

it in lesions of the brain proper. This has been observed by me in a number of cases of severe apoplexy where two or three weeks afterward there was a very distinct yellowish tinge to the cerebrospinal fluid. Also in two cases of cerebrospinal syphilis there was very marked xanthochromia. These cases afterward cleared up under specific treatment. In the cerebral lesions, and in the cases of cerebrospinal syphilis, however, the cell count was quite large, so that the compression syndrome which Dr. Ayer describes in his paper was not present. In deciding on the diagnosis of spinal cord compression this syndrome to which Drs. Ayer and Viets have called attention is a very important one. I would have much more assurance in advising a decompression by laminectomy when it is present. It is well for us to keep in mind that xanthochromia may be found in both brain and cord lesions.

DR. W. F. LORENZ, Mendota, Wis.: I concur that xanthochromia does not necessarily indicate a case of spinal cord compression. In two cases that came to necropsy a focal lesion was found, and the condition was evidently the result of former hemorrhage.

DR. CHARLES A. ELSBERG, New York: Up to the present time we have been unable to discover anything characteristic in the spinal fluid in spinal cord tumor. In thirty cases of extramedullary spinal cord tumor that I have operated on there was xanthochromia in six, but five of these six cases were tumors of the conus and cauda equina, the other was a tumor in the lower dorsal cord. In a considerable number of my patients there was neither an increase of globulin nor an increase in the number of cells, nor anything else abnormal. In other words, in at least one third of them the spinal cord fluid was absolutely normal in every respect. In the absence of abnormalities in the spinal fluid, therefore, there may nevertheless be pressure on the spinal cord. On the other hand, however, I have seen three cases of tumor near the cerebral ventricles, in which aspiration of the ventricle yielded a yellow fluid; in all three patients lumbar puncture also yielded a yellow fluid. Two of the cases came to necropsy, and were proved to be large tumors near the third ventricle. The third case, which did not come to necropsy, was operated, and the tumor was found. I do not believe, therefore, that the findings described by Dr. Ayer are absolutely characteristic of spinal cord tumor, although frequently present.

DR. JAMES BOURNE AYER, Boston: One of the speakers stated that xanthochromia occurred in other conditions, as tumors of the brain. I do not doubt it, but xanthochromia is not the syndrome. It is xanthochromia plus the other findings. We have had two cases showing yellow color, but with only very limited increase in proteins, one with many red blood corpuscles, the other with polynuclear leukocytes, both of which were unlike the fluids of cord compression. Dr. Elsberg is very skeptical in regard to the use of this syndrome. It is in differentiating certain other organic conditions affecting the spinal cord which may or may not be cord tumor, seen rather by the neurologist than by the surgeon, in which I take it the importance of this syndrome lies. We have not as yet found any cases of this particular syndrome either complete or incomplete, from brain conditions. On the other hand, we have one case, and doubtless will have more, as is the experience of Elsberg, Nonne and others, of cord compression from tumor with absolutely negative findings. What we recommend is to use this syndrome in connection with, and only in connection with, clinical findings, laying stress chiefly on positive findings. Dr. Skoog mentioned pressure, and I should have said more about the pressure. We measured the pressure in practically every case, and it was almost invariably normal. In one case the pressure was normal in spite of the fact that the patient had, besides his cord tumor which constricted the dorsal region, a brain tumor, which should have given a high pressure reading 400 mm. or more. This patient had 170 mm. pressure, which with our technic has been found to be normal. Dr. Ely's cases are exactly what would be expected. Syringomyelia certainly acts like tumor of an intramedullary nature. Dr. Mix's analysis was one of the best I have seen. But he does not seem to go any farther than did Mestrezat three years earlier; that is, he says the complete syndrome is neces-

sary to be of clinical significance. But if we wait until then, I think in some cases we will have lost our chance; we have to use the incomplete syndrome in helping us to make an early diagnosis of compression. In one case in which we had a series of punctures, the first one showed the syndrome in incomplete form. Operation was considered, but thought premature. A year and a half later the patient showed increase of symptoms, with increased intensity of the fluid syndrome; operation was then performed, and a tumor removed. It would have been done earlier had the significance of the incomplete syndrome been appreciated.

## MUNICIPAL HEALTH ADMINISTRATION\*

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So numerous and so excellent have been the papers on municipal health administration which have been presented before this Association and the American Public Health Association in the past few years and published in their respective organs, to say nothing of other able papers presented elsewhere, that it is scarcely possible to improve on work already so well done.

