animals the silver pigmentation would undergo no change. Thus we would be able to show conclusively the efficacy of hexamethylenamin in this condition. This we were unable to do.

The action of hexamethylenamin given over a comparatively long period of time is not so clear, as in all animals there is a marked tendency toward the spontaneous absorption of the silver pigment. In the dog and rabbit over half of 0.4 c.c. of a 5 per cent. solution of argyrol is absorbed in about two months. Thus the control animals were of little value to us as a measure of comparison with the treated animals.

In our first experiments the pigmentation apparently cleared up more rapidly in the treated than in the untreated control animals, but in our later experiments we were unable to see very much difference in the rate at which the pigmentation cleared up. In no case were we able to completely clear up the pigmentation by injection of hexamethylenamin.

SUMMARY

1. A very unsightly permanent pigmentation of the skin may follow the local use of argyrol and the various other organic silver preparations.

2. The use of freshly prepared solutions of argyrol does not diminish in any degree the danger of argyria.

3. The bluish green or slate gray color is not due to a bluish green or slate gray color of the silver deposits, but to the fact that the dark brown silver deposits appear bluish green or slate gray when seen through the uninvolved translucent epidermis.

4. The occurrence of localized argyria following the use of argyrol, protargol, etc., is uncommon, but the resulting blemish is so unsightly that every care should be taken in the use of these substances. The solutions should never be forcibly injected into any cavity or canal as the tear ducts, urethra, etc., and should not be applied when the skin or mucous membrane is not intact.

5. The general opinion is that the condition is irremediable. The conclusions drawn from this paper warrant a more hopeful prognosis.

6. Local measures, such as blistering and electrolysis, are possibly of some value in causing an inflammatory reaction that favors absorption of the silver deposits.

7. The hexamethylenamin treatment should be given a trial in every case of argyria due to organic silver compounds.

ABSTRACT OF DISCUSSION

DR. WILLIAM A. PUSEY, Chicago: I have had occasion to see some of the cases of localized argyria produced by the injection of argyrol into the lacrimal duct. I am greatly interested in Dr. Olson's suggestion of hexamethylenamin. I always thought the condition beyond relief, and I am glad to know of this possible means of improving it. While he was talking of deposits of silver in the tissues, I thought of some other accidents which have come to my notice of essentially the same character. In the case of argyria, a soluble silver salt enters the tissues and is deposited as an insoluble form of silver. It is really a tattooing from within. I have seen three or four very unpleasant accidents from the precipitation of insoluble substances which have been used on ulcerated skin surfaces as local applications. The most striking case of this sort was that of a woman who came to me a few years ago with an eruption over her shoulders which looked like a follicular purpura. A solution of copperas—sulphate of iron—had been used as a local application, with a resulting deposit of iron oxid in the corium. The skin had healed over this and there was left a permanent deposit of iron oxid in the skin, tattooing it a dark mahogany red. In

sections it was proved with a potassium ferrocyanid reaction that this deposit was iron. I have also seen a white tattooing of the skin from solutions of lead acetate on surfaces where the epidermis in spots was completely destroyed. The use of local applications, therefore, which may deposit insoluble substances in the corium, if there is superficial ulceration of the skin, is always attended with risk of accidental pigmentation after it.

DR. WILLIAM B. TRIMBLE, New York: Like every one else, I have heard of a number of cases of pigmentation about the eye following the use of argyrol, but know personally of only one case. In this patient as I understood it, the argyrol was injected in the lacrimal duct and caused the heavy pigmentation under the eye. My main reason for entering the discussion, is to call attention to the fact that I have tried on two occasions to produce pigmentation in isolated patches of leukoderma by the use of argyrol. The argyrol was diluted until, in my judgment, the proper shade was produced, and then injected under the skin. It was unsuccessful in both attempts. Seemingly, it is hard to produce pigmentation when it is desired, only to have it occur at times when one is least suspecting it.

