possible to establish specific age incidence. Most of the cases fell within the age group 16-30, and most of the people in the camp probably belonged to this age group.

Mode of distribution.—This can only be surmised. The people in the camp lived under the same conditions, ate the same food, and were exposed to the same insects—chiefly flies and sand-

flies (but these prevail only after the middle of April). The male and female barracks were separate, but during the day the people mingled quite freely. The limited character of the epidemic associated with the long interval between the first and subsequent cases, is suggestive of a mildly infectious disease transmitted by contact. This is also suggested by the distribution of cases in the living barracks. In a few of the cases the barrack number was not registered.

Distribution of Cases in Barracks

Cases per hut	Number of huts
1	17
2	15
3	5
4	3
5	2

Incubation period.—A fairly clear indication of the incubation period is given by the time interval between the first case on February 25 and the subsequent cases in the last 10 days of March. This gives an interval of 24 to 35 days, a period in close agreement with those recorded by the English observers.

The epidemic came to an abrupt end in July when the people began to be released from the camp.

Second Epidemic

For the second epidemic the data are more complete and other factors more satisfactory. In this outbreak there was a mixed population, including all ages. The people were brought to the camp at nearly the same time. The outbreak occurred during the usual epidemic season and was (perhaps because of that) of greater severity. We were able to get reasonably accurate data on the age distribution of the population and the huts they occupied.

The people included in this group reached port in 3 vessels—M, P, and A. P arrived on November 1, and M on

November 3. The people were detained on the boats and only special officials and guards were allowed to visit them. On November 8 the passengers of the 2 boats were transferred to a new vessel Pt. On November 24, A arrived and about 150 of its passengers were transferred to Pt. On November 25 all of the passengers from Pt were transferred to the camp.

Source of infection and incubation time.—The dates given above are significant in relation to the probable source of infection and incubation time.

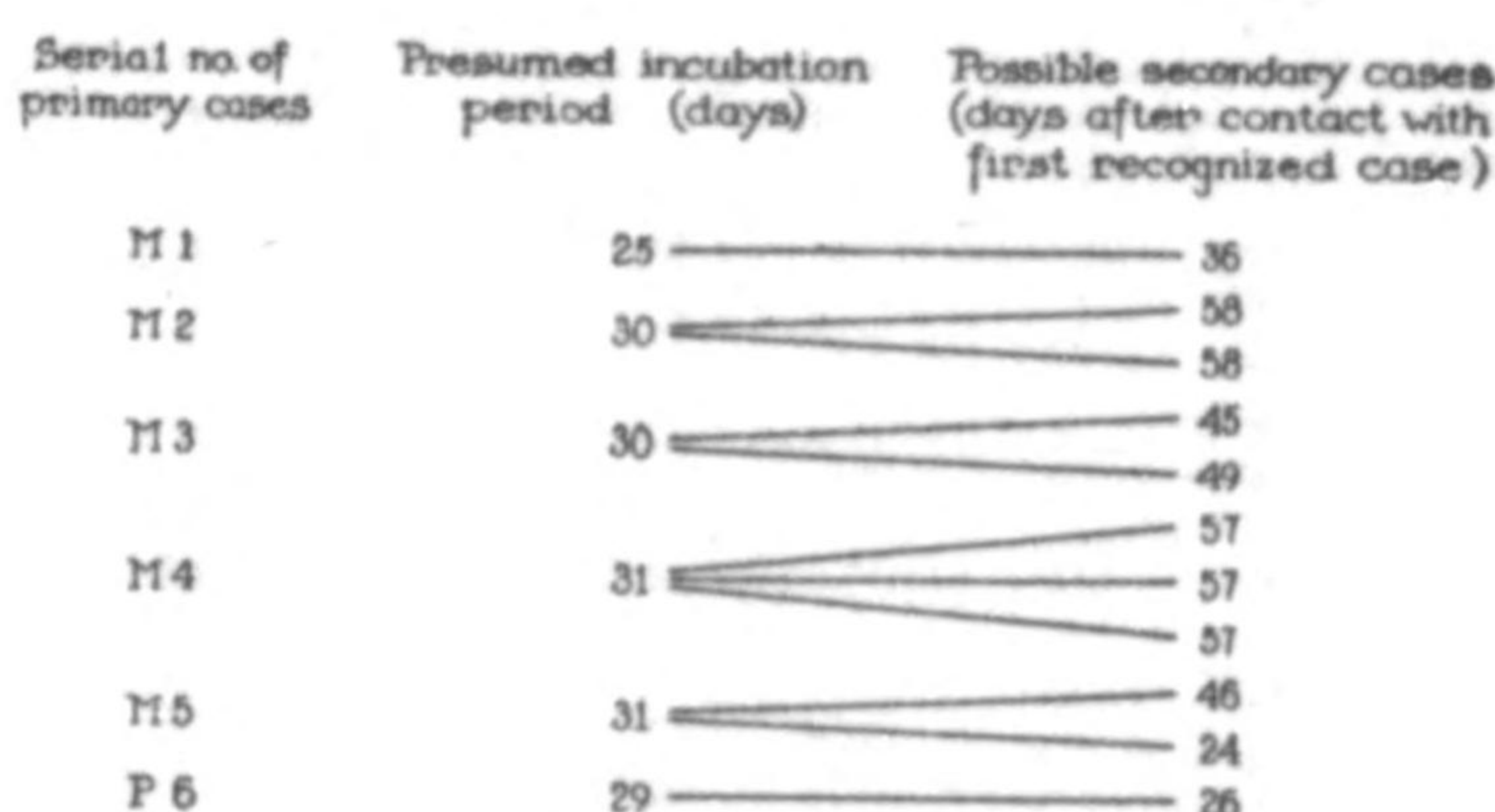


Fig. 1.—Possible secondary cases in huts.

The first case of jaundice appeared among the passengers of vessel M which arrived November 3. It occurred on November 28, 3 days after the people came to the camp. Two additional cases were reported on December 3, and 2 more on December 4. Thus 5 persons from the same boat developed jaundice within 25 to 31 days after its arrival at the port. The boat was over a month at sea and no previous cases were reported. The infection must, therefore, have taken place shortly after arrival in port. Two more cases appeared on December 13 and 16, 40 and 43 days after arrival. The passengers from vessel P were brought together with those of M on November 8. The first case among these people occurred on December 7, 29 or 37 days after first possible exposure; the second case appeared on December 22 which is 24 days after the appearance of the first case at camp, or 44 days after

possible exposure on the boat in port.

The first patient among the people from vessel A (arrived November 24) was reported on December 31, possibly an infection in the camp from the first case which occurred on November 28, again a maximum interval of 34 days.

It seems likely, therefore, that the infection occurred while the boats were in port and that the range of the incubation time is between 24 and 34 days. These incubation periods correspond with those in the first epidemic.

Because the people mingled so freely it was not possible to trace with certainty secondary cases after the epidemic was well under way. However, in the early stages of the outbreak secondary hut cases might be surmised to have been derived from the first 6 cases. In 2 instances such possible contacts were multiple cases occurring on the same day in the same hut. These possible secondary cases are shown in Figure 1. The incubation time for these cases varies from 24 to 58 days. It should be stressed, however, that these periods represent maximal time of exposure, since only severe jaundice cases were isolated; hence the figures may include minimal as well as maximal periods between first exposure and onset of disease.

Course of epidemic. Seasonal incidence.—The epidemic took a long time to get under way. The frequency of appearance of cases in 5-day periods is shown in Table 7. The first case occurred during the period of November 25–30 (November 28); then followed scattered cases throughout December with an outburst of 20 cases in the 5-day period December 26–31, exactly one month after the first case. This massing of cases appears to us to fix quite definitely 30 days as the probable incubation period of the secondary cases. These new cases were scattered in various barracks, with no relation to the presence of a previous

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TABLE 7.—Second Epidemic of Infective Hepatitis. Cases According to Time of Onset*

Month	Numbers of New Cases During 5-Day Periods						Total	Per Cent Camp Population (1672)
	1-5	6-10	11-15	16-20	21-25	26-31		
1940								
November	—	—	—	—	—	—	—	—
December	2	1	—	—	—	—	3	0.06
1941								
January	6	19	26	28	6	1	32	1.91
February	22	21	17	17	43	—	177	10.6
March	8	3	3	12	3	—	91	5.44
							34	2.03

* Including those with jaundice and those with none.

case, thus suggesting that the infection was not necessarily due to contact in the living quarters.

During January the epidemic began in earnest and the number of cases rose steadily reaching a peak in the last days of the month and then declining steadily during February. Thereafter scattered cases continued throughout March and April with isolated cases in June and July. The course of events is shown in Table 7, which lists the number of cases at the start of the epidemic in 5-day periods, and in Table 8 and Figure 2 which give the

Severity.—This epidemic had all the characteristics of an extensive mass infection. Allowing for the long incubation

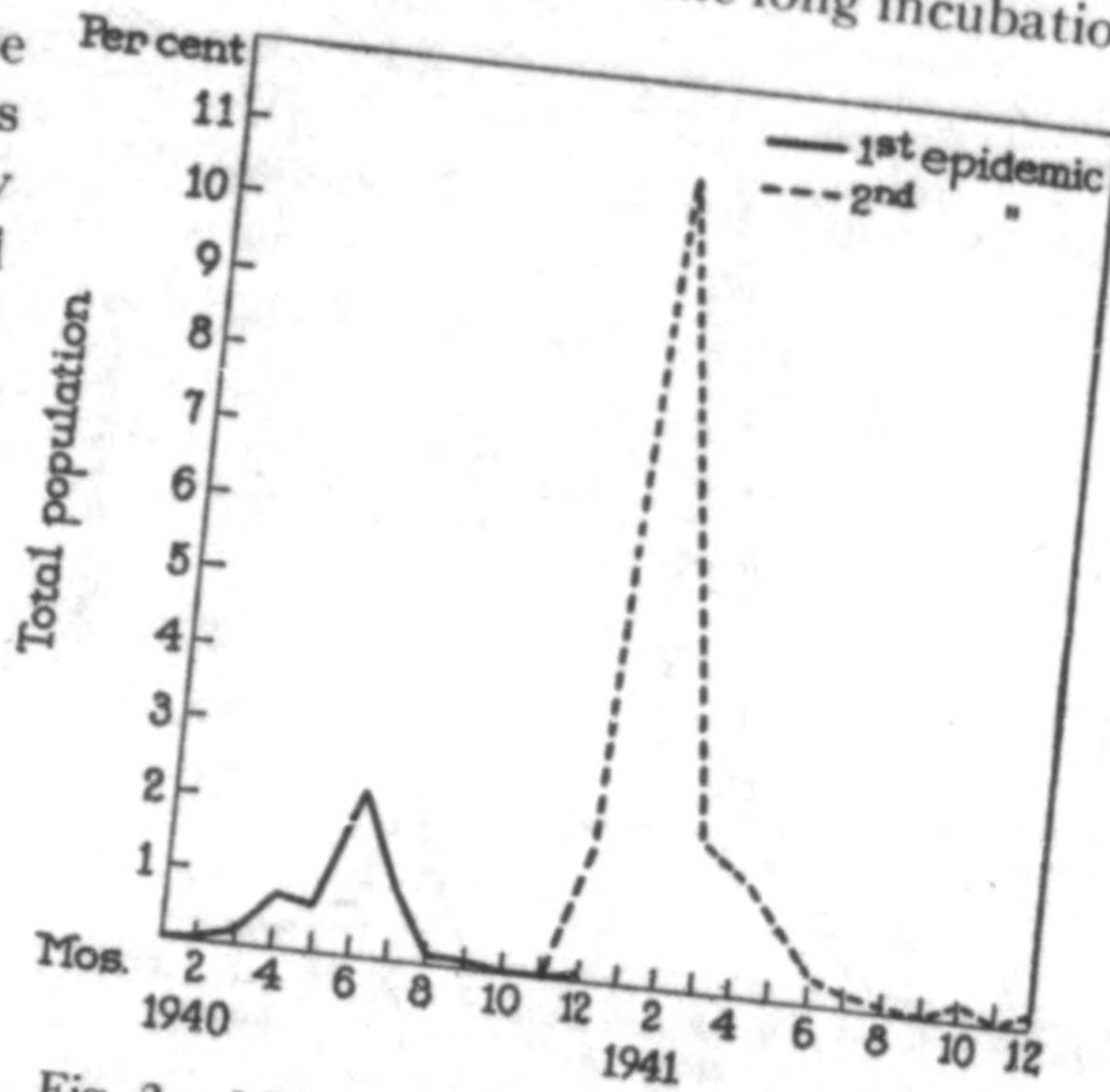


Fig. 2.—Monthly incidence of infective hepatitis in 2 epidemics.

TABLE 8.—Second Epidemic of Infective Hepatitis. Cases by Month According to Presence of Jaundice

Month	With Jaundice	Jaundice Slight or None	Total	Per Cent Camp Population
1940				
November	1	—	1	0.06
December	32	—	32	1.91
1941				
January	140	37	177	10.6
February	77	14	91	5.44
March	29	5	34	2.03
April	20	7	27	1.61
May	11	6	17	1.02
June	4	3	7	0.42
July	4	—	4	0.24
August	1	—	1	0.06
September	—	—	—	—
October	2	—	2	0.12
November	—	—	—	—
December	1	—	1	0.06
Total	322	72	394	23.6

monthly incidence. By May and June the epidemic had spent itself, in contrast with the first epidemic which was at that time reaching its climax. In October most of the people were released and among those remaining only isolated cases occurred.

period, it resembled a typical explosive outbreak of a highly infectious disease. There were altogether 394 cases among 1,672 people, or a total incidence of 23.6 per cent; of this number 361 occurred in the 5 months, December–April.

It is of interest to note that 72 of these cases showed symptoms of hepatitis with only slight or doubtful signs of jaundice. This suggests the possibility that there were some cases so mild as not to be recorded at all.