And hence, in accepting the invitation of our Chairman to discuss this subject before the Section on Preventive Medicine and Public Health, I did so with the distinct understanding that I might depart entirely from the usual method of presentation, the method followed in the splendid papers to which I have just referred, that I would not have circles and squares and connecting lines, or text of the kind which goes with such diagrams.

There is, it seems to me, one important phase of municipal health administration which may be profitably discussed at the present time. Following the suggestion in the address of our Chairman, I will at the outset state the idea which I wish to present for your consideration.

Sanitary science has advanced so rapidly within the past few years that no municipal health department can possibly do more than a very small proportion of those things which we know how to do, because we are held down in our appropriations and limited in the exercise of authority.

The next point is that conditions differ so greatly in our cities that the relative importance of the various problems of public health, as well as the methods by which these problems can best be dealt with, must also differ. In consequence of this, each health officer must formulate a working program of public health especially adapted to his own community, in order that he may devote his limited funds to those things which will bring the best returns; so that, just as he gets increased appropriations and increased powers, he may use them so as to accomplish the maximum amount of good.

In the preceding two paragraphs I have stated the theorem which I wish to discuss here today.

The development of sanitary science and of the practical means whereby we can give to the people the benefits of that development has been so tremendous in recent years as to be almost appalling. I am sure that every member here present who has tried to keep himself informed is conscious of the fact that there

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has been an immense broadening of our conceptions of public health work within the past two or three years; that we look on its possibilities today as tremendously more far-reaching than we did even that short time ago.

It is literally true that from the time a person gets up in the morning until he gets up next morning there is scarcely an act of his that has not its bearing on the health of that individual. And so we may look through the wide range of municipal activities and find that in every one of them the health of the community is in some way, directly or indirectly, involved.

But obviously no normally constituted person is going to give the consideration of health first place in everything he does. Equally obviously, no sane health officer would advocate the taking over of every municipal activity by the department of health, even though there be in every one of them a health element of one sort or another. In consequence of this it has long been recognized by health officials that there should be closer agreement as to what municipal activities should properly be under the department of health.

In a general way this is unquestionably desirable. But I wish to make it very plain that this is quite a different matter from attempting to formulate a standard plan of work for municipal departments of health. Indeed, to show that such a standard plan is neither desirable nor feasible is the chief contention of this paper.

Communities differ greatly in many fundamental conditions which affect profoundly the actual value and the relative importance of various health policies, and any attempt to work out a standard program for municipal health departments must result only in failure.

It is unnecessary to go into an exhaustive analysis of all the diversities which make it impracticable and undesirable to work out a standard plan for the organization and administration of city health departments. The most important of these diversities are the following:

- Size.
- Area.
- Population.
- Location.
- Geographic.
- Topographic.
- Industries.
- Character of population.
- Racial.
- Habits and customs.
- Language.
- Age distribution.
- Stability (immigration, floating population, etc.).
- Stage of development of health work.

The above list is not presented as complete. It is merely suggestive. Moreover, in many instances the topics overlap each other. Climate is dependent on location, both geographic and topographic, while both climate and location are important factors in determining the nature of industries, as is also the nature of the population. On the other hand, the nature of industries already established is a factor in further determining the nature of the population. Illustrations of such interaction are almost numberless.

Discussion of the factors given in the above list will not be entered into further than to illustrate the point which I wish to establish.

First, let us consider the size of the community. Were any argument needed to prove its importance it would be found in the fact that before we can intelligently discuss the subject of municipal health administration we must have it distinctly understood that no general plan of organization applies to our greatest cities, our large cities and our smaller ones.

Climate is of immense importance. In northern cities scarlet fever and diphtheria have far greater relative importance than in southern cities. In southern cities typhoid fever, malarial fever, hookworm, yellow fever, all intestinal diseases and everything affecting infant mortality have relatively more importance than in northern cities.

Topographic location is highly important. Nearness to a large stream or lake bears directly on the question of water supply, as does also the nearness and size of other communities upstream. The health work in a city, especially a southern city, located near swampy, low lands must differ decidedly from the health work of a city only a few miles away, but in the mountains.

As a simple illustration of the effect of topography, a city of a given size located on the seashore or on a great lake has to draw on a radius of seventy miles for its milk supply, while an inland city of the same size has to go only fifty miles to draw on an equal land area. One draws on only a semicircle; the other on a circle. This has a direct bearing on the quality of the milk supply, and hence on health, since it affects the freshness of the milk and modifies the work of the dairy inspector. The same principle applies to other fresh products of the farm, but these involve economic considerations rather than health.