It occurred to me that exposure to air might have something to do with the process, and the reason for the failure of argyrol to pigment when injected subcutaneously was probably due to the fact that it did not come in contact with the air. In injecting it in a suppurating lacrimal duct it is exposed to the air, and perhaps also to some rays of light.

DR. GEORGE MANGHILL OLSON, Minneapolis: The treatment with hexamethylenamin was tried on only two patients. The experimental work was not conclusive.

Regarding the absorption of the argyrol, of which Dr. Trimble spoke, there is no question that in many cases the patients recover spontaneously. Only a certain percentage of them remain permanently pigmented. In my patient the pigmentation remained four years. Most of the slight cases due to argyrol, especially about the eye, clear up in one, two or three years without any treatment.

THE RELATIVE VALUES OF PUBLIC HEALTH PROCEDURES *

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What constitute the most effective lines of effort is the most vital question confronting every public health administrator. Money is the measure of most effort, and appropriations are limited. In what way shall the appropriation for the health department be expended so as to save the most lives and prevent the most sickness? Are our municipal health departments making the best apportionment of their funds? Are health officials devoting the most effort to that which will best conserve the health of the people? If any city is doing this, it has a model health department.

Certainly many cities are not doing it. It is hard to break away from tradition. Most persons think largely in terms of the past. Institutions are of slower growth than knowledge. It is a pity that they cannot be kept in closer alinement. Though it would be sad, indeed, to chase every pseudoscientific will-o'-the-wisp that happens across our path, it is even worse to cling tenaciously to the dead ashes of discredited theories.

Modern municipal health work began at a time when it was believed that municipal house cleaning was the chief, if not the sole, legitimate field of official sanitary activity. Sanitary science has progressed by leaps and bounds. Sanitary administration has been a laggard. It would be most interesting to see what sort

* Read before the Institute of Medicine, Chicago, April 24, 1917.

of health department would be organized if all tradition could be ignored. Given an appropriation of, say, 75 cents per capita, how would a commission of modern scientifically trained and experienced public health men organize a health department, if they were permitted to discard tradition and take cognizance only of the present day findings of sanitary science? Our health departments are not made in this way. They are the result of growth. One function after another has been grafted on the original duty of nuisance abatement, but the growth has not been well balanced. Health work does not extend according to any well thought out plan, but one duty after another is added, now by this person and now by that. Sometimes the health department is expanded at the instance of a group of earnest reformers having much sympathy for human ills, but little versed in medical and sanitary science. Sometimes a city councilman, getting his knowledge from the syndicated science of his Sunday paper, assumes to tell how the health department should be run. Again, it may be the new health officer himself who, in order to justify the political overturn of his office, seeks to reorganize the health work of his city after a few hours' study of some passing book on "sanitation." Rare, indeed, is it that competent advisers are called in to plan a health department so as to utilize most effectively the best scientific knowledge of how to preserve the health of the city, and it is more rare still for the politician to permit such a plan to be put in practice.

RELATIVE VALUES

Even those health officers who have given the subject much careful consideration do not feel sure of the relative values of different lines of health work, and it was to help clarify my own ideas as well as to assist in what I believe will be a helpful discussion that the attempt was made not long since to assign numerical values to the various functions of a municipal health department. It is said that no science can progress unless accurate measurements are made of the things dealt with. In accordance with this idea, it seemed desirable to indicate by figures the value of garbage disposal and of the diagnostic laboratory, of plumbing inspection and of baby nurses, and thereby learn how to apportion the funds and energies of the department.

In attempting to make such a distribution we must constantly bear in mind that the appropriation cannot be exceeded. A certain percentage of the funds may be set aside for contagious disease work, a certain percentage for school inspection, a certain percentage for vital statistics, and so on, but they must all add up to 100 per cent. exactly. If we should yield to the behests of every enthusiast, championing his hobby, the sum might be 200 or 300 per cent., resulting in a most uncomfortable deficit. So, too, time and strength are limited, as well as money. No man can work more than sixty minutes in an hour. To assign values to functions, so that time and money may be apportioned accordingly, is the purpose of the schedule here presented.