Age and sex incidence.—The population of the camp was composed of 913 men, 636 women, and 123 children (ages 0–15). There were relatively twice as many cases among children as among

TABLE 9.—*Second Epidemic of Infective Hepatitis. Cases by Sex and Age*

Sex and age	Camp Population	Infective Hepatitis			Per Cent
		With Jaundice	Jaundice Slight or None	Total	
Men	913	171	31	202	22.1
Women	636	103	37	140	22.0
Children (0-15)	123	48	4	52	42.3
Total	1,672	322	72	394	23.6
0-5	19	7	—	7	36.8
6-10	43	16	2	18	41.9
11-15	61	25	2	27	44.3
16-20	341	101	18	119	34.9
21-25	156	44	13	57	34.3
26-30	167	37	12	49	29.3
31-35	162	29	3	32	19.8
36-40	150	17	4	21	14.0
41-50	316	29	10	39	12.3
51-60	187	14	8	22	11.8
60 plus	31	3	—	3	9.7
Unknown	29	—	—	—	—
Total	1,672	322	72	394	23.6

adults, while the incidence among men and women was exactly the same. A breakdown of the cases according to age group shows clearly that the highest incidence is in the ages 0-15, that a high incidence persists up to the age of 25

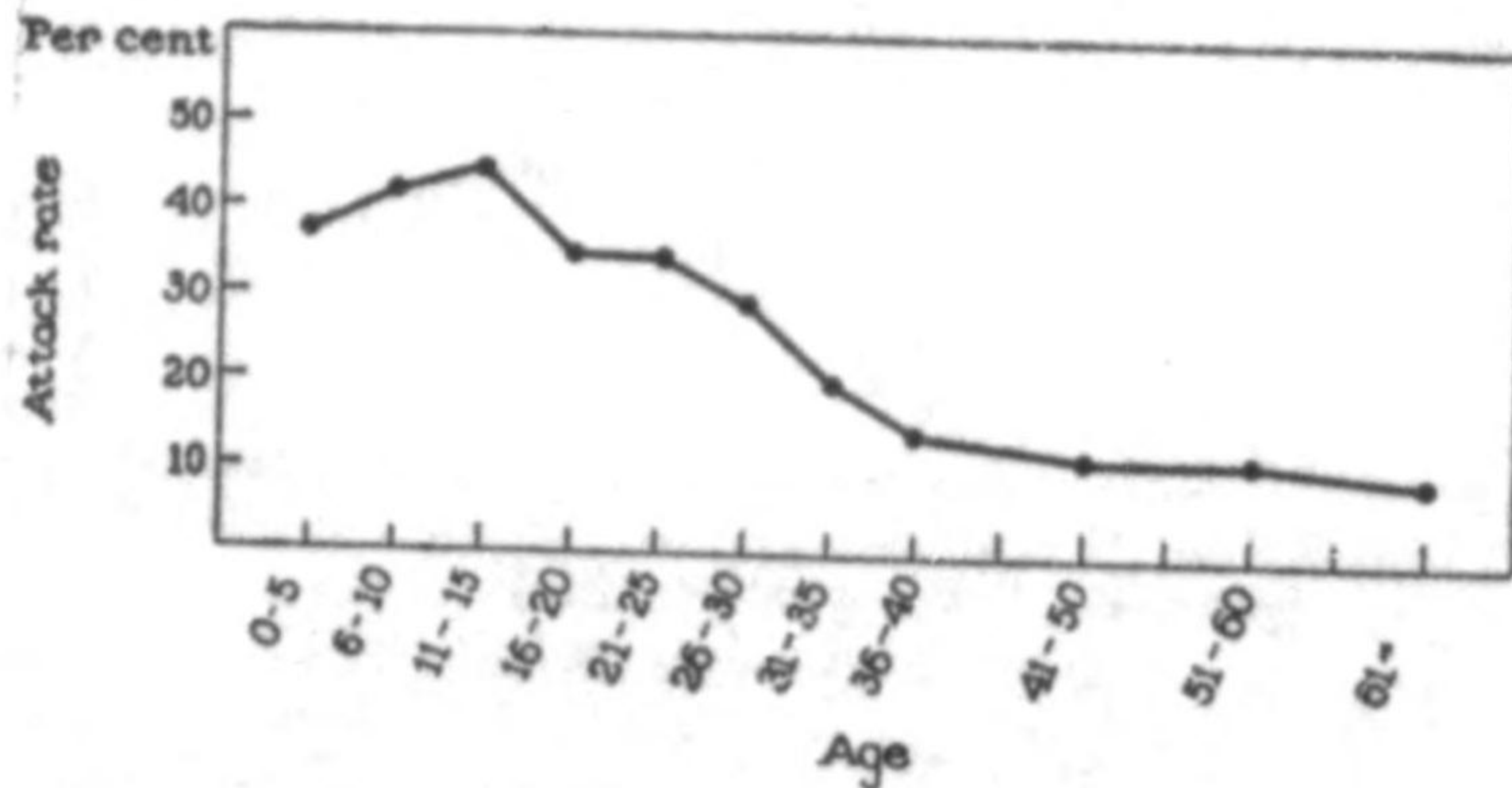


Fig. 3.—Age incidence of infective hepatitis during the second epidemic.

followed by a decline which becomes abrupt after 30. The incidence in the age groups 36-70 was two thirds less than that among children and only half as high as the average for the young adult population. Insofar as this susceptible group is concerned the disease seems to attack children and young people below the age of 30. It is not possible to say whether the older people had been immunized during the last war or whether there is a rise in natural resistance with increasing age. The relation of incidence to age is given in Table 9 and Figure 3.

Reason for severity of outbreak.—The

high incidence and explosive character of the outbreak set this epidemic apart from the others occurring in Palestine, particularly among the local inhabitants. This is probably due to 3 factors—a nonimmune susceptible population; poor nutritive state; close contact. Most of the people came from Central Europe where the disease apparently was not endemic before the war. They had suffered great privations during their trip and while in port. Though the camp was well organized there was an average of 34 people per hut and the outdoor space was limited in relation to the number of people. The common dining room increased the possibility of close contact. Taken together, conditions were involuntarily created favoring an epidemic outbreak of this disease.

Mode of transmission.—There is no clear indication regarding the probable mode of transmission. The slow onset and the interval between the primary and subsequent cases suggest a contact infection. Food transmission seems excluded by the gradual build-up of the epidemic; all people ate the same food and had no access to the outside world. No one could leave the camp and visitors were rarely admitted. Insect transmission seems excluded because of season. We know of no insect that is active

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Plan of Clearance Camp

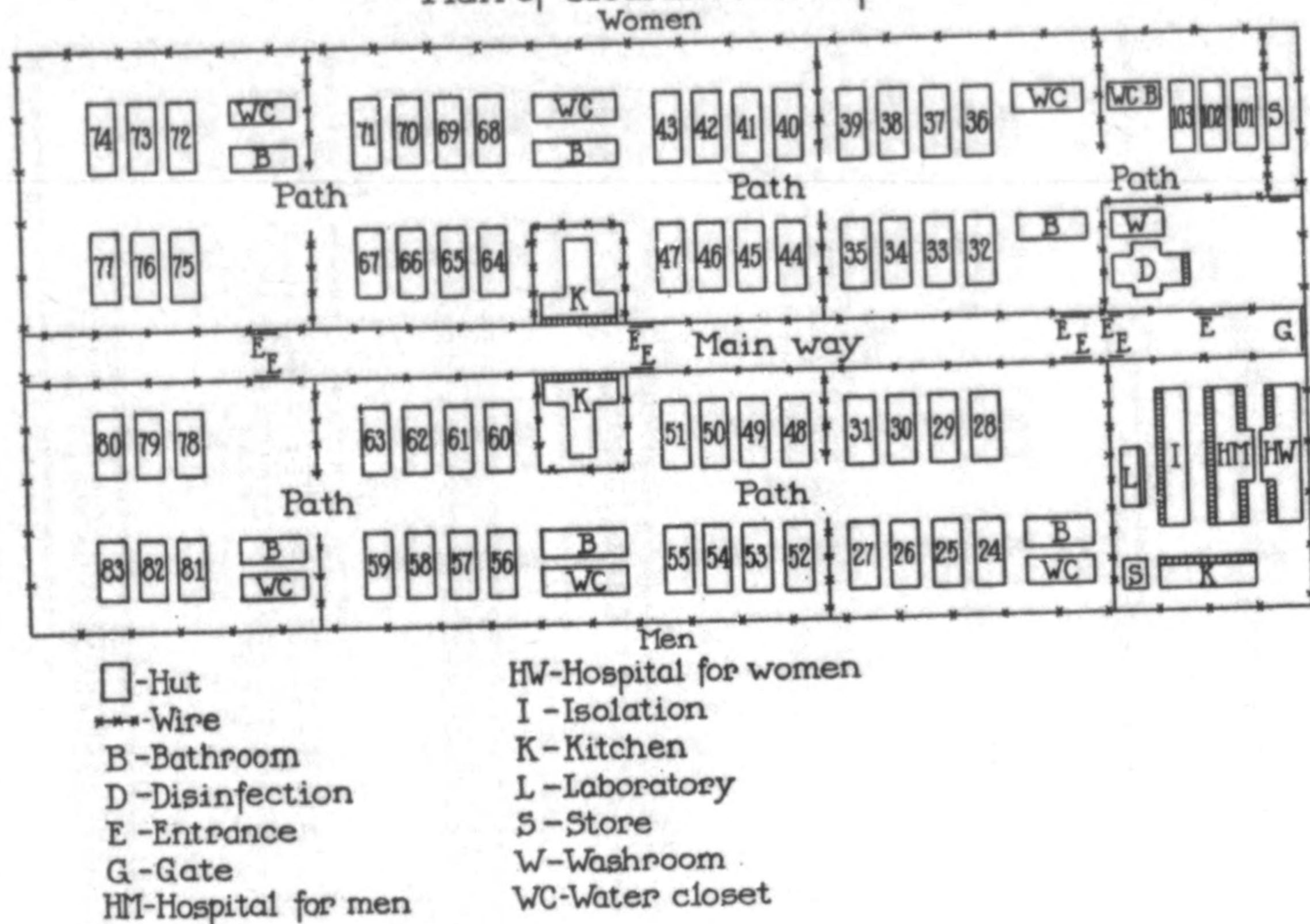


Fig. 4.—Plan of clearance camp.

both in May (first epidemic) and December and January (second epidemic). With few exceptions, no clear sequence of cases could be found in the living barracks. The cases were more or less uniformly distributed in all barracks. It would seem that contact outside the sleeping quarters was as close as in the barracks.

Statistical Analysis

An attempt was made to ascertain by means of a statistical analysis of the data, whether the variations in incidence in the different huts was significant or due to chance. Since the morbidity is highly related to age, Charlier's analysis of variation could not be applied. In order to make due allowance for the varying age distribution of the population within each hut the following method was used:

1. The total camp population, omitting people whose hut-number could not be established with certainty, was divided into age groups: 0-10, 11-20, 21-30, 31-40, 41 and over; the same was done with the cases of jaundice. Dividing the number of jaundice cases in each age group by the

number of persons in that group we obtain the specific age incidence. These rates are listed below:

Age Groups	Population	Jaundice Cases	Rate
0-10	65	23	0.354
11-20	384	139	0.362
21-30	342	86	0.251
31-40	303	47	0.155
41 and above	527	58	0.110

2. The actual and expected incidence in each hut, as corrected for age distribution, was then determined. The degree of disagreement between the actual and expected rate would indicate how far the rate in a given hut was affected by causes other than age. Let us take for example hut 24:

Age Groups	Number of Persons	Actual Number of Cases of Jaundice	Expected Number of Cases of Jaundice
0-10	0	0	0
11-20	20	5	$20 \times 0.362 = 7.24$
21-30	4	1	$4 \times 0.251 = 1.00$
31-40	8	0	$8 \times 0.155 = 1.24$
41 and above	7	0	$7 \times 0.110 = 0.77$
	<u>39</u>	<u>6</u>	<u>10.25</u>

TABLE 10—Hut Distribution of Cases of Infective Hepatitis with a Comparison of Observed and Expected Rates

Hut Number	Number of Persons	Observed Cases		Expected Cases*		$\frac{p-p_i}{\sqrt{\frac{p_i \cdot q_i}{n}}}$	Probability = P
		Number	Rate	Number	Rate		
a	b	c	d	e	f	g	h
24	39	6	0.154	10.26	0.263	-1.545	0.120
25	35	10	0.286	11.94	0.341	-0.686	0.495
26	31	15	0.484	9.37	0.303	+2.190	0.030
27	34	11	0.324	7.67	0.226	+1.365	0.170
28	34	5	0.147	8.76	0.258	-1.745	0.080
29	33	11	0.334	8.52	0.258	+0.995	0.320
30	36	2	0.056	6.54	0.182	-1.955	0.050
31	38	10	0.263	7.28	0.192	+1.111	0.265
32	33	6	0.182	7.64	0.232	-0.681	0.495
33	28	6	0.214	5.90	0.211	+0.039	0.970
34	33	11	0.334	7.92	0.240	+1.265	0.210
35	33	9	0.273	8.27	0.250	+0.305	0.760
36	32	7	0.219	7.08	0.221	-0.027	0.980
37	31	8	0.258	6.24	0.201	+0.791	0.430
38	30	4	0.133	8.09	0.269	-1.680	0.092
39	32	8	0.250	5.07	0.159	+1.405	0.160
40	19	5	0.263	7.88	0.131	+1.702	0.090
41	35	9	0.257	2.48	0.225	+0.453	0.650
42	31	5	0.161	7.88	0.154	+0.108	0.915
43	30	9	0.300	4.77	0.162	+0.1055	0.920
44	32	8	0.250	6.60	0.220	+1.1115	0.265
45	32	7	0.219	5.58	0.175	+0.875	0.380
46	31	5	0.161	7.98	0.162	-0.695	0.487
47	33	6	0.182	6.56	0.212	-0.805	0.420
48	38	3	0.079	7.98	0.242	-2.83	0.005
49	51	3	0.059	10.89	0.287	-1.67	0.095
50	37	10	0.270	7.16	0.140	+1.78	0.075
51	33	6	0.182	5.99	0.162	-0.681	0.495
52	41	6	0.146	7.66	0.232	-1.685	0.090
53	36	10	0.278	10.77	0.262	-1.79	0.072
54	37	10	0.270	6.01	0.167	+0.946	0.345
55	38	5	0.132	7.65	0.207	-0.487	0.630
56	37	7	0.189	6.11	0.161	+0.0155	0.990
57	37	7	0.189	6.95	0.188	-0.370	0.710
58	37	4	0.108	7.90	0.172	-1.03	0.300
59	37	2	0.054	6.38	0.172	-2.31	0.020
60	39	11	0.282	7.68	0.208	+0.97	0.330
61	26	8	0.308	8.49	0.218	+1.30	0.193
62	34	6	0.177	5.32	0.205	+0.304	0.760
63	35	6	0.171	5.37	0.158	-0.1985	0.840
64	29	5	0.173	6.43	0.184	-0.647	0.520
65	31	6	0.194	6.47	0.223	-0.111	0.910
66	29	5	0.173	6.26	0.202	-1.132	0.260
67	36	15	0.416	8.25	0.284	+1.75	0.080
68	31	13	0.420	10.22	0.284	-1.35	0.180
69	37	4	0.108	9.54	0.308	-0.206	0.837
78	37	4	0.108	4.39	0.119	-0.206	0.050
79	34	13	0.382	8.13	0.239	+1.953	0.050
103	26	5	0.192	6.51	0.250	-0.684	0.490

* On basis of age distribution of the occupants of each hut.