Racial considerations must always be taken into account, especially in case there is a large proportion of negro population. We southern health officers despair of having our northern friends understand how fundamentally important this really is. We frankly admit that a considerable part of the excess of the negro death rate is to be explained by average inferior living conditions, but we further believe that, so far as the negro in our cities is concerned, the death rate, as a whole, as well as the death rate from many important causes, will remain higher than the rate among the white race, even under equal sanitary conditions.

The negro has been taken out of savagery and thrust into an alien civilization. In rural life the contrast is not so great, but in our cities, where the artificial conditions of life are frequently so trying on the white race, we believe that, even under equal sanitary conditions, the negro is distinctly handicapped. In its slow advance in civilization the white race has more or less effectively eliminated the unfit at every step. With the negro this process of elimination is still going on, actively and intensely.

Other communities have racial problems quite different. Our large seaports have a steady stream of immigrants, a large foreign element to deal with. This class cannot be compared with the negro element in the South, because, in a general way, the immigrant is of a hardy type and must be physically fit in order to get in, besides being at a very favorable age period. Nevertheless, a large foreign element presents its own peculiar problems.

A mixed population as regards language gives rise to special problems. By way of illustration, we have our problem of health education greatly complicated.

Public lectures can be understood by only one special group. Bulletins have to be translated into several tongues. But frequently this is not enough. Some bulletins at least will lose much of their usefulness if the same ideas are presented in just the same way, except as to language, to native Americans, to Russian Jews, to Italians, to Germans and to various people of unpronounceable nationalities. The very nature of the text must be changed. The ideas, as well as the words, must be made comprehensible and appealing.

Age distribution of the population is a differential point of great importance, more perhaps in a statistical way than in an administrative. It is absurd and misleading to compare crude death rates of communities without taking this into account. Many of our most important preventable diseases claim their victims largely at certain age periods. It is utterly misleading to compare the death rate from such diseases in a city which has grown by normal excess of births over deaths with that of a city which has grown rapidly by influx of young adults. In the latter case we have not only an especially favorable age distribution of the population, but, perhaps even more important, a large proportion of robust citizens, individuals with vigor and energy enough to pull up stakes and start life anew in another field.

The points which I have endeavored to bring out are, to repeat, only suggestive. The list of diversities which I have given is not itself complete, and not one of these diversities has been fully dealt with, to say nothing of the almost endless combinations of two or more of them.

I have tried to bring out the fact that these differences in fundamental conditions are far more important than is generally realized and that they should always be taken into account in formulating the health work which is done in any community. Held down in the amount of money which we may expend to an absurdly small sum, and held down also in our powers, we can do only a small fraction of those things which we know how to do, which we would like to do, and which it is harder not to do than it is to do.

We must realize that in addition to being well acquainted with the fundamental teachings of sanitary science and public health administration, we must make a special study of the peculiar conditions and needs of our own communities, in order that, as we succeed in getting a little more money, a little more power, we may apply that money and that power where they will accomplish most. If we fail to do this we do not only lessen our usefulness in our own communities, but, by our failure to do the best that we can do, we are also derelict in our duty of giving the fullest demonstration of the possibilities of intelligent public health work.

Every indication points to the fact that public health work, and especially municipal public health work, is to undergo a marvelous expansion in the next few years. Already we are beginning to get the people to see that a health department is not doing its full duty if it is merely reducing, no matter how greatly, the morbidity and mortality of certain diseases. Our new ideal is that every human unit shall be brought to the highest state of physical and mental efficiency. Within a very few years we will look back on the best of our public health work of today as almost ludicrously inadequate.

I suppose many of you have heard that within the past few months one of our greatest life insurance companies has appropriated the sum of one hundred thousand dollars to be used in fighting tuberculosis in some community of about five thousand inhabitants, or twenty dollars per capita to fight this one disease in this community, which I believe is not yet selected.

Only think of how this compares with the twenty or thirty or fifty cents which most of us get for all health purposes in our communities. It is purposed to make a demonstration with this fund. Nowhere yet in this country have we done more than merely scratch the surface in our efforts to control tuberculosis. It is proposed now to determine the result of doing everything we know how to do for the eliminating of tuberculosis in this single community. This, it seems to me, is one of the greatest things which has happened in the public health world in many a year. This demonstration will be of tremendous value, and it may be that within a few years it will be nothing unusual for municipal health departments to get at least one dollar per capita for all health purposes.