Unfortunately sanitary science is as yet far from an exact science. Its measurements are crude. For many things we have no measurements, but only estimates or guesses. It is desirable, however, to correlate even our guesses.

The table of values is intended to indicate the relative importance which should be attached the func-

tions which are commonly performed by a health department in any average northern city at the present time. The apportionment must vary somewhat according to location, stage of sanitary development, character of the population, etc. In the South, where there are much hookworm, typhoid fever and other diseases spread through fecal infection, excreta disposal must receive special attention. Where *Anopheles* and *Stegomyia* abound, antimosquito measures come to the forefront. If the rodents of a city are plague infected, or likely to become so, the rat must be fought. A well sewered city can appropriate money for other lines of work which in less fortunate places must be devoted to the never ending task of privy sanitation. Every city must plan its health work to suit local conditions, but there will probably be only minor variations from the generalized type.

Experience is the best teacher. Methods which have been successful in the past must be followed in the future. There has been a marked decrease in the death rate during recent years, but it has not been all along the line. The bulk of the improvement has been confined to a few diseases. Thus in Providence,

TABLE 1.—RELATIVE VALUES OF HEALTH WORK

	Vital statistics	60
	Education	80
	Laboratory	50
	Control of nostrums	50
	Care of sick poor	50
Food.....	Adulteration	0
	Sanitation	10
Milk.....	Adulteration	3
	Sanitation	17
	Privy sanitation	60
	Housing	20
Nuisances.....	Plumbing	10
	Nuisances	10
	Refuse removal	0
	Fly and mosquito control	10
	Nurses	80
	Supervision of midwives	10
Infant mortality.....	Babies' boarding houses	5
	Milk stations	5
	Consultations	20
	Prenatal clinics	10
	School inspection	80
	Home isolation	100
Contagious diseases	Hospitalization	50
	Immunization	50
	Veneral diseases	20
	Nurses	60
Tuberculosis.....	Dispensaries	40
	Hospitalization	40

1,000

in sixty years, there has been a decrease in the annual number of deaths amounting to about 600 per hundred thousand living and confined practically to typhoid fever, smallpox, scarlet fever, diphtheria, tuberculosis, diarrheal diseases and other diseases of infants.

It is not for a moment claimed that all of this reduction is due to conscious effort on the part of the community, though I believe that a good part of it is. Thus there has been a reduction in the death rate from pulmonary tuberculosis of about 240; but as it began long before any efforts were made for the control of the disease, we must believe that much of the reduction is due to unknown causes. As the decrease in recent years has been fairly rapid, and has followed well thought out methods of control, it is perhaps not unfair to assume, as I have done, that a drop of 65 deaths per hundred thousand may be attributed to present day methods of combating this disease. On the other hand, probably the whole of the decrease in typhoid fever is due to municipal effort. It seems fairly conservative to claim, as a result of community health work, at least half of the decrease in acute communicable disease above referred to which has

occurred in Providence. The figures in Table 2 appear reasonable as a statement of the deaths prevented by official control and also of the chief means by which the lives were saved.

TABLE 2.—MEANS OF SAVING LIFE

Typhoid fever	10	by direct control
Typhoid fever	50	by privy control
Scarlet fever	60	by direct control
Diphtheria	20	by direct control
Diphtheria	30	by free antitoxin
Diarrhea, over 1 year	15	by privy control
Tuberculosis, pulmonary	65	by direct control
Tuberculosis, other	15	by direct control
Infant mortality	70	by nurses, etc.
Infant mortality	10	by milk control
Total	345	

By putting the facts in a different form, it appears that community activities have been effective in saving these 345 lives in the ratios given in Table 3.