Thus the actual incidence in this hut is 15.4% and the expected incidence 26.3%. The question was whether these rates differ significantly. The deviations from the expected rate can be expressed in terms of the standard deviation by

$$\frac{p-p_i}{\sqrt{\frac{p_i \cdot q_i}{n}}}$$

where p represents the actual rate, p_i the expected rate, $q_i=1-p_i$, and n_i the number of people in the hut. In the hut under consideration this expression becomes -1.545. From a table of the probability integral it appears that the chance occurrence of such a deviation is about twelve in a hundred, i.e., the difference between the actual rate and expected rate is not significant. Follow-

ing this procedure we calculated the deviation of observed from expected rates in terms of the standard deviation for each of the 48 huts. These data are given in Table 10. It will be seen that after correcting for age and for the number of people in each hut, there are some huts in which there is an appreciable difference between the actual and expected rates, e.g. huts No. 26 and No. 48.

Perusing column g of table 10 giving these deviations one gains the impression that huts with appreciably higher or lower incidence occur more frequently than expected. To ascertain whether the whole aggregate of huts differs from a chance distribution, the following extension of the test was performed:

According to R. A. Fisher "the circumstances that the sum of a number of values of Chi-

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squares is itself distributed in the Chi-square distribution may be made the basis of such a test. Any number of such values may be added together, to give a composite test, using the Chi-square to examine the significance of the result."

For each value

$$\frac{p - p_i}{\sqrt{\frac{p_i \cdot q_i}{n}}}$$

the probability (P value) of obtaining deviations resulting from chance both above and below those indicated was obtained and entered in column h in table 10. According to Fisher "in the particular case when $n=2$, the natural logarithm of the probability is equal to $-\frac{1}{2}X^2$." Consequently

$$\text{Chi-square (aggregate)} = 2 \sum (-\log_e P)$$

The sum of the natural logarithms of the P values in table 10 was obtained and with the sign changed was multiplied by 2. The result, 134, represents the Chi-square when n for each hut tested is equal to 2. Since 48 huts are included in the aggregate there are 96 degrees of freedom for this Chi-square.

An estimate of the corresponding P value for this Chi-square may be obtained from the expression $\sqrt{2X^2} - \sqrt{2n-1}$ which in this case gives 2.56. This figure may be used as a normal deviate with unit variance for entry into a table containing areas of the normal curve. A P value for a deviation of 2.56 times sigma in either direction from the center of the curve is 0.010. Consequently one may say that the observed rates differ from those expected on the basis of the age distribution of the persons in the hut to a greater extent than rates influenced by chance alone would differ.

This general trend favoring the occurrence of huts with higher or lower incidences than the expected ones, suggests that other conditions in the hut played some part in promoting or preventing the spread of the infection. It is difficult to assess the factors involved; either contact, infection, or insect transmission would meet the requirements. However, since insect transmission of this season may be excluded the presumption is that hut contact played some role in the dissemination of the infection.

Clinical Picture

The hospital and out-patient records are unfortunately incomplete for a detailed clinical picture of the disease. A detailed study has been reported by Cameron *et al.* (1942). However, from such data as are available it is possible to define and delimit the nature of the disease. There

seems no question that the epidemic disease is a well-defined clinical entity. The onset is sudden, beginning usually with headache, malaise, and nausea, but almost invariably with anorexia. Cameron also puts anorexia as the most reliable cue to the diagnosis in the pre-icteric stage. There is not only no desire for food, but a positive distaste for it. The more detailed observations of cases in the hospital led one of us (Dr. Btsh) to identify 3 stages of the disease—(a) initial fever, (b) intermediate period, (c) hepatotoxemia and jaundice. There is nearly always an initial fever, the temperature at times reaching 38–40 C. The febrile period is followed by one with normal temperature which may last 2–6 days. During this interval there may be a general feeling of well-being, but lack of appetite and lassitude persist. The liver is tender and may be enlarged. Then general malaise may increase and with that, jaundice. The variability in this stage depends on the degree of liver injury and degree of associated toxicity. In some cases jaundice is mild and transient; in others it is moderate, persisting for about 2 weeks; in others still it may persist for several weeks or months. In the epidemics described there was only one fatal case. The blood picture is variable ranging from a mild leucocytosis to a mild leucopenia. Hence it is not of diagnostic value. In some cases there may be a marked monocytosis.

DISCUSSION

The 2 epidemics of infective hepatitis described above throw additional light on the nature and epidemic constitution of this obscure malady. Instructive descriptions of small outbreaks among people living in endemic areas in Britain have recently been reported by Newman (1942) and Pickles (1939). Cameron (1942) has presented a very complete clinical study of the disease among troops in Palestine, and Lefkovits (1943) has summarized some of the general epidemiologic features of the disease in Palestine. However, all of these studies represent fragments from which one can piece together a picture which is still necessarily incomplete. The particular significance of the 2 epidemics reported by us, lies in the fact that they occurred among apparently susceptible people who had just come

into an endemic area. It appears that people coming from Central Europe are not immune to the disease which has long been known to be endemic in Palestine. It was possible, therefore, to observe the spread of the infection in a susceptible group placed in an endemic environment. Moreover, since the people were kept in a closed camp subject to the same food and environment the conditions practically corresponded to a laboratory experiment.

The 2 epidemics supplement one another in several respects. Although the total number of people exposed each time was about the same (1,928 in the first and 1,672 in the second), there were only 97 cases or an incidence of 5 per cent in the first, as against 394 or an incidence of 24 per cent in the second, outbreak. During both epidemics the conditions in the camp insofar as living conditions and food were concerned remained practically the same with the exception that during the winter months the people were more apt to crowd indoors, in their barracks, or common rooms, than during the spring months.

The 2 epidemics show a marked difference in intensity. Whether this difference is due to greater seasonal host susceptibility, or to greater crowding (greater exposure to risk or larger infective dosage), is a matter of speculation. It is apparent, however, from the difference in incidence in the 2 outbreaks that the course and evolution of the epidemic is determined by the 2 factors which generally condition epidemics—virus density (crowding) and host susceptibility (Fig. 2).

The 2 epidemics, and especially the first, provide a clue for the sporadic character of epidemics among soldiers and the relatively low incidence usually recorded, observations which have caused considerable confusion in assessing the epidemicity of the disease. The

explanation probably lies in variations of susceptibility and in absence of crowding. The infection starts with sporadic cases. Due to the long incubation period, a long interval is required to build up enough virus for mass infections. If one adds to this, the soldier's life in the open and consequent more limited opportunities of close contact, the low epidemicity and low incidence are understandable.

This explanation is, of course, valid only if the infection is, as assumed, spread by direct or close contact. While there is no experimental proof in support of this view, we believe that the course of development of the 2 epidemics lends itself to no other explanation. Even if we accept longer incubation periods than 24 to 35 days, it seems to us that the slow build-up of the epidemics and the differences in their seasonal occurrence and intensity rule out the possibility of food transmission in the first epidemic, or of insect transmission in the second.

This does not imply that under other conditions fecal and fly contamination of food may not come into play. The epidemic among the New Zealand troops as described to us by Major Lovell (personal communication) may have been spread in that way. In many respects this epidemic, which broke out in September 1942, resembles our winter epidemic. However, we have not seen the detailed report and consequently cannot assess the validity of this view. It is conceivable, even likely, that the virus is present both in the oral and fecal discharges and that according to circumstance one or another mode of infection may occur. A possible support for this suggestion is the fact that the Army epidemic flared up in September (the enteric season) in an unsanitary area heavily infested with flies, while our large epidemic occurred in a well-

EPIDEMIC INFECTIVE HEPATITIS

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sanitated camp in January and February (the season of respiratory infections).

Another significant feature of our epidemics, particularly the second one, is the fact that we had a mixed sample of a civilian population. This made it possible to establish the relative sex and age susceptibility. No differences were noted in the susceptibility of the 2 sexes. There seems, however, to be a very definite progressive increase in resistance with increasing age. Children below 15 are most susceptible, young adults up to 30 highly susceptible, and those over 30 considerably less so (Fig. 3).

It seems evident, therefore, that we are dealing with an infectious disease, most probably spread by contact. This disease is endemic in certain regions—apparently the Near East, the Mediterranean countries, England, and Norway. In view of the marked susceptibility of young immigrants, it does not appear to have been endemic in Central Europe before the outbreak of the present war. The disease has a definite seasonal character, epidemics occurring in the fall and early winter months; given suitable conditions, however, epidemics of lesser intensity may occur in the spring. The epidemics described resemble those of other contagious infections, except that in small outbreaks the picture is obscured by the prolonged incubation period ranging between 24 and 35 days, and possibly longer.

One of the most important questions is the relation between infective hepatitis and serum jaundice following yellow fever vaccination, the injection of prophylactic serum, etc. The most complete recent study on postvaccination icterus has been reported by Fox *et al.* (1942). On the basis of the description given by these authors, one is impressed by the great similarity in the disease syndromes. The differences, however,

are equally impressive. The long incubation period and the low incidence among children differentiate postvaccination jaundice from epidemic infective hepatitis. It is conceivable that serum jaundice is due to an intoxication with homologous serum and bears no relation to the infective jaundice. The reasons against this conception have been cogently presented by Findlay *et al.* (1939). We are inclined to accept the view that both types have basically the same etiology; the differences may be accounted for by the differences in dosage and in the mode of inoculation of the virus. In all cases of inoculation of jaundice either very small quantities of serum had been used or phenolized convalescent serum stored a long time. It is possible that the introduction of a small amount of virus might result in a highly prolonged incubation period with a more insidious type of disease milder in children* and more severe in adults. This is, of course, pure hypothesis. Since this study was completed Findlay and Martin (1943) have reported the transmission of the jaundice following yellow fever vaccination by instillation of nasal washings from patients into the noses of normal volunteers. If these results are confirmed then both the problem of identity and of mode of transmission will appear to be solved.

* In the case of measles serum the reaction in children was quite severe, judging by the high fatality.

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VIRGINIA DEPARTMENT OF HEALTH

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HEADACHES

Self-confidence is one of the most valuable of human assets. However, over-confidence, based on ignorance or a lack of basic facts, is quite another matter. For example, over-confidence is a striking and too general tendency where headaches are concerned, and leads to self-diagnosis and self-treatment which, at best, is a very shortsighted, and at worst, a dangerous practice.

Most persons at one time or another experience this type of suffering. The fact that headaches are more or less common, coupled with the possibility that some of them are the result of indiscretion or comparatively minor disturbances, has developed an indifferent attitude toward them. This usually is expressed in the form of a self-prescribed pill or powder.

Of course, when a headache is rare, and the cause of it reasonably can be blamed on an indiscreet act such as overeating or similar indulgence, the condition does not assume marked importance. It should be understood, however, that headaches are the result of many other conditions than disturbed stomachs and minor upsets. It is this latter type of headache that definitely should not be dallied with. In every instance the headache is not an illness in itself, but a manifestation of trouble which has its seat deeper than the discomfort experienced, however mild or severe that may be.

The unappreciated fact that a headache is a symptom rather than a distinct illness in itself results in the indiscriminate reliance upon pain-killers. If the ache is caused by more than a superficial condition, such a practice merely complicates matters by postponing the doctor's investigation as to the cause of the trouble.