TABLE 3.—RELATIVE VALUES OF COMMUNITY ACTIVITIES

Direct control of contagious diseases	26
Direct control of tuberculosis	23
Antitoxin	9
Control of privies	18
Prevention of infant mortality	21
Control of milk	3
Total	100

These are old and tried lines of public health work, and must hold the largest place in apportioning the activities of a municipal health department.

There are many other activities, the value of which cannot be measured at all, or only in the crudest sort of way. Some of these we know are of great importance, while others are still in the experimental stage and, though we cannot tell just how much they are worth, must be given a fair trial. In our table of values they can be given only an arbitrary rating.

BASIC FUNCTIONS

Of fundamental importance is the collection and tabulation of vital statistics. It is only by this means that evils can be located and remedies found. It is as difficult to put a health value on vital statistics as it is for a merchant to put a money value on his ledgers; but as the merchant decides to expend on his book-keeping enough to get correct results, so the municipality must spend enough on its vital statistics to make them tell the truth. Perhaps this is fairly indicated by the relative values here assigned.

The education of the public in matters pertaining to health is another basic function, which, until recently, has been much neglected and is now often injudiciously performed. The leaders of thought and action in each community must be made familiar with the successes of modern sanitary science and the means by which they are obtained. To teach the politicians is another story; but if the leaders think the public health worth while, the politicians will, too. To reach the great masses of the people is more difficult still, particularly the foreign peoples in our cities. The literature which is read and digested by the thoughtful farmers and merchants of the country falls on stony ground in the foreign quarters of our cities. The movie may help somewhat, but the personal influence of the school-teacher, the nurse and the social visitor have thus far seemed to accomplish most. An arbitrary value must be assigned to this function also. One is tempted to write the figure large, but the knowledge that the sum of our values cannot exceed 1,000 reminds that we must not rob Peter to pay Paul.

The great leavening force in modern health work has been the diagnostic laboratory, the handmaid of epidemiology, as it has been called. To control disease, either by prevention or by cure, we must first find it. This the laboratory helps us to do. The remarkable apparent decrease in the case fatality of typhoid fever during the last twenty years or so has been due almost entirely to better diagnosis by the help of laboratory methods, so that many cases are now discovered and properly cared for which formerly would have been unrecognized. Not only has the laboratory taught us to recognize mild infections of typhoid, diphtheria and syphilis where they were not before suspected, but it has taught us by this experience to look for the atypical in other diseases, in which the laboratory can as yet give no direct help, as in scarlet fever and smallpox. Doubtless the laboratory in all our larger cities is continually saving lives, but there is no way of measuring this any more than there is for the merchant, to return to our former simile, to place a money value on his yardstick and his scales, yet he could not do business without them. The diagnostic laboratory is worth all that it costs, and perhaps its value is not unfairly indicated in the schedule.

The care of the sick poor outside of the hospital is not usually considered a health function. Yet there are a number of cities in this country in which it is performed by the health department. In one or two it is treated seriously, for there are some who consider it primarily a health rather than a charity problem. Sickness and poverty are closely related, and the poor, from both necessity and indifference, neglect sickness. To secure for them prompt and efficient care should save many lives and discover much early infection. About one quarter of the cases seen by the physicians to the poor in Providence are acute infections, and a considerable percentage of the others are such as usually come within the cognizance of a health department. This function must be performed efficiently. Slipshod methods, superficial examination and perfunctory prescribing are not much better than nostrum taking, pure and simple. As the medical care of the sick poor is in a chaotic, transitional and experimental stage, a moderate value has been assigned to it. It is not impossible, however, that in the not distant future the municipality will furnish or direct, by adequately paid physicians, medical service, and not only for the poor, but also for a considerable part of the population. This function should be performed by the health department so as to be properly coordinated with the other activities of that department.

THE NOSTRUM EVIL

Closely connected with the last subject is the elimination, or restriction, of the nostrum evil. If it is proposed to get rid of the latter, good medical service must be supplied in its place. The one common excuse of the poor for patronizing medicines is that they cannot afford to pay a physician. Conversely, I have confidence that a conscientious efficient medical service for the poor will do more than anything else to wean them from nostrums. This dual purpose is frankly acknowledged by those active in the restriction of venereal disease. An active campaign is waged against nostrums and the advertisers, and at the same time efficient clinics are organized. This combination, needed for the proper treatment of venereal disease, is probably needed just as much for all other diseases. The campaign against nostrums, which has

been waged so heroically by the American Medical Association, has also been entered into by some state departments of health. A few cities, too, have taken active measures to the same end. While energetic action is not always feasible, probably nearly every municipal health department could do something, and many of them could do a great deal to eliminate this sickness-prolonging and death-dealing evil. An experimental value must be assigned to this function also.

SANITATION AND FOOD CONTROL

According to popular notion, the principal functions of a city health department are sanitation and food control. When a health department is mentioned, most people think first of an inspector of nuisances. To them municipal housecleaning is the chief duty of the "board of health." Improved housing, plumbing inspection, garbage disposal, street cleaning, "clean-up week" and antily campaigns are even now, by our most intelligent people, considered the chief business of the health officer. If the latter does not put his whole heart and soul into such concerns, but neglects them that he may apply himself to the cure of syphilis, the provision of nurses for tuberculosis, the establishment of infant welfare stations, the prevention of blindness in babies, or the improvement of the eyesight of schoolchildren, he may find himself in marked disfavor.

Some municipal sanitation is of great and direct value in the prevention of disease. The improper disposal of human excreta is the chief cause of typhoid fever, cholera, the infectious diarrheas and dysenteries, and hookworm infection. Where there is no system of excreta disposal, as in some of the rural portions of our country, and where the summer is long, this subject may well, at first, have a large part of the health department's attention. In a thoroughly sewered northern city, with few privies, and decent housing, excreta disposal requires comparatively little attention. The inspection of plumbing is important from a health standpoint only so far as it relates to excreta disposal. We need good plumbing as we need good chimneys, and both are essentially parts of building inspection. So also, nuisance inspection, except as it relates to excreta disposal, is concerned far more with esthetics than it is with health. The odors of decay which strike terror to a careful housewife are really not half so annoying as the exhaust from an automobile, or the fumes from the oil on the macadam road. Neither will cause real sickness; nor are papers and tin cans in the vacant lot a source of disease. All these things shock our sense of decency, and they ought not to be; but why burden the health officer with the arduous task of remedying them? The police should do all that, but they usually decline.

In a considerable portion of our cities, the health department is charged with the removal of garbage and often of other kinds of refuse. This has only the most indirect and tenuous connection with health, though no one questions for an instant that it should be done and done promptly and well; but it is essentially a function of the department of public works.

Concerning the relation of housing to health, except for the grosser forms of bad housing, we know very little. That better houses encourage higher standards of living is probably true; that higher standards of living mean higher wages is not improbable; that the sickness rate decreases as wages advance is doubtless true, and that the restriction of crowding and an abun-

dance of light and air facilitate personal as well as household cleanliness and so check the spread of infection is quite likely to be the case. The beneficial effects of good housing on health are largely indirect. Much besides housing affects health indirectly. A good trolley system, industries that pay high wages, a clean city government, an effective school department, must all react favorably on health. If the health officer went into every scheme for civic betterment, his labors at reform would leave him no time to look after syphilis and tuberculosis, diphtheria and ophthalmia. He had best concentrate his fire where it will do the most good and where he is, or should be, most competent to direct the attack.