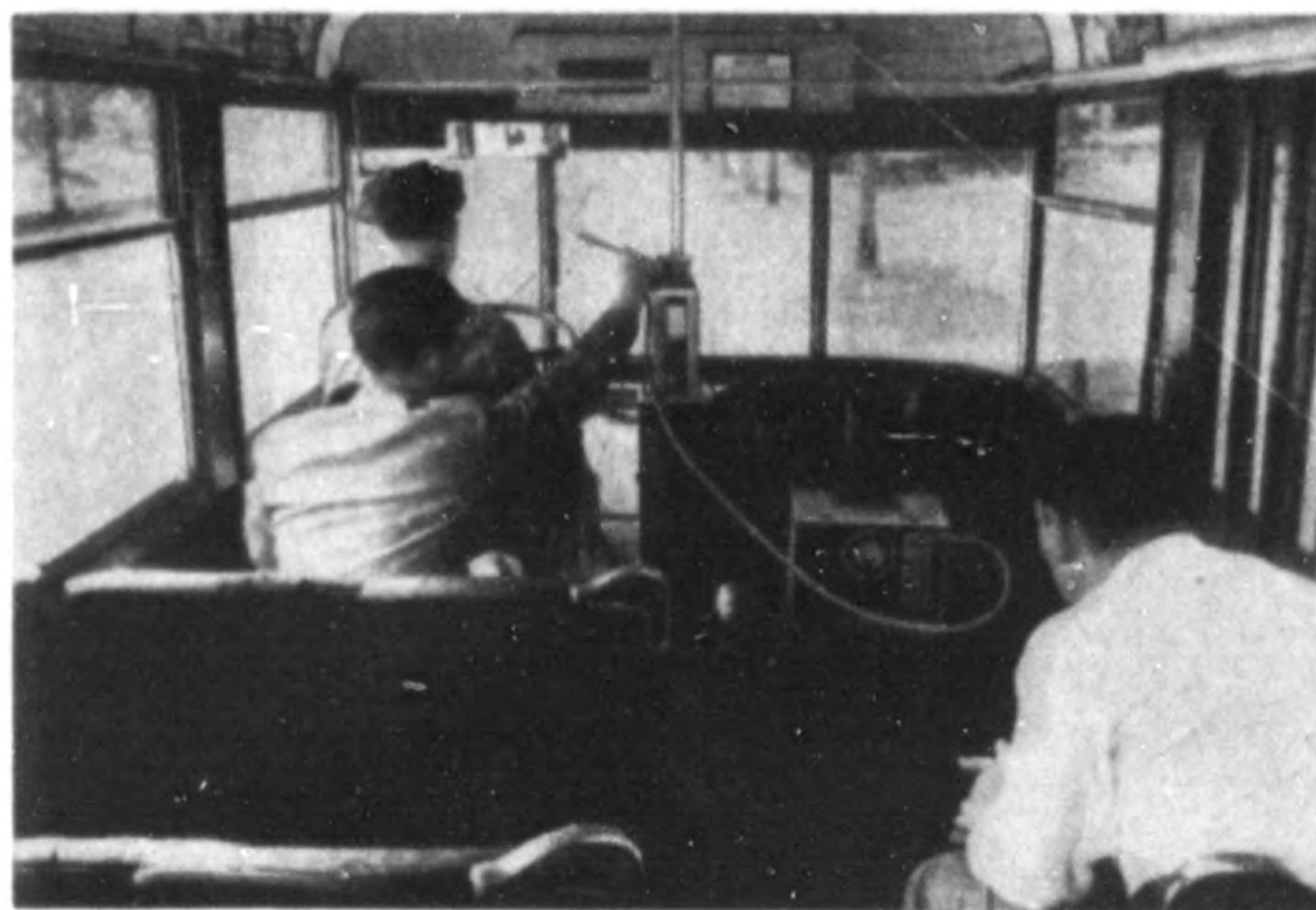
For instance, such diverse conditions as diseased teeth, constipation, nose and throat affections, eye strain, as well as excessive intake of food or stimulants can, and often do result in headache. Instances are recorded where misfitting clothes such as tight collars and shoes have been responsible for this reaction. Again, kidney troubles can cause headaches and in some cases have gone unrecognized for years, and have been self-drugged throughout that time, to the victim's great physical detriment and discomfort.

Thus, it is well to appreciate that headaches, the cause of which cannot be readily and logically suspected, call for professional advice. Self-drugging is dangerous. It is essential to get back of the cause. Merely to dull the symptom is to temporize dangerously. The more than casual headache in every instance should result in seeking the family physician's advice without delay.

INDUSTRIAL HYGIENE SERVICES

In its effort to improve the health standards of the adult population, the State Department of Health offers a

variety of services to industry, the single largest adult group. These services are available through the Bureau of Industrial Hygiene. Since its inception, the bureau has given advice and aid to plant owners and managers, labor groups, and industrial physicians in this State.



TESTING FOR CARBON MONOXIDE IN PASSENGER BUS BY STATE HEALTH DEPARTMENT PERSONNEL

Briefly, the following services in industrial hygiene currently are available in Virginia:

Medical Services

Through its medical director, the bureau offers to industrial and private physicians consultations in diagnosis and treatment of occupational diseases, in differential diagnosis between occupational and non-occupational illnesses, in venereal disease control, and in nutrition.

Mass chest x-ray clinics among the industrial workers and the interpretation of films are services which have been widely accepted by industry. Two traveling x-ray units are now servicing Virginia workers.

The director of the bureau also furnishes advice as to allowable concentrations to toxic materials in plant atmosphere. The latest information concerning the toxicity of various substances used in industrial processes is obtainable upon request.

Engineering Services

Through its staff of engineers the Bureau of Industrial Hygiene can make tests in industrial establishments to determine the atmospheric concentration of dusts, fumes, gases, and vapors. The engineers also make recommendations for the installation of equipment needed to control health hazards in industry and check the efficiency of equipment already installed.

Also available are facilities for evaluation of the general

industrial environment, such as temperature and humidity, air movement, illumination, ventilation and plant house-keeping. General plant sanitation, toilet and washing facilities, and facilities for eating in the plant are routinely inspected and evaluated.

Chemical Services

Through its chemical laboratory, the bureau offers to industry and to physicians advice on methods of analysis for various air contaminants. The laboratory makes analyses of a variety of materials which may endanger the health of the workers, such as dusts, metal fumes, solvent vapors, etc. Analyses for toxic materials in biological samples, such as urine, blood, and tissue are routinely performed by the laboratory staff.

Nursing Services

Nursing services available through the Bureau of Industrial Hygiene consist in consultant services to the individual industrial nurse, advice in planning health programs, particularly in smaller plants, and in assistance in the improvement of the existing nursing services.

General Services

The personnel of the bureau make routine plant surveys to determine potential health hazards and make detailed studies to determine the extent of the hazards if such are found in the plant.

All complaints of unhealthy industrial practices received by the State Health Department are investigated by this bureau.

In cooperation with other state departments and agencies, the bureau's personnel give lectures on industrial health hazards and related subjects and participate in various educational activities in adult hygiene.

SPEAKING OF DENTAL FILLINGS, THE COMMISSIONER SAYS:

Many years ago dentists filed down silver coins; these filings were mixed with mercury, and the combination then was employed for filling cavities in the teeth. Some years later the ingredients for this type of filling were prepared commercially, thus eliminating this manufacturing step by the dentist. Extensive experiments have proved that an alloy of silver and tin properly prepared, when mixed with mercury, forms a much better filling material. This material is called "amalgam".

It should be emphasized, however, that a good alloy plus skillful mixing with mercury and expert insertion in a properly prepared cavity are necessary to result in a good amalgam filling.

The amalgam filling is second in utility to the now generally used gold inlay. When the structure of a tooth has been impaired, and the necessity arises to reestablish contour, the inlay is preferred, as the gold stands up to the stress and strain of mastication and supports the walls of deep cavities.

Irrespective of the type of filling indicated, what the patient really invests in, however, is specialized service. The dentist is required to know tooth-anatomy, the individual stress on the affected tooth, as well as personal dental factors of the patient he is treating. This results in a highly developed technic in the operation which, if lacking, can end in the loss of the tooth, as well as of time and money expended for this service.

Recently, a dental authority, speaking in this connection stated "All fillings should be carefully inserted, carefully contoured in relation to the tooth itself and to the other teeth with which it comes in contact. All rough edges should be polished smooth to protect the margins of the cavity and prevent return of decay. There should be no overhanging of edges at the gum margin as this injures the gums. Moreover, failure to polish all fillings properly means that crevices are left to catch particles of food which invite bacterial action and destruction of tooth and gum tissue."

It thus is to be noted that a filling is much more than just a plug in a hole. And it naturally follows that the choice of a skillful dentist is essential. It also is excellent economy. "Cheap" dentistry in the long run is the most expensive.



ICE CREAM AND CANDY ARE EXCELLENT FOODS IN THEIR PLACE. BUT AS SUBSTITUTES FOR BREAD, MEAT, AND VEGETABLES AT MEALTIME THEY DO NOT RATE. IS YOUR CHILD DOING THIS?

AMERICAN WATER WORKS ASSOCIATION MEETING

The twelfth annual conference of the Virginia Section, American Water Works Association, recently was held at Roanoke.

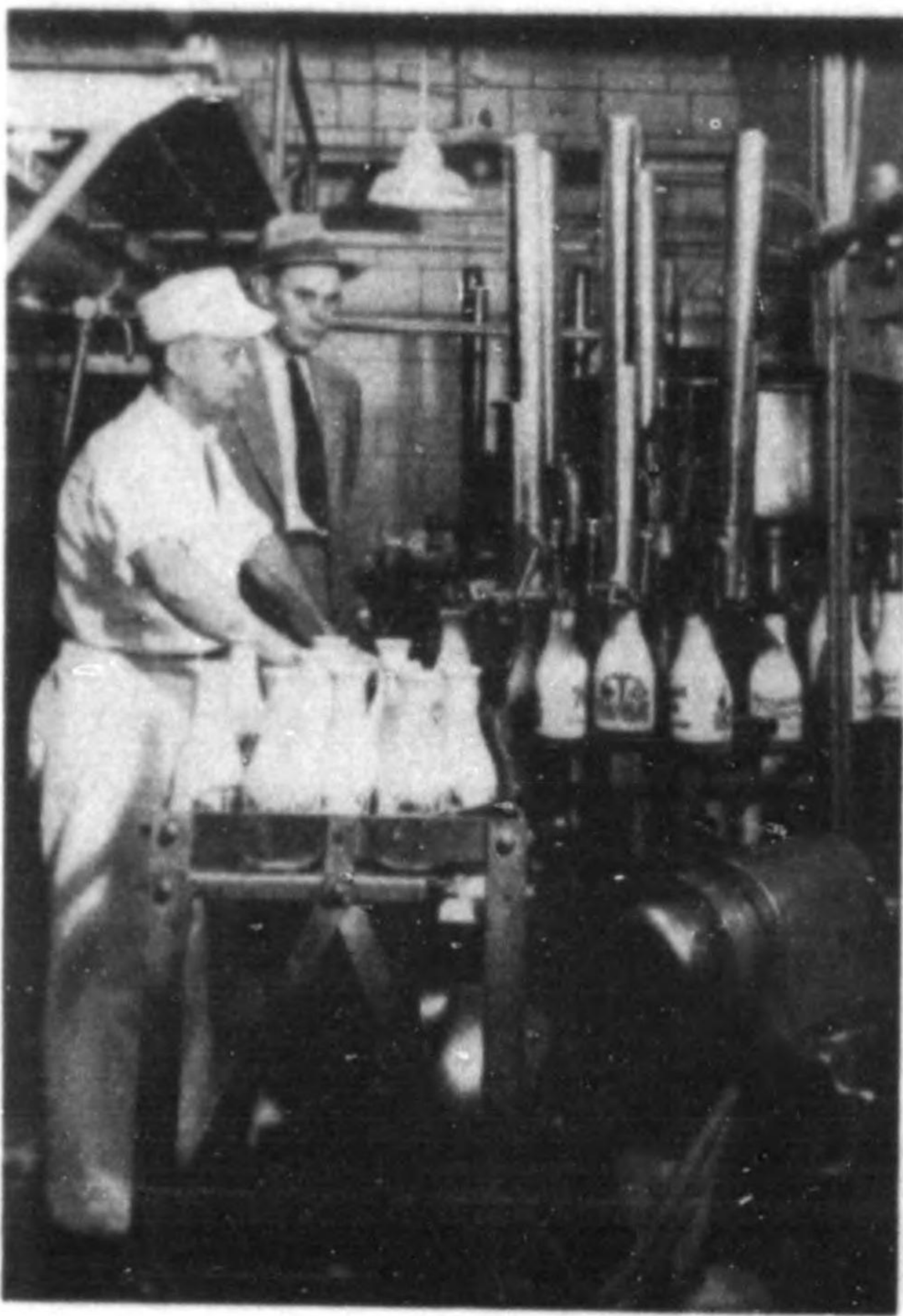
Mr. Wendell LaDue, Vice President of the National Association and Chief Engineer and Superintendent, Bureau of Water and Sewerage for the City of Akron, Ohio, was the official representative of the parent organization.

Outstanding persons in the water works field who appeared on the program included J. K. Hoskins, Assistant Surgeon General, Chief, Sanitary Engineering Division, U. S. Public Health Service, Washington, D. C., Louis P. Howson, of Chicago, past president of the American Water Works Association, W. A. Welch, of Philadelphia, I. G. Vass, Town Manager, Waynesboro, Virginia, a past president of the League, and R. C. Clement, Newark, New Jersey.

Others who informally participated included Richard Messer, Chief, Bureau of Engineering of the State Department of Health and district director of the A.W.W.A., and W. H. Shewbridge, engineer, State Department of Health and secretary-treasurer of the Virginia Section.

YOUTH AND HEALTH

The young men and women now returning to their homes after service to their country have had physical fitness emphasized in their military experience. It is likely, at least hoped, that the decided advantage of a healthy body will have been sufficiently impressed upon many of this group to encourage them to maintain bodily vigor under a reasonably self-imposed discipline. On the other hand, the legion of younger people, as well as thousands of both sexes in the military-age bracket who were not in the armed services, perhaps need to be more impressed than they now are of their personal responsibility for the maintenance of physical well-being.



SAFE MILK SUPPLIES CAN BE COMMUNITY-CONTROLLED. PERSONAL HEALTH, FOR YOUNG AND OLDER, NEEDS PERSONAL ATTENTION

Health officials can give young folks, and adults also, mass protection against unsafe water and milk supplies, set up protective controls against certain communicable diseases, and in other ways safeguard public health. Nevertheless, assuming that these scientific activities are functioning satisfactorily, the plain fact remains that by far the greater obligation to reach and keep bodily vigor rests with the individual and the individual only. A let-George-do-it attitude simply will not work.

Generally speaking, a youthful body possesses a remarkable resilience. However, that fact does not justify any young person to be prodigal with his physical assets. The need for disciplining the body is quite as essential at this period of life—if, in fact, not more so—as at any other time.

The following rules, therefore, should come before personal whims or popular customs of the day: 1. An adequate amount of nourishing food daily; 2. Sufficient sleep nightly; 3. Clean living; 4. Moderation in all kinds of stimulants, including coffee, tea, and tobacco; 5. Refraining from self-medication of any kind.

It is quite true that to a number of young persons some of these suggestions may appear to be old-fashioned.

However, it should be understood that nature chalks up the good and bad habits, irrespective of personal inclinations or accepted conduct. And if the total is to be on the side of vigorous health, moderation and a wise appreciation of the body's limitations must be the rule.