Much has been written about the fly and his wicked work. In some places he is more dangerous than in others. Where the summer is long and privies are many and there is much initial infection, this insect may be a considerable menace. It is difficult to see how it can be so in a well sewered northern city. Last year Boston had the lowest typhoid death rate of any American city, 3.5 per hundred thousand living; but Boston has not carried on any effective antily campaign. Providence has its full quota of flies, and is otherwise not a very clean city; yet our typhoid death rate has fallen from 69.4 to 5.1 by means of pure water, the abolition of privies and the following up of cases. The diarrheal death rate has fallen from 252 to 106. If we could get rid of all our privies and pasteurize all our milk, our typhoid rate might vie with Boston without our touching a fly. To exterminate flies is costly. If the people wish to pay for abating this nuisance, well and good. As a citizen I would vote for it; but if as a health officer I had \$10,000, I would not swat the fly but would open a venereal clinic, or hire some nurses for the supervision of tuberculosis.

In nonmalarial regions the mosquito, like the fly, is a nuisance, but not a menace to health, the mosquito should be held down to the lowest limit, and most citizens are willing to pay the cost. It may even be that the special appropriation would best be spent by the health department, as biologic knowledge is more likely to be found there than elsewhere in the city government; but it should not be counted as an expenditure for health. Of course, in a malarial region mosquito control is a most important health measure which has received altogether too little attention.

Another time-honored and popular means of promoting the public health is control of the food supply. This control naturally is divided into the prevention of adulteration and the promotion of cleanliness. Though there is much lurid literature on the dangers of impure food, as a general thing adulterants are as likely to be healthful as unhealthful. Adulteration, with rare exception, is an economic and not a health problem. There is almost as much nonsense written about ptomain poisoning as there is about adulteration. "Ptomain poisoning" is the popular name for disorders arising from bacterial changes in food. Of such we really know little except that they are not nearly so common as is believed, and that the routine inspection and condemnation of cabbages and corned beef, as practiced by our city health officials, probably has no effect in restricting the somewhat rare occurrence of such poisonings.

That food is not rarely infected with human secreta and excreta by those who handle it, and thus becomes a real factor of importance in the transmission of dis-

case is certain. It is worth while to try to check this, though the efficiency of some of the popular "sanitation" of markets and restaurants may be questioned. The elimination of infected food handlers also gives some promise, but its true value is yet to be determined. The small value here assigned may arouse protest, but who will argue that the laboratory is not five times as important, or baby nurses eight times as important, or the direct control of contagious diseases ten times as important as is food sanitation?

Milk should be considered apart from other foods. It is certainly of great importance in infant feeding, though the close dependence of infant mortality on the character of the milk supply has probably been considerably exaggerated. Many cities have markedly reduced the infant death rate without greatly improving the cleanliness of the milk. Doubtless the most effective way to eliminate the danger from milk is to require the pasteurization of all milk, or at least all except a limited amount of a certain high standard, for infant feeding. The watering of milk is an adulteration which does affect health, for a variable composition sadly interferes with exact methods of infant feeding, and likewise increases the danger of infection.

OTHER ACTIVITIES

Firmly believing, as I do, that all the medical activities of the municipality should center around the health department, I naturally consider the medical inspection of schools a proper function of this department. As a matter of fact, it is somewhat of a cooperative undertaking, and neither the school department nor the health department can properly carry it on without the free and generous assistance of the other. Tact and forbearance are needed on both sides to carry on this important work, no matter which department has it in charge. The vast majority of both teachers and medical men connected with school inspection are satisfied of its great value, but it touches school life in so many ways that a statistical demonstration of its benefits is by no means easy. Without such statistical data, it is difficult to assign a definite value to this function. The one given in the table is only tentative, and may well be subject to revision.

Another and quite new activity is the campaign against venereal disease. That this is of great importance no one denies; as to methods, however, we are still in the experimental stage. We do not as yet know what results can be obtained, though the future is promising. It does not seem unreasonable, as is here indicated, to devote 2 per cent. of the energies of the health department to this object.

ACTIVITIES WITH DEMONSTRABLE RESULTS

The sum of the values thus far assigned is 400. That is, to the activities of the health department which we have reason to believe are worth while, but the utility of which we cannot very well measure are allotted four tenths of the energy of the department. There are thus left six tenths, or 600 units on our scale, to be divided among those activities, the worth of which can be measured, with some degree of approximation, in terms of deaths prevented. These allotments are made in accordance with my judgment as indicated in the first portion of the paper.

While it is difficult to estimate the real worth of school inspection, that other branch of child welfare work known as the prevention of infant mortality has a value which is demonstrated perhaps more

decisively and accurately than is any other form of preventive medicine. In practically every instance in which a community has undertaken to save the lives of its babies, it has been successful. The chief means has been the education of the mother. Wherever that has been successfully accomplished, the infant death rate has fallen. Taking the actual reduction of eighty per hundred thousand of the population in Providence, and assuming that seventy of this is due to specific effort made for that purpose, we should, according to our plan, allot a value of 126 to baby welfare work; but as this is such a promising field I have ventured to steal a little from the control of contagious diseases, and as a final estimate, 130 has been allotted. How this shall be divided among the different kinds of infant welfare work will depend somewhat on individual judgment, and may soon change as a result of wider experience. Perhaps the division here indicated may receive a fair degree of approval.

The direct control of the communicable diseases by isolation and immunization was an important duty of the health department even in that period of the last century when the dominance of the filth theory of disease had relegated it to a subordinate place. According to the best evidence at hand, there has been a marked decrease in the amount of several important contagious diseases against which fairly active measures have been taken for a considerable series of years. In cities in which the records have been kept for from fifty to seventy years, and active restrictive measures have been carried on for some time, typhoid fever, scarlet fever, diphtheria and small-pox have shown a phenomenal decrease. That this decrease is due in large part to the measures which have been taken I believe is true. Even the decreased virulence, which is responsible for part of this decrease, I have elsewhere suggested is probably partly due to the selective restriction of the more virulent, and hence more easily recognizable strains, by our methods of isolation. Among methods of control, isolation in the home is probably the most important. To secure this, special medical inspectors or trained epidemiologists have the chief place, but visiting nurses are becoming more and more useful. It will perhaps be a surprise to some that the hospitalization of acute contagious diseases is not given a higher value, as it has often been alleged that complete hospitalization would stamp out disease. This, however, it fails to do because of the unrecognized sources of infection. Hospitals are needed and needed badly for those patients who are so situated that home isolation is impossible, or who are in need of hospital care. So far as the spread of disease is concerned, the majority of patients can be taken care of fairly well at home. The great expense of the hospital is justified fully as much on humanitarian as on sanitary grounds. Its value as a health measure is perhaps fairly indicated by the rating here given.

Vaccines and curative serums are most valuable in the control of infectious diseases. Experience has shown that the use of these agents depends in great part on the initiative of the city or state. In one way or another, by furnishing at low cost, or perhaps without charge, and often by administration, the sanitary authority can succeed in popularizing methods of prevention or cure which otherwise would be little used.

A modern campaign against tuberculosis makes use of many means, and is often correlated with various private agencies. Outside of diagnosis and general

education, perhaps the most important municipal activities are nursing, dispensary service and hospitalization. There may be a difference of opinion about the relative value of these, but the figures given perhaps fairly represent present day views. Certainly hospitalization, which a few years ago was considered of first importance, has been relegated to a secondary place.

It may be asked why the protection of the water supply does not find a place in this discussion. It might perhaps do so, but it is more properly a function of the state department of health to guard water supplies, though some of the larger cities have resources sufficient for independent action. It is rare that a local health officer has any management in water works. It is his important duty to show by his morbidity statistics whether or not the water is above suspicion. So, too, industrial hygiene is omitted because it also is more often, controlled by state officials. A number of newer activities, such as the campaign against cancer, or the degenerative diseases, or the prevention of mental disease, are omitted because it was deemed unwise to let this discussion get too far afield, and better to deal with actualities rather than with possibilities.