The acceptance of this unalterable law is the best guarantee not only for a healthful, vigorous, and happy youth, but will be an invaluable asset toward deriving from adult life the joy and success that are likely to go hand in hand with a vigorous mind and body.

REPORT ON NUTRITION SURVEY IN NEWFOUNDLAND

Recently an interesting report was published of a medical survey of nutrition in Newfoundland. The purpose of the survey was to examine a sample of the population of Newfoundland for chemical and biochemical signs of malnutrition.

The most striking findings appeared in a study of conditions resulting from lack of foods containing sufficient vitamins and minerals. Evidences of nutrition deficiencies due to lack of ascorbic acid, vitamin A, and riboflavin were observed most frequently. Dental caries was very prevalent. Of 376 persons sixteen years of age or more who were examined, 41 percent had lost all or nearly all of their teeth. This was due not only to caries but to diseased gums resulting from a deficiency of ascorbic acid or vitamin C.

In comparison with recommended allowances the average available food supply was adequate in protein, fat, and calories, but very low in calcium, ascorbic acid, vitamin A, and riboflavin.

Other than cod fish, the per capita use of meat was found to be very low and the average consumption of eggs was estimated to be one-half egg per week. It was discovered that a very small amount of milk was produced locally, and evaporated milk which is imported, was distributed mainly to children by rationing. The production of oils, fats, and cereal grains also was found to be almost zero. A moderate yield of garden produce consisting chiefly of potatoes, cabbage, and turnips was reported.

The most common and dependable early clinical signs of vitamin C deficiency are to be observed in the gums. Clinical evidence indicated a widespread prevalence of ascorbic acid deficiency in Newfoundland. "One or more obvious signs of either acute or chronic gum involvement occurred in 69 percent of the population examined."

Further, it was reported that the annual average consumption of 280 pounds of potatoes per capita, plus the use of cabbage or turnips four times weekly for forty weeks of the year, would probably prevent much of this vitamin C deficiency were it not for the usual and fatal practices used in cooking.

It is an established fact that heat, air, and water are significant factors in the destruction of ascorbic acid. In Newfoundland the usual method of cooking potatoes is to boil them after peeling, which leads to a loss of about 50 percent of their ascorbic acid content. The custom of cooking all the potatoes for one day before the noon meal results in a 100 percent loss of vitamin C in the portion used at supper. This, together with a 50 percent loss in boiling, means about three-fourths of the ascorbic acid value of the potato is lost. Cabbage ranks next to potatoes in popularity. Raw cabbage, which could contribute significantly to

the supply of vitamin C, is seldom used. The customary practice of boiling cabbage one to two hours results in over 90 percent loss of this vitamin. *This point might well be heeded by many housewives in the United States.*

An alarming loss of vitamin and mineral content of foods occurs in cooking. This has been indicated with respect to vitamin C. This situation, combined with the fact that the available food supplies already are inadequate in many of these food elements, may easily be responsible for much of the poor nutritional status of the people in Newfoundland. That fact in turn undoubtedly contributes largely to their impaired health and efficiency.

ACCIDENTAL DEATHS

Last year in the State, deaths due to accidents of all types totaled 2,149. The rate per 100,000 population in 1944 was 76.8. With the exception of the year 1943, when the rate was 76.0, this was the lowest since 1939. Accidental deaths in the white race in 1944 number 1,640 (rate 77.2) and in the colored 509 (rate 75.2). This was the first year in which the white rate exceeded the colored.

The reduction in accidental deaths largely has been due to a sharp decline in motor-vehicle fatality. Deaths from this cause numbered 588 in the State in 1944, in comparison with 634 for the previous year. The upward trend during former years was reversed in 1942 and in 1944, the rate of 21.0 was the lowest in the past fifteen years. Less travel and slower rates of speed no doubt were contributing factors.

As a cause of accidental death, falls ranked next to motor vehicles, and in 1944 totaled 367. Next in order came burns (including conflagration) with 235 deaths. Water-transportation and drowning followed with 196 deaths. Air-transportation totaled 164 fatalities; railway accidents, 89; firearms, 63; mechanical suffocation (including infants overlaid in bed), 59; mine and quarry accidents, 41; accidents involving machinery, 26; and other and unspecified accidents, 227.

Home accidents, as usual, took a higher death toll than industrial. There were 641 fatalities occurring in the home in 1944, which represents an increase of 67 deaths over the previous year. Falls accounted for the largest number of home accidents, 265. Other accidents causing death comprised burns, poisoning, suffocation of infants in bed, electric currents, and injuries from cutting instruments and from firearms.

Fatal industrial accidents showed a decline from 586 in 1943 to 538 last year. However, this number represents an increase of 153 deaths over the last prewar year (1941). Accidental deaths occurring in industry were due mainly to air-transportation, water-transportation, railway accidents, accidents in mines and quarries, agricultural accidents, and falls.

Deaths from accidents occurring in public places (excluding motor vehicles) totaled 284. The highest toll in this group was due to falls, drowning, and railway accidents. Other and unspecified accidental deaths totaled 135.

COMMUNICABLE DISEASE STATISTICS

	Nov. 1945	Nov. 1944	Jan.-Nov. 1945	Jan.-Nov. 1944
Typhoid and Paratyphoid Fever..	10	6	162	120
Diarrhea and Dysentery.....	178	443	6990	6246
Measles.....	107	22	1387	17073
Scarlet Fever.....	506	283	3798	2622
Diphtheria.....	130	58	483	294
Poliomyelitis.....	8	40	329	742
Meningitis.....	3	6	205	489
Undulant Fever.....	0	1	30	36
Rocky Mountain Spotted Fever..	6	1	99	80
Tularemia.....	2	2	42	44

VITAL STATISTICS REPORT

Bureau of Vital Statistics

October 1945

(Figures are subject to change on account of delayed reports)

	Recorded in Oct. 1945	Jan. through Oct. 1945	Jan. through Oct. 1944
LIVE BIRTHS	5,378	51,492	52,833
DEATHS (All Causes)	2,280	22,814	23,328
DEATHS OF INFANTS UNDER ONE YEAR	253	2,499	2,607
DEATHS FROM IMPORTANT CAUSES:			
TYPHOID AND PARATYPHOID FEVER	1	16	7
EPIDEMIC MENINGITIS	1	44	74
SCARLET FEVER	0	10	7
WHOOPING COUGH	1	54	93
DIPHTHERIA	7	25	16
TUBERCULOSIS (All Forms)	113	1,096	1,071
DIARRHEA AND DYSENTERY	70	433	387
MALARIA	0	1	1
SYPHILIS	35	295	299
MEASLES	1	3	51
POLIOMYELITIS	2	15	51
ROCKY MOUNTAIN SPOTTED FEVER	0	19	12
INFLUENZA	12	178	491
PNEUMONIA (All Forms)	88	998	1,114
CANCER	244	2,178	2,024
INTRACRANIAL LESIONS (Vascular)	202	2,421	2,407
HEART DISEASE (All Forms)	567	5,854	5,759
NEPHRITIS	164	1,833	1,938
PUERPERAL CAUSES	15	116	143
MOTOR-VEHICLE ACCIDENTS	74	499	454
ALL OTHER ACCIDENTS	98	1,213	1,311

The following causes of death for October are shown by city and county:

TYPHOID FEVER: 1 Lee. EPIDEMIC MENINGITIS: 1 Richmond city. DIPHTHERIA: 1 Buchanan, 1 Lynchburg (place of residence Campbell), 1 Halifax (place of residence Mecklenburg), 1 Patrick, 1 Princess Anne (place of residence Norfolk county), 1 Scott, 1 Tazewell (place of residence Buchanan). POLIOMYELITIS: 1 Richmond city, 1 Wise. Note: 1 Rabies occurring in Dickenson.



Buy Christmas Seals

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NUTRITION DURING PREGNANCY: A REVIEW¹

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THE nutritional requirements of women are considerably increased during pregnancy and they or their offspring may suffer serious consequences if the diet during pregnancy is inadequate. These groups will be among the first to show ill effects from food shortages, unless special provisions are made for them. Hence, the nutrition of pregnant women should receive priority consideration in wartime and in any plans for postwar rehabilitation. It seems timely, therefore, to review the advances made in our understanding of the nutritional requirements of the pregnant woman and the benefits which may be expected to accrue to both mother and infant through proper nutrition during pregnancy.

EXPERIMENTS ON ANIMALS

In the records of animal experimentation, illustrations of fetal damage resulting from prenatal dietary deficiency of various types are frequent. An early classical example is the work of the University of Wisconsin Agricultural Experiment Station (1) describing the effects of different rations derived respectively from corn plant, wheat plant, and oat plant, and a mixture of these upon heifers during growth and reproduction. The corn-fed heifers were the healthiest, sleekest animals of the lot, and gave birth to full-term vigorous young, normal in size, and able to stand and suck within an hour after birth. All of the young lived and developed normally, whereas the young of the wheat-fed mothers, whose coats were rough, were born prematurely, were small, and either were stillborn or died within a few hours. The mothers who were fed the oat plant or a mixture of the three grains were superior in appearance to the wheat-fed group but inferior to the corn-fed group, and their young were either weak or stillborn. The mothers were continued on the experimental rations and the following year repeated in all essential details their previous reproduction records. Later work (2) showed that the wheat plant ration could be made satisfactory by the addition of bone meal and cod liver oil. Sherman (3), in explaining the better results obtained with the corn plant, suggested that it furnished a ration more satisfactory for reproduction in one or more of the following factors: calcium, phosphorus, vitamin A, riboflavin, certain of the essential amino acids, and possibly vitamin D. Another early study is the work on fetal atrophy (4, 5), the hairless pig malady, which was shown to be due to a low iodine intake or assimilation. It is of interest that the resulting deficiency, usually causing the death of the fetus, interfered more with fetal development than with the health of the mother. Hale (6) has shown the relation of vitamin A deficiency to microphthalmia in pigs. These animals showed such other abnormalities as cleft palate, harelip, misplaced kidneys, and subcutaneous cysts. Hale concluded: "That maternal vitamin A deficiency results in congenital blindness seems very likely in the light of these experiments, but how and when the anomaly is formed are largely questions for the future. These experiments, however, do present a new field of thought and place diet during the early stages of embryonic development in a very important position."

The recent work of Warkany and his associates (7, 8) has contributed greatly to our understanding of the part which maternal dietary deficiency plays in congenital malformations in the rat. Warkany's most recent publication (9) shows with startling clarity that the dietary factor lacking in his "diet I," present in large amounts in pig liver and

already proved by him to be necessary for the normal prenatal development of the rat, is riboflavin. On a purified maternal diet, in which the vitamin B complex was supplied by pure crystalline substances, malformations of the pattern of "diet I," such as shortening of the tibia, mandible, fibula, radius, and ulna, fusion of ribs, fingers and toes, and cleft palate, appeared in the offspring when riboflavin was omitted. Of a total of 137 offspring, 33 were abnormal. When this maternal diet was supplemented with riboflavin in adequate amounts, the rats gave birth to 120 anatomically normal young and no abnormal young. Warkany states: "An inquiry into a maternal nutritional deficiency which manifests itself in the offspring differs from other investigations concerned with the finding of a vitamin or vitamin-like factor. The stores of the maternal tissues act as 'buffers' which prevent deprivation of the developing embryo as long as possible. In fact, it was assumed until recently that these maternal stores either protect the offspring completely, thus resulting in the delivery of normal young, or that in case of extreme dietary deficiency the embryos die *in utero*. Although there is some truth in this 'all or none' theory, it is not entirely correct. Between the two extremes there exists a narrow range in which maternal nutritional deficiency may result in arrest of the embryo's development without causing death. In this case congenitally deformed offspring may be the result."

EFFECTS OF GENERAL DIETARY DEFICIENCY IN HUMAN PREGNANCY

Evidences of damage to the human fetus from prenatal dietary deficiencies of various types are found in the literature. The work of Maxwell and his co-workers (10) has demonstrated that fetal rickets may result from prenatal nutritional deficiency. He presents in detail 16 cases of fetal rickets. Dunham (11) and Rector (12) have also shown that fetal rickets or rickets in the early weeks of life may result from lack of calcium, phosphorus, or vitamin D in the prenatal period. Maxwell (13) also cites a case of keratomalacia of both eyes at birth in an infant of a Chinese woman who had been on a diet markedly deficient in vitamin A. To reread a few of these older papers in view of our present knowledge of nutrition is most enlightening.

Toverud (14) has reported that x-rays of newborn infants show great variations in the calcification of the teeth. He states that this calcification is determined not only by the age of the fetus, but also by the nutritional and general physical condition of the mother.

In the *Indian Medical Gazette* (15) and the *Indian Journal of Medical Research* (16, 17) a severe type of anemia is described in which the maternal mortality was approximately 53 per cent; in addition, there was considerable infant mortality. Wills showed that this anemia was due to a deficient prenatal diet and that it was curable by the use of yeast extract. She further produced and cured the disease in monkeys by withholding protein and yeast and then feeding these. She also successfully treated a series of hospital patients. Her final conclusion was that this condition in the pregnant woman with the resulting high infant mortality was a simple dietary deficiency preventable by the consumption of protein of high biological value, especially meat, and, if working with a vegetarian population, the use of a yeast product. With our present knowledge of nutrition, it seems evident that these women were suffering mainly from a deficiency of the B complex and possibly protein.

¹ Received for publication September 20, 1944.

The balance studies of Macy and her co-workers (18) and of Coons (19) dealing with the metabolism of women during the reproductive cycle have added much factual data on the nutritional requirements in this period. Adair and his co-workers (20) state that the results of their recent metabolic studies of calcium, phosphorus, nitrogen, and iron made on 14 women at intervals during pregnancy were essentially similar to those reported many years previously by Macy and Coons. Oberst and Plass (21) have studied the calcium, phosphorus, and nitrogen metabolism of women during the second half of pregnancy; their paper contains a valuable summary table of such studies in the literature.

Several recent prenatal studies on large numbers of women, which have included evaluation of their diets, have indicated the importance of nutrition during pregnancy to both mother and fetus. The first report of this type to arouse considerable interest was the Toronto study of Ebbs *et al.* (22, 23, 24). One group of 120 women on poor diets and with low incomes were studied during the last half of pregnancy as controls for 90 women on equally poor diets and with low incomes who were supplied with milk, eggs, cheese, oranges, tomatoes, wheat germ, and vitamin D capsules, and 170 women with fairly adequate incomes who were instructed in the type of diet considered necessary for pregnancy. The incidence of miscarriages, premature births, stillbirths, and deaths before 6 months of age was significantly higher in the poor diet group. The women on the supplemented or good diets enjoyed better health, had fewer complications, and proved to be better obstetrical risks than those on the poor diets. These workers also state that, in a large proportion of the cases, one could identify the diet group of the mother by the appearance of her baby at 6 months of age. The increased incidence of minor and major diseases in the babies born of mothers in the poor diet group was apparently quite marked.

Williams (25) studied the nutrition of 514 women in relation to the course of pregnancy, the puerperium, and the condition of the infant at birth and found no relationships between the diet during pregnancy and the complications of pregnancy (except that "84 per cent of a group who presented a history of nausea and vomiting in early pregnancy had intakes below the pregnancy standard of 600 units of vitamin B₁"). He also found no relationships with the puerperium or incidence of stillbirths, prematurity, or neonatal deaths. It is my impression that the statistical handling of these data in many instances precluded significant findings. Apparently a nutrition intake for only one 7-day period was used as representative of the diet during pregnancy, and these intakes were not all at a comparable period of gestation.

The People's League of Health of England (26) investigated the effect of the nutrition of 5022 expectant mothers on maternal and infant morbidity and mortality. Fifty per cent of the women studied were given supplementary minerals and vitamins. The report of the study indicates that the supplementary feeding reduced the incidence of toxemia approximately 30 per cent and states that a similar reduction for the country at large would result in 10,000 fewer cases of toxemia in a year. The reduction in the number of premature births in the supplemented group was statistically significant. There was a trend toward higher birth weights in the group fed the concentrates. The study showed no significant correlation with length of labor or complications of the postpartum period.

Burke *et al.* (27, 28) have reported a study on 216 women to determine the influence of diet during pregnancy upon fetal growth and development as well as upon the course of pregnancy, labor, delivery, and the puerperium.

Detailed nutrition histories were obtained at regular intervals during pregnancy, supplemented by food records which the women kept. The diets were evaluated in relation to a set of nutritional standards which approximate values later recommended by the Food and Nutrition Board of the National Research Council. A statistically significant relationship was found between the diet of the mother during pregnancy and the condition of her infant at birth. In the 216 cases studied every stillborn infant, every infant who died within a few days of birth except one, the majority of infants with marked congenital defects, all premature and all "functionally immature" infants were born to mothers whose diets were very inadequate. A statistically significant relationship was also found to exist between the prenatal diet and the course of pregnancy; this relationship, however, was not so marked as that existing between the prenatal dietary rating and the condition of the infant at birth. No woman whose diet was rated good or excellent had toxemia, while among those whose diets were considered poor to very poor there was a 44 per cent incidence, and an 8 per cent incidence in the group whose diets were rated between these two extremes. No statistically significant relationship was found between the prenatal diet and the duration of labor. However, it is of interest that there were many more difficult types of delivery in the poor to very poor diet group despite the fact that these infants averaged almost 3 lb. lighter in weight at birth than the infants of mothers whose diets were good or excellent. No significant relationship was found between prenatal nutrition and the puerperium.

Balfour (29) reports a recent study in England and Wales in which 11,618 pregnant women chosen from the lowest income groups were fed a supplement of marmite or other yeast extract sufficient to furnish 240 I.U. thiamin daily or a proprietary preparation which furnished a rich supply of vitamins A and D, as well as calcium, phosphorus, and iron; 8095 pregnant women from the same areas served as controls. Both groups received additional milk so that the chief differences in diet between the two groups were in the concentrates fed. Any differences in parity, age, social and economic condition were in favor of the control group, and it can be fairly assumed that any favorable results in the fed group were due to the food supplements. The supplementary feeding of marmite or a similar yeast extract resulted in a statistically significant reduction in the number of stillbirths and in the neonatal mortality rate. While there was also a reduction in these mortality rates in the group fed the supplement rich in vitamins A and D and minerals, this was not significant. With either supplement there was also a slight but not statistically significant reduction in the incidence of toxemia and in the maternal mortality rate. Balfour states that, owing to the large number of cases studied and deaths observed, the differences in the stillbirth rates and neonatal mortalities in the supplemented group are significant beyond any reasonable doubt. The maternal deaths were few in spite of the large number of cases.

Dieckmann *et al.* (30) studied a group of 553 pregnant women to determine if additions of calcium, phosphorus, iron, or vitamins A and D to the diet had any beneficial effects on the course of pregnancy or ensured a higher incidence of normal infants. They concluded that "a study of the effect of the additions to the diet on the various complications of pregnancy showed some differences, but no definite conclusions could be drawn. The duration of labor was not shortened by the administration of vitamin D as has been suggested. The additions to the diet caused a significant increase in maternal weight. No significant effects were noted on the fetus that could be attributed to

changes in diet." A careful reading of the paper leaves the impression that the nutrition data included are inadequate to allow satisfactory comparison of the diets of the control group with the basic diets of the other three groups. In criticizing their own work and that of several others in this field, these authors state that "no one has had a large enough number of patients to make any changes which occurred significant." The work of Ebbs *et al.* (22), the Interim Report of the People's League of Health (26), the reports of Burke *et al.* (27, 28), and that of Balfour (29), all present statistically significant differences between good and poor diet groups and collectively would seem to prove beyond any reasonable doubt that adequate nutrition during pregnancy is an important factor in reducing the incidence of stillbirths, prematurity, and neonatal deaths.

EFFECTS OF DEFICIENCIES OF SPECIFIC NUTRIENTS

While space will not permit a detailed consideration of the specific nutrients, a brief discussion of some of the recent papers is included. For a discussion of earlier work the reader is referred to the comprehensive review of Garry and Stiven (31), and to certain general references (32-36).

Caloric Intake. The relationships between weight gain and caloric intake of the mother during pregnancy and birth weight of the infant have been subjects of controversy. Up to the present it has been generally accepted that the weight of the newborn infant is not materially affected by the diet of the mother during pregnancy, unless the diet is extremely deficient, or possibly excessive in calories. An average weight gain of 24.3 lb. was found in a study of 299 cases by Robinson (37), who states that this figure is in general agreement with reports of other American workers with the exception of Stander and Pastore who found an average gain of 30.7 lb. from the sixth week of gestation. Kerr (38) reports an average gain of 22.9 lb. in a case study of 500 normal primiparas and concludes that a tendency to increasing weight gains in pregnancy is associated with infants of heavier weight, but that the increase in infant weight (associated with increased weight gain in the mother) appears to have no influence upon the duration of labor. Kerr also reviews the literature on the effect of diet on birth weight of the infant and length of labor. Burke and co-workers (39) have found an average weight gain during pregnancy of 24.6 lb. for the series of women studied. The underweight woman who gained approximately the same or more than the normal or overweight woman during pregnancy gained more weight herself in relation to preconceptional weight and gave birth to a smaller infant; the very overweight woman consuming inadequate calories lost weight herself but had a larger baby than the normal or underweight woman with adequate calories.

Protein. Arnell *et al.* (40) have emphasized the importance of a diet well supplied with protein during pregnancy. In a group of 225 women in the New Orleans area they found "dangerously low intakes of protein" in 30 per cent of the Negro, 20 per cent of the white charity, and 10 per cent of the private patients. Only 3 per cent of the Negro, 2 per cent of the white, and 12 per cent of the private patients consumed daily an optimal amount of protein (85 gm.) as recommended by the National Research Council for pregnancy. These authors discuss the subclinical and clinical effects of protein insufficiency. Their results show a lower average hemoglobin and serum protein, a higher incidence of preeclampsia, a strikingly higher incidence of edema, increased maternal morbidity, and increased fetal mortality among cases on diets poor in protein, but they point out that, although these trends were found, no definite conclusions can be drawn without further investigation. A study of this paper shows also the apparent

difficulty of proving conclusively in human studies that a given nutrient is responsible for a given effect. In our own study (27) we found a statistically significant relationship between the incidence of preeclampsia and general prenatal dietary rating, but no significant relationship with protein alone. When protein was low in the diet, many other dietary factors were also low. We (41) also found in a group of 216 pregnant women that only 10 per cent consumed diets which met the standard for protein recommended by the National Research Council; 68 per cent of the diets contained less than 70 gm. protein daily and 38 per cent less than 55 gm., while 14 per cent contained under 45 gm. protein daily during this important period of rapid fetal development. A very significant relationship was found between the protein content of the mother's diet during pregnancy and the length of her infant at birth. For practical purposes this study indicates that less than 75 gm. protein daily during the latter part of pregnancy results in an infant who will tend to be short, light in weight, and most likely to receive a low pediatric rating in other respects. Here again in a human study it is impossible to prove that protein alone is the significant nutrient—it may well be that certain of the B vitamins, for example, associated in the foods with protein, are factors in this relationship.

Calcium and Phosphorus. It is an accepted fact that the intake of calcium and phosphorus should be increased markedly during pregnancy if the maternal organism's own stores are to be maintained, as well as the fetal needs met. Mention has already been made of the recent work of Dieckmann and his co-workers in regard to calcium, phosphorus, and vitamin D during pregnancy. Boelter and Greenberg (42) report that rats maintained from the time of weaning on a diet severely deficient in calcium failed to mate and that when animals which had borne at least one normal litter were transferred to a low calcium ration they showed a marked decrease in fertility and a lowering of the number of viable young. The mothers, even though they were deprived of calcium after growth was completed, if maintained on the calcium-deficient ration long enough, showed evidences of extreme calcium deficiency but the time of onset was delayed and the severity of the symptoms decreased. Pregnancy was not a great drain upon the calcium stores of the mother rat, although lactation reduced considerably the amount of skeletal calcium. The calcium-deficient young which were able to survive were almost normal at birth except for a low bone ash and bone calcium content. The deficient mother was not capable of providing enough milk to allow for the normal growth of her young. These authors state that "the maternal organism attempted to produce normal young in so far as that was possible and still maintain its own essential calcium supply."

Liu *et al.* (43) studied the calcium, phosphorus, and nitrogen metabolism of Chinese women with osteomalacia during pregnancy. As would be expected from our present knowledge of calcium retention, osteomalacic patients tended to retain more calcium and phosphorus in an attempt to replenish the depleted maternal store as well as to provide for fetal growth. In an attempt to find the actual level of calcium that may be considered adequate for pregnancy, these workers found that in the presence of an adequate supply of vitamin D the same degree of calcium retention was maintained on a somewhat lower intake of calcium, but that in severe vitamin D depletion a high level of calcium would not maintain the individual in balance. The conclusion was drawn that vitamin D is a more important factor than the actual level of calcium intake in determining the extent of retention, provided a reasonable amount of calcium is present in the diet. There seemed to

be a greater mineral conservation in these Chinese women than in normal pregnant women. It was suggested that when dietary habits accustom the subject to a lower intake the added requirement for reproductive activity will be correspondingly lower. The calcium requirement may well be conditioned by such factors as a previous skeletal store, dietary custom, and state of vitamin D nutrition.

In any discussion of the calcium and phosphorus requirements of pregnancy, consideration of the effect on the teeth of an inadequate intake of calcium and related nutrients is pertinent. Berk (44), in a report of the case histories of 198 five-year-old children at the Forsyth Dental Infirmary, showed that one of the factors significant in determining the difference in caries incidence in the two extreme groups (those children having 5 or less teeth affected with caries and those with 15 or more teeth affected) was the mother's milk intake during gestation. Unpublished data of Burke *et al.* (39) on 123 cases show a very significant relationship between the calcium intake of the mother during the latter part of pregnancy and the incidence of caries in the deciduous teeth of the child. Massler *et al.* (45), in a study of the calcification pattern of the teeth, found that until birth or the neonatal period calcification appears to be homogeneous and dense, while from the end of the neonatal period to 10 months of age it is not homogeneous and is easily affected even by subclinical disturbances. The decrease in quality of the postnatal calcification becomes increasingly marked until 10 months of age. They state that the enamel and dentin formed during the first 3 months of life show relatively better calcification than that formed during the subsequent 6 months and suggest that the fetal mineral reserves have not been exhausted in the earlier months. It may well be that a prenatal diet which allows for a liberal storage of calcium and phosphorus in the infant's body at birth is essential to the proper calcification of the teeth during the first 10 months of life.

Iron. Nutritional anemia in pregnancy is still too common, as attested by a review of recent literature. The National Research Council recommends a daily intake of 18 mg. iron in the diet during pregnancy. This figure assumes normal stores of iron and a normal hemoglobin level, while the average woman today too frequently enters pregnancy with depleted iron stores and a resultant low hemoglobin. Bethell (46) reported a 25.4 per cent incidence of anemia in a group of 484 pregnant women studied in a rural area of Michigan. Relationships were found between hypochromic anemia and a deficiency of dietary iron and between macrocytic anemia and an inadequate intake of protein.

The English literature contains several recent papers on hypochromic anemia of pregnancy. Davidson *et al.* (47) found an incidence of anemia (hemoglobin level below 70 per cent) in 24 per cent of 570 pregnant women studied in Edinburgh in 1942. These women showed slightly lower hemoglobin levels than a similar group studied in Aberdeen in 1935. Hamilton and Wright (48), as a result of a study of 392 women during the last two trimesters of pregnancy, conclude that iron preparations should be given routinely during pregnancy and that prenatal clinics should teach the pregnant woman to select and prepare iron-rich diets. In a discussion on nutritional anemia in which Mackay *et al.* (49) participated, the fact was deplored that there are no generally accepted standards with regard to the limits of normal hemoglobin levels for either adults or children, despite the intensive work on anemia in the past 10 to 15 years. They state that it is generally accepted that hemoglobin level is affected by economic status and diet and refer to the work of McCance *et al.* (50) who found a

steady fall in the hemoglobin levels of pregnant women, grouped by income level, from an average of 90 per cent for those in the highest to an average of 76 per cent in the lowest income group. The first group had an average daily intake of 15 mg. iron and 55 gm. animal protein; the lowest income group 9 mg. iron and 28 gm. animal protein.