THE AIM OF COMMUNITY HEALTH WORK

It is particularly urged that the values here assigned are not final. Even among the most careful students of sanitary science there would doubtless be considerable difference of opinion. Some of these differences would disappear after free discussion. It is partly the purpose of this attempt at valuation to bring out such discussion. Minor changes might be made, but no discussion will ever demonstrate that plumbing inspection is worth more than baby nurses, or that swatting the fly is as effective as abolishing the privy vault. The purpose of the paper is not to enter a special plea for the exact values here presented, but to show the need for perspective in planning health undertakings. If relative values had been carefully considered, the ill balanced health department which was recently brought to my attention would never have grown up. In a city of 100,000, home isolation receives only such time as the health officer can spare from his executive duties, while money is available for six nuisance inspectors. There is a fumigator, but no diagnostic laboratory; three food inspectors, but no baby nurses; and several plumbing inspectors, but no welfare stations or prenatal work, and no Wassermann tests or venereal clinics.

The figures given in the schedule are intended to indicate, though ever so roughly, the real health-conserving value of certain common functions of municipal health departments. It is not intended that either money or time should be apportioned in exactly these ratios. The cost of an adequate hospital for the care of advanced cases of tuberculosis would be many times greater than a good system of dispensaries and follow up nurses. With limited funds, the dispensary and nurse comprise the most economical and effective undertaking.

If the health work of the future is to be successful we must remember first that the old, ill founded idea that health work is to be centered on the environment has been displaced by the modern one, well supported by the data of science, that it is concerned directly with men and women. We would all like to live in spotless, flyless towns. Streets should be clean, yards tidy, houses neat, every garbage can covered, the

cellar whitewashed, never a tin can on a vacant lot, every market white tiled, all bread wrapped in paper, and every laundry immaculate. This is for what we have campaigns and health weeks and for which appropriations can be obtained; but it would have little effect on the death rate. Mothers would continue to feed their babies with pickles and cookies; scarlet fever would spread; diphtheria would claim its toll; people would forget to be vaccinated; schoolboys would strain their eyes at their work; careless syphilitics would become paretics; ill treated poliomyelitis would make cripples; the man with "grip" would swallow tonics and cough medicines until he gave up work and his infant child died of tuberculous meningitis, and lifelong blindness would result from ophthalmia.

Municipal housecleaning will not cure these evils, but education, isolation and good medical care will. Community health work must have a broader outlook. It must do more than cleanse and isolate. It must make use of the best medical knowledge, not by stealing or begging it, but by paying for it, to prevent and cure disease. Many activities must be coordinated. Much has been done. There is more to do. Until there are unlimited money and unlimited talent available, let us earnestly study to do that which pays best.

PRIMROSE DERMATITIS AND ITS RELATION TO ANAPHYLAXIS *

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My interest in this lesion dates back one year or more, during which time I have been able to demonstrate that the primrose plant has been the exciting cause of at least ten cases of dermatitis. Like other American dermatologists I believe that this form of dermatitis is far from uncommon and is on the increase, probably owing to the growing popularity of the plant.

The *Primula obconica* seems to have been imported into Europe from China in 1883. Several years later it made its appearance in America, and since then several dermatologists in this country have made it and its resulting dermatitis the subject of some interesting papers. Foerster,¹ Zeisler² and Montgomery especially have given excellent reports and clinical data of cases under their observation. All of them, however, rely on one article (Nestler's³), for their analysis of the poisonous principle of the plant. Nestler was more or less of a pioneer, and though his observations were good as far as he went, his analysis was most superficial and limited. He did not say that the active poison was an oil, as some American abstractors imply and quote him as saying. He confined his description in this regard to what he termed poisonous material, which he repeats several times in his article, and then

* Read before the Section on Dermatology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Foerster, O. H.: *Primula Dermatitis*, THE JOURNAL A. M. A., Aug. 20, 1910, p. 642.

2. Zeisler, Joseph: *Some Uncommon and Often Unrecognized Forms of Toxic Dermatitis*, THE JOURNAL A. M. A., June 20, 1912, p. 2024.

3. Nestler's *Hautreizende Primelu*, Berlin, 1904.