The medical literature from India contains many references to anemia during pregnancy; macrocytic hyperchromic anemia is relatively common during pregnancy and is an important cause of the high infant and maternal mortality in that country. An interesting discussion of this subject is found in a study on 529 pregnant women (51). In an investigation of the important etiological factors in the development of severe anemia in pregnant women in Calcutta, considerable evidence of iron deficiency was found in the whole series of cases. Since the hookworm rate was negligible among those examined, the authors conclude that the cause of the iron deficiency was dietary. This iron deficiency, although widespread, was considered of secondary importance since the majority of cases, including the worst, were macrocytic in type. It is suggested that this anemia is also of nutritional origin because of its higher incidence in the lower economic classes and because in the richer classes macrocytic anemia is correlated positively with vegetarianism and its accompanying lower protein intake. Russell (52) reports 100 cases of macrocytic anemia in pregnant women on the Gold Coast. Here also the maternal mortality was high in the untreated cases, and there was a tendency in both treated and untreated cases toward premature stillbirth or death of the infant in the early neonatal period. The important factors in the etiology were thought to be temporary failure in the production or assimilation of the intrinsic factor, lack of the extrinsic factor or of riboflavin in the diet and/or a pre-existing hypochromic anemia.

In a brief review of the anemias of pregnancy, Dillon (53) concluded that in the United States hypochromic anemia during pregnancy is not uncommon and, although seldom dangerous, is nevertheless responsible for minor ailments and ill health in both mother and child and can be readily cured by iron therapy and a generous diet. He also urges determination of the hemoglobin level and red cell count as a routine essential of prenatal care.

Iodine. The only other mineral which may need especial consideration is iodine, since in regions where goitre is endemic the strain of pregnancy may result in deficiency symptoms in either mother or infant or both.

Vitamins. Pregnancy also increases the need for all the vitamins, but in this respect our knowledge is quite limited and much further investigation is needed before the requirements for the various vitamins can be stated with any degree of exactitude. However, the National Research Council (54) figures represent the recommended allowances and, if in the minds of some they seem too liberal, it is well to remember that in the absence of precise information it would be better to err on the side of liberality, since no harm will be done by consuming a moderate excess and considerable harm may result from lack of a specific nutrient essential for structural or regulatory purposes.

Lund and Kimble (55) concluded that plasma vitamin A values during pregnancy reflect in general the dietary intake of the vitamin. They found that as pregnancy progressed the plasma vitamin A value decreased, but the appearance of the decrease was delayed according to the adequacy of the diet. They suggest that storage of the vitamin, plus increased demands of pregnancy, probably accounts for the observed decrease in blood values, and recommend the addition of increasing supplements of vitamin A to an adequate diet during the second and third

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trimesters of pregnancy. Lund and Kimble (56) also reported that plasma vitamin A values in the newborn infant were independent of the maternal plasma values, regardless of the mother's intake, but that fetal plasma carotene varied regularly with maternal plasma carotene. These observations suggest that vitamin A, as such, is poorly transmitted from mother to fetus. Byrn and Eastman (57) reported, in a study of 247 pregnant women, no significant lowering of plasma vitamin A at term, although the level was somewhat below that observed in a similar group of nonpregnant women. These workers state that the lower figures for pregnant women may be due to increased nutritional requirement of pregnancy or may be a result of blood dilution. As in the study of Lund and Kimble, postpartum values promptly showed a tendency to return to average nonpregnant levels. Byrn and Eastman found substantial amounts of vitamin A and traces of carotene in fetal plasma, but they state that the problem of placental transfer of vitamin A is not clear. Bodansky *et al.* (58), in plasma vitamin A and carotene studies on 120 pregnant women, found that the mean value of the plasma vitamin A concentration in 70 women in the first two trimesters of pregnancy was significantly higher than the mean value in 62 cases in the third trimester. However, the mean value of the plasma carotene rose significantly during the sixth, seventh, and eighth months of pregnancy. They attribute the decrease in plasma vitamin A concentration in the third trimester to storage in the fetal liver and utilization by the fetal tissues, and apparently have further studies in progress in an attempt to determine whether vitamin A concentrates can prevent this decrease in plasma vitamin A. Certainly much further work is necessary before the vitamin A requirement for pregnancy is definitely known.

Little is known about the exact needs of the pregnant woman for the various vitamins of the B complex. Ebbs (34) has summarized the present knowledge in regard to these vitamins and the part they may play in pregnancy. The following from his summary is a picture familiar to all of us who have worked with similar cases: "We have been impressed by the changes which occurred when the intake of vitamin B₁ was doubled or trebled in women attending the antepartum clinic. Many of the minor aches and pains and numerous complaints disappeared. The mental attitude of many of these patients changed from one of apathy and discontent to one of interest in the outcome of their pregnancy." Lockhart *et al.* (59), using the excretion peak in the urine as an indication of the subject's thiamin status, found that approximately three times as much thiamin was required in titrating the excretion peaks during late pregnancy as was required under normal conditions. These workers suggest that the requirement for thiamin is increased threefold during the latter part of pregnancy. This study was conducted on only 16 women and the value of the excretion test as an actual measure of the thiamin status of an individual is still subject to further investigation. Polyneuritis of pregnancy has been recognized for some time by various workers as due to a deficiency of thiamin. While studying the nutrition of a group of women at the Boston Lying-in Hospital, the author was asked to take nutrition histories on two cases of severe polyneuritis of pregnancy. Both women had had very poor food habits over a long period of time and their diets were extremely low in thiamin as well as in many other essential nutrients. To this long history of poor food intake was added a period of extreme nausea followed by the onset of polyneuritis. Both patients were treated with vitamin therapy and a good diet as rapidly as they were able to take it. Both women had normal infants but neither recovered com-

pletely from the symptoms of paralysis until several months following delivery. These two patients also had low plasma values for ascorbic acid, low hemoglobin levels, and low red cell counts, showing that they were suffering from multiple deficiencies and that the polyneuritis which developed was merely the first specific clinical manifestation. We observed that considerable benefit was derived when thiamin was given to patients with nausea in early pregnancy and that it was helpful in many cases of pernicious vomiting. McGoogan (60) has reviewed the literature on severe polyneuritis due to vitamin B deficiency in pregnancy, and he reports 145 cases available for study. He concludes that pernicious vomiting of pregnancy may result in a vitamin B₁ deficiency with a severe polyneuritic syndrome.

The ascorbic acid requirement has been shown to be increased considerably during the latter part of pregnancy. The recent work of Lund and Kimble (61) substantiates the earlier findings of Teel *et al.* (62) regarding the fetal-maternal relationship of this vitamin, namely that the plasma level in the cord blood of the infant is always higher than that of the maternal blood and that when the latter value is low the difference between the two is proportionately greater. Lund and Kimble were successful in maintaining an adequate maternal plasma level in the latter part of pregnancy by diet alone, whereas Teel, Burke and Draper in 1938 had found that a diet containing only 50 mg. ascorbic acid would not do so. Plasma levels of ascorbic acid reflect the current dietary intake and not the degree of saturation of the tissues in general. At the time of the latter study it was not understood why women with extremely low plasma values usually showed no clinical symptoms of ascorbic acid deficiency, but it now seems evident that their tissues still contained sufficient vitamin C to prevent the appearance of clinical symptoms, despite their low plasma values. None of the published studies include any cases in which the maternal plasma value was zero so we do not know what the maternal-fetal relationship would be in such a case. It seems reasonable, however, to suppose that the fetus would suffer and that fetal scurvy could result if the condition persisted.

The literature lacks satisfactory evidence as to the vitamin D requirement during pregnancy. Until more exact knowledge is available, it would seem wise to follow the allowance of 400 to 800 I.U. daily recommended by the National Research Council.

Vitamin E is of interest in its possible relation to successful pregnancy. However, it has never been definitely proved essential to humans, and the possibility of deficiency in the average human diet is considered relatively remote. The relation of vitamin E to successful pregnancy is more a problem of medical than of dietary concern. Shute (63-65) discusses this problem.

Hemorrhagic disease of the newborn is prevented by administration of vitamin K to the mother either by mouth for a period of two weeks before delivery, or parenterally at the onset of labor. Since this is purely a medical problem, no attempt will be made here to cover the recent literature on the subject.

CONCLUSION

In conclusion it can be said that, despite still large gaps in our knowledge as to the exact requirements and functions of many of the specific nutrients during pregnancy, there can be little doubt that nutrition of the pregnant woman is sufficiently important to normal growth and development of the fetus and the health of the mother to warrant an important place in all prenatal care programs. That proper nutrition during pregnancy is an important

factor in reducing the incidence of stillbirths and early neonatal deaths has not been widely appreciated. If a good diet is a safety factor to the mother and preventive of certain forms of toxemia, that alone is extremely important, since toxemia is still one of the major causes of maternal mortality during pregnancy and an important cause of fetal mortality, premature births, and neonatal deaths. The benefits which may be derived from effective and intelligent nutrition teaching during pregnancy are overwhelmingly in favor of making this information a part of all prenatal care. Bethell (46) says: "The prevalence of suboptimal nutrition, as measured by present standards, and the degree of improvement after dietary instruction testify to the value of nutritional evaluation and therapy as a part of prenatal care for the population at large as well as for the distinctly underprivileged in large cities." He adds that, where hospital or clinic facilities are available, the cost of such services together with examination of the blood, as a part of standard prenatal care would be about five dollars per case. This would seem a moderate price to pay for increased maternal health, lowered maternal mortality, lowered infant morbidity and mortality, together with marked improvements in child health and development.

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MEDICAL AND OTHER CHILD CARE SERVICES
AVAILABLE IN MISSISSIPPI

MISSISSIPPI STATE BOARD OF HEALTH

FELIX J. UNDERWOOD, M. D.

EXECUTIVE OFFICER

STATE DEPARTMENT OF EDUCATION

J. M. TUBB

STATE SUPERINTENDENT

FOREWORD

Mississippi has made considerable progress in providing for the needy children of the State. This pamphlet was prepared with the purpose of furnishing a brief directory of the services of some of these agencies and the names and addresses of people who can be used as a source in securing the kind of care needed.

--Felix J. Underwood, M. D.
State Board of Health

--J. M. Tubb
State Department of Education

February, 1946

DIRECTORY

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Jackson, Mississippi

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SCHOOL HEALTH SERVICEGeneral Program

The State Board of Health and the State Department of Education jointly operate a Division of School Health Service. The duties of this Division include the supervision of health instruction in schools, the training of teachers in health education, supervision of a state program of physical education in the high schools and elementary schools, supervision of the federal lunch program, the provision of consultation services in problems of nutrition and health in schools and communities, and the making of nutrition surveys. Training in school nursing is furnished to health nurses and the other health workers. Teachers' workshops in health education are operated throughout the year in cooperation with the colleges and other educational institutions.

Medical Correction of Defects in School Children

Medical aid is furnished to school children through the medical service program. Each county in the state may obtain funds from the School Health Service to match local funds up to a limited amount. These funds are applied for through the local county health officer and administered by him. Children whose medical needs have been determined by a careful examination made by a competent physician will be referred to the county department of public welfare for a determination of financial need. Those children eligible for care are given the required medical services. Especial emphasis is being placed on the purchase of eyeglasses

for children with defects of vision that can be improved by wearing of glasses, the removal or treatment of tonsils and adenoids when the medical condition is so serious as to be dangerous to the child's health, the correction of hearing defects insofar as medical and surgical measures will improve or restore the child's hearing. These cases will be treated as well as other conditions harmful or dangerous to the child.

Source of Funds

The Legislature has sponsored this program through a modest appropriation. The P. T. A., Lions, Rotary, Kiwanis, and many other clubs and civic groups are giving money to help finance the cost of medical cases. County Boards of Supervisors are also appropriating for this purpose under the Child Welfare Law (Mississippi Code Annotated - Title 26 - Section 7159-7167 - Page 501). Physicians, hospitals, and clinics are cooperating. In most cases they are allowing reduced fees in order to make the funds go further in the correction of the defects of school children.

How to Secure Medical Care for School Children

Any child who is found in need of medical care should be referred to the local county health officer at the health department, where his application for aid will be considered. County welfare workers, principals, teachers in schools, and numerous other people are assisting in this case finding work.

DIVISION OF MATERNAL AND CHILD HEALTHGeneral Program

The Mississippi State Board of Health maintains a Division of Maternal and Child Health, which includes child guidance services, maternity services to expectant mothers and child health services through infant and preschool clinics. In addition the maternity program cares for the hospital and medical expenses of expectant mothers whose husbands are serving in the Armed Forces.

Child Guidance Center

The Child Guidance Center, through the services of its Psychiatrist, Child Psychologist, and Psychiatric Social Worker, offers diagnostic and therapeutic services to children through three to eighteen years of age. The Child Guidance Center offers these services at its Jackson office and through arrangement with the county health departments, branch centers have been developed. Admission is through referral of the family physician or by the school, parent, or community agency through their local county health officer. Each child must have a complete physical examination before referral. Physical examination blanks for recording the findings are available at the county health departments and at the Jackson Center. The types of disorders in which the center is interested are emotional disturbances such as:

Stealing
Night fear
Timidity
Withdrawal
Stuttering

Feeding problems
Thumb sucking
Agressiveness
Temper tantrums
Sex problems

There are no charges for the service of these centers and children are seen only by appointment.

Child Health Services

The sixty-five county health departments in Mississippi maintain monthly to weekly infant and pre-school clinics for well children from birth until school age. The services available at these clinics include physical examination, immunization, child health literature, dietary advice, examination for hookworm and instructions in child hygiene. There is no charge for these services. Detailed conference schedules for each county can be secured from your local county health department.

Mississippi Emergency Maternity and Infant Care Program

Infants from birth up to one year of age may secure sick child care by applying through their physician to the Emergency Maternity and Infant Care Program within ten days of the beginning of the illness. A veteran's child, born before his discharge, is eligible until it is one year of age. Service is available only to infants of men in the lower four pay grades (private, corporal, and buck sergeant). Hospital care in the 114 participating hospitals may be paid for. Well baby care and immunization for these infants is available through local health department child welfare conferences. Participation in the program by physicians and hospitals is on a voluntary basis. Physicians must accept payment from this program for all of the expenses of the infant's illness or for none of it. This is also true for hospital care.

MOUTH HEALTH ACTIVITIESGeneral Program

Mouth health activities are conducted through the County Health Departments by dental hygienists, and the supervisor of mouth health. The program includes instruction, inspection of mouths, and dental corrections with the emphasis on elementary school children. Parents are asked to send each child to school yearly with a dental certificate.

Correction of Dental Defects in Children

Full-time county health departments may secure dental corrections for children whose parents are unable to pay for the service. The plan is very similar to that for medical care. Local groups provide funds which are supplemented by the State Board of Health. Dentists cooperate in allowing reduced fees for the work. In case the dental correction program is not in operation in a county, the health officer and dentists should be consulted before initiating it. After eligibility of children is determined and work is completed, on the first of each month bills are rendered through the county health department to the State Board of Health on Request for Payment Form No. C.H.W.-431, showing:

- (a) Dentist's name
- (b) Number of hours worked
- (c) Dates on which work was done
- (d) Statement that one-half is paid by contributing agency

The bill is approved by the county health officer and sent to Dr. J. A. Milne, Director of County Health Work. Checks for one-half the amount will be made to the dental operator and sent from the State Board of Health to the county health officer to give the dentists with the local payment.

STATE DEPARTMENT OF PUBLIC WELFARE
DIVISION OF CHILD WELFARE

The Department of Public Welfare is responsible for the care and protection of dependent, neglected, and homeless children and children in danger of becoming delinquent. Through the Aid to Dependent Childrens Program financial assistance is available to children under sixteen (eighteen if attending school) in need, who are deprived of the care and support of one or both parents, and who are living in their own homes or in homes of relatives. This assistance is given on the basis of budgetary need but is limited by law to a maximum of \$15.00 for the first child, \$10.00 for the second, and \$5.00 for each additional child. Application for this assistance should be made to the local County Welfare Department in the county in which the child lives.

The Department of Public Welfare, through the County Welfare Department, provides services to children throughout the state who are in need of protection and attempts to develop and extend resources for the welfare of children. This involves working with all agencies which give services or care to children. The County Welfare Departments can integrate their program for children with the work of the County Health Departments by:

- (1) referring to the County Health Departments those children in need of available services;
- (2) making social studies to determine the financial need of children requesting treatments through the School Health Program;
- (3) accepting referrals from the Health Department of children who are in need of services not available through the Health Department in an effort to

develop suitable plans for their care.

There are nine private child caring institutions in Mississippi and the Department of Public Welfare works closely with these institutions; also children who are being sent to industrial training schools or Ellisville State School should be referred to the Department for social planning outside of their home. Unmarried mothers in need of maternity care should be referred to the Department of Public Welfare for social planning. It is the responsibility of the Department of Public Welfare to make plans for all children who need to be placed outside their own homes.

The County Welfare Department in each county should be considered the over-all agency whose responsibility it is to work with all agencies in the community for the protection of child-life and for the promotion of the welfare of children.

STATE DEPARTMENT OF PUBLIC WELFARE

DIVISION FOR THE BLIND

The following services are rendered by this Division:

1. All persons on public assistance from one to sixteen years of age may receive examinations, eye treatments. Eyeglasses are fitted on cases of cataracts.
2. Under the rehabilitation program, persons from sixteen to sixty-five years of age who qualify for rehabilitation may have eyes examined, treatments, and glasses.
3. For all blind people who qualify, medical and surgical care of any kind necessary to improve or restore sight may be furnished. This service is limited in general to people who have not better than 20/100 vision in the best eye.

MISSISSIPPI CRIPPLED CHILDREN'S SERVICE

A crippled child is defined by the Crippled Children's Service as any child under twenty-one years of age who is of average mentality with an abnormality that can be benefited or remedied by orthopedic or plastic surgery or allied treatment.

The definition of a crippled child means that the child must be of normal mentality under twenty-one years of age, and crippled or suffering from conditions which lead to crippling, in order to be eligible for care and treatment under the Crippled Children's Service. Such cases must be examined by a physician who will certify the case to the Medical Consultant of the Crippled Children's Service. He will, then, determine whether or not the physical condition is such as to lead definitely to crippling before the case will be accepted for care and treatment.

The principal type of crippling condition for which children are accepted under the State Service is infantile paralysis. Next in point of number is osteomyelitis; then follows congenital deformities, such as club feet, harelips, cleft palates, and crippling conditions due to infections and physical agents. A few of those due to nutritional disturbance and disturbances of innervation are also treated under the Service.

The only crippled children accepted by the Service are

those whose parents are unable to provide for them the medical service necessary for physical rehabilitation.

The Mississippi Crippled Children's Service accepts referrals of crippled children by school superintendents and teachers, county health officers and county health nurses, private physicians, county welfare workers, Red Cross field workers, local posts of American Legion, social service clubs, Farm Security social workers, interested individuals, and lay groups organized in the counties for special work with crippled children. These referrals may be verbal or in writing. Brief histories of the cases are then made out by the parents or guardians of the children on forms sent out for that purpose by the Crippled Children's Service, and are returned to their files accompanied by a brief statement as to the financial condition of the family.

The first service rendered the crippled child is an examination by an orthopedic surgeon. For this purpose thirteen clinic centers are located in different sections of the state, where an orthopedic surgeon and nurses go at stated intervals for examination of new cases and for a check-up of old cases. No treatment services are provided at the clinics, but thorough examinations are given, including x-ray if such service is indicated. Measurements for braces are taken, and type of and need for treatment are advised. Assistance in holding these clinics is always rendered by county health officers, county nurses, and local welfare and social workers. Because of limited transportation facilities, clinics are held at most

of these centers twice a year, making a total of twenty field clinics a year. Weekly clinics are held in Memphis, Jackson, and Mobile, which may be attended by crippled children from north, central, and south Mississippi who need clinic service more often than is given in the field clinics.

All hospitals used by the Crippled Children's Service are recognized by the American Hospital Association and were selected because the services of an orthopedic or plastic surgeon are available and because of the accessibility of these hospitals for Mississippi cases. About seventy-five beds are available for Mississippi crippled children in Jackson, Memphis, Mobile, and New Orleans.

Infantile Paralysis

Under date of September 1, 1941, with the assistance of the Governor and the Building Commission, a clinic was opened for recent and convalescent cases of infantile paralysis. Since that date, with the help of the Governor, the Building Commission, and the county chapters of the National Foundation for Infantile Paralysis, this clinic has been enlarged until it can now care for about one hundred patients who receive care according to the most recently accepted standards of treatment for infantile paralysis. Referrals to this clinic should be made directly to the county health officer, who will in turn immediately make arrangements for the case to be admitted to the clinic. This should be done at the earliest possible moment.

AMERICAN LEGION EMERGENCY AID

The American Legion has a fund appropriated for the purpose of granting temporary emergency financial aid to needy children of dead or disabled or sick veterans of the World War (the veteran must have served with the American forces during the period April 6, 1917, to November 11, 1918, and have been honorably discharged.)

Procedure in Applying for Emergency Aid

All applications for Emergency Aid must reach the National Child Welfare Division through YOUR DEPARTMENT CHILD WELFARE CHAIRMAN OF THE AMERICAN LEGION. He has the application forms to be used, known as "Application for Service and Assistance", which he will send to the Posts and Units upon request when you have a family for whom you wish to secure this aid. This assistance cannot be granted by the National Child Welfare Division without the approval of the DEPARTMENT CHILD WELFARE CHAIRMAN.

The application MUST be signed by the Child Welfare Chairman or another officer of the LOCAL AMERICAN LEGION POST. Applications cannot be accepted that have been filled out by the applicant, a member of the family, or a relative. It is the report of an INVESTIGATION, not a questionnaire. Fill this application out in full. We all know how important it is to everyone to have accurate record of dates of birth, dates and place of marriage of parents, etc., and these facts are important to both the children and the parents. Birth records are demanded when applying for employment, Survivors' Benefits, Old Age

Assistance, etc. All of these records are of utmost value when proving American Citizenship. The application you fill out for the family may be the only permanent record available from which to start verifying these facts.

AMERICAN LEGION AUXILIARY

War Memorial Building

Jackson, Mississippi

The same regulations and program is carried out by this organization.

SCHOOL FOR THE DEAF

As a state obligation it is assumed that every normal deaf child in Mississippi is entitled to the advantage of a high school education and to such vocational training as will enable him to become a useful, self-supporting citizen in his community. To discharge this obligation the school for the deaf was established 91 years ago and during this long and useful career has been maintained by state support for the education of all the deaf children living within the state of Mississippi. The aim of the school has always been to foster a well rounded program guiding and directing the total activities of all the children within its portals.

The education of the deaf is a long and tedious process. When the normal deaf child enters school at the age of 6 he has no word vocabulary upon which to build; he is in the same position educationally as the hearing child when only about 10 months old. The first three years of his school life is, therefore, spent academically in slowly building up a word vocabulary and in making such social adjustments as are usually formed by the normal child. After this preliminary training, the child is ready to take up progressive school work on approximately the first grade level and from then on advances normally at approximately the same rate as the hearing child. Their course of study is planned to cover the material found in the first ten grades in the public schools. The free text books supplied by the State are used as part of the course of study with other special courses in

speech and auricular training being adjusted to assist the students in overcoming their peculiar handicap.

In the United States at the present time there are various methods employed in educating the deaf - the Manual Method, the Oral Method, the Aural Method and the Combined Method. The Mississippi School for the Deaf has used the Combined Method and is still using this method to a great extent, but we are now inclining more to the Oral Method than we have in the past. Certainly, we do all within our power to train them to talk and read lips proficiently.

Application blanks may be obtained by applying to Robert S. Brown, Superintendent, Mississippi School for the Deaf, Box 1372, Jackson, Mississippi.

THE MISSISSIPPI SCHOOL FOR THE BLINDWho May Enter

White children, age seven to twenty-one, with fifty percent or more deficiency in vision, may enter the school. It is necessary for a child to have a statement from a physician saying that he has one-half vision or less. This means 20-100 on the Snellen Chart.

It is necessary for a pupil to have a physical examination before entering school. He must have enough intelligence to be rehabilitated. The physical condition of the child should be such as to enable him to receive vocational training. If a pupil is crippled to the extent that he cannot use his hands, it is impossible to teach him Braille and vocational work. The examination must show that the child is not afflicted with a contagious disease.

What the School Provides

The school provides free board and room, heat, lights, and water, laundry, and tuition. The school has a literary curriculum of twelve grades very similar to the public schools of Mississippi. The vocational program includes piano, voice, violin, band, orchestra, and vocational shop work for both boys and girls. In the shop work, the boys are taught to cane chairs, to make brooms, mops, and mattresses, and piano tuning. The girls are taught sewing, cooking, rug making, weaving, leather craft, etc.

Health Work

Through the State Department of Health and the Mississippi

Public Hospital the children receive examinations and treatment for the different troubles which they might possess. Through the Health Department and the Lions Club the teeth of the children are cleaned and filled each year.

ELLISVILLE STATE SCHOOL*

The Ellisville State School was established for the care and training of mentally deficient children. The enrollment averages approximately 350 children. The children are taught to keep house, sew, do needle work, cook, wait on tables, dairy, and general farming as well as truck farming. Most of the children are unable to do literary work, but some attempt is made to teach and train them.

The children come from every county in the State. Children who improve sufficiently or can have adequate care are released from the institution. Information in regard to the admission of children can be obtained by writing Dr. T. Paul Haney, acting superintendent, Ellisville, Mississippi.

*Information from Biennial Report of Eleemosynary Institution, 1941-43.

MISSISSIPPI INDUSTRIAL AND TRAINING SCHOOL*

About 30 years ago Mississippi established at Columbia the Industrial and Training School for delinquent children. The average population of the school is approximately 250. The institution has facilities for teaching children in regular elementary, junior high, and senior high school work. The social service department studies the needs of each child on admission and assists in making plans for his training and welfare while at the institution. The children's worker has as her chief objective service to the children and is partly sponsored by the Division of Child Welfare of the State Department of Public Welfare. She makes plans for the children when they are ready to leave the school and assists in making placements in homes or with relatives of the child. She also assists in finding employment or foster homes for the needy children.

The institution has a hospital with a full time nurse and attendants and a part time physician. Information in regard to admitting children to the Mississippi Industrial and Training School may be secured from the County Child Welfare worker, the County Department of Public Welfare, or by writing to the superintendent, Mr. M. P. Bush, Columbia, Mississippi.

*Information from Biennial Report of Eleemosynary Institutions, 1941-43.

NEGRO JUVENILE REFORMATORY

Oakley, Mississippi

This new institution for taking care of Negro delinquents between the ages of nine and eighteen was opened the latter part of the year 1943. At first, it was opened in temporary buildings until the new buildings could be constructed. Much difficulty was encountered in erecting new buildings, owing to war conditions. Finally, however, the board of trustees was able to complete six new buildings -- two dormitories for boys, a dining hall, a chapel-trades school building, an administrative building, and a health center. These buildings are of plain construction but comfortable and adequate.

The present enrollment of the institution is only about sixty boys, no girls. This small enrollment is due to the fact that an inadequate budget for the biennium made it necessary to limit the number of inmates.

Superintendent G. W. Williams has an excellent program of training for the inmates of this institution. The purpose of this training program is to take Negro juvenile delinquents who are capable of being trained and disciplined and made into decent law-abiding human beings. The program is one of work in the acquisition of skills, and also study in the basic tools of learning. Ample opportunity is provided for recreational and moral training. Religious services are held each Sunday.

This institution is meeting one of the greatest needs in the state. Every circuit court district and all county judges from time to