I wish, in closing, to emphasize again the undesirability of a standard health program for all cities, except, perhaps, in a few respects. Fundamental conditions are so diverse as to make this wrong in principle. Familiarity with local conditions is as essential to the health officer as is knowledge of sanitary science and practice. The working out of a health program adapted to his own community is the most fundamental, the most important and the most difficult administrative problem with which the municipal health officer has to deal.

The efficiency of the health department of any city is measured by the degree to which it is adapted to the needs of that particular community, and not by the degree to which it conforms to any arbitrary general standard.

#### ABSTRACT OF DISCUSSION

DR. GUY L. KIEFER, Detroit: With reference to the establishment of a standard for all communities, Dr. Levy is right when he says that this cannot be done, but I do think that it would be well for health departments in various communities to try to agree on what is really public health work. We hear of one city being allowed 30 cents per capita and another \$1 per capita, and yet the one receiving the 30 cents may be spending it all in actual public health work whereas the other includes in its budget any number of unnecessary expenses for activities only remotely connected with the public health.

DR. FRANCIS E. FRONCZAK, Buffalo: A point well taken is as to how much money we shall spend on public health work. In some places they spend as little as 15 cents per capita and get better results than in other cities where they spend a dollar. It is a question whether such things as street cleaning, supervision of plumbing and drainage, and public baths should be included in health work or not; yet, many health departments cover such work. We have, on the other hand, communities that apparently do not spend any money for medical school inspection, which in my opinion is a public health work of superior importance. There is no doubt that communities are spending more money for public health work and are incidentally taking up functions that do not properly belong to the health department; for instance—street cleaning, privy vault cleaning, supervision of water, water works, and in some places even both natural and artificial gas is under the jurisdiction of the health department, but I for one do not see where such utilities legitimately come under public health work. Another point well taken is the question of climate. In one place they spend a lot of money for the drainage of swamps to relieve the section from the breeding of malaria-

bearing mosquitoes, as they are doing at the present time around New York City and in New Jersey, and this is most essential and excellent work, and work that really comes within the sphere of public health activities. On the other hand, in other parts of the country, there is no such necessity. Down South they are spending a lot of money to eradicate hookworm disease. Up North we do not have this worm, yet down South this is a very important public health activity. In regard to the question of milk, because New York has the Atlantic on one side, she is obliged to reach out for her milk supply from a distance, tapping several states. In inland cities, on the other hand, where there is a supplying district on all sides, there is no such necessity, nor such expenditure. In case of New York City it is a very important public health work, and the money spent for the purpose is well spent. I certainly agree with Dr. Rucker that a certain amount of money should be spent in the education of the community on matters relating to public health. Most cities do not spend as much money for this purpose as they should. Money properly spent in health department bulletins is certainly money well spent in municipal public health education. There are many instances where it would appear to be a waste of good white paper to print them.

DR. I. M. RUBINOW, New York: Dr. Levy pointed out the impropriety of comparing death rates without further analyses of the population, as for instance, the death rate of infants, and he indicated the necessity of taking into consideration the makeup of the population not only by age groups, but also by racial groups. There is, however, a substantial danger there, and especially a danger for southern cities, because it might offer a very convenient apology for bad results of health work. There is a tendency not only among southern statisticians, but unfortunately among northern statisticians, to explain too much by the negro death rate. Not being a northerner or a southerner, but having lived in both parts of the country, I want to point out that if you do get a high negro mortality rate, there are probably some very substantial material reasons for it, which may or may not be available to the public health work, but should not be taken as a sufficient excuse because we are dealing with the negro population. I doubt whether any substantial biologic or medical reason exists to think that a mortality rate of various races, at least after some time of the climatization, is substantially different, if their living and their mechanical, medical and physical conditions are substantially equal. Too much has been said about the biologically high mortality rate of negroes.

For instance, to draw on my own experience, I visited Atlanta. I saw the white children in schools which were perfect buildings in every respect. I also saw a negro school housing 800 children, a frame building, with individual class rooms, heated by coal, with sanitary conditions so poor that a stench was permeating the entire school, and with very little facilities for play for the children. Now, if you are going to get in Atlanta a higher child mortality rate for negroes than for white men, I think it would be very poor vital statistics to blame it on the color or the race of the children. It is a very substantial danger statistically as well as from the point of view of public health.

A negro, besides being a different racial element, is also a different industrial element. His industrial hazards to health are different. He is a different economic element. His wages are lower, and his food is therefore poorer. His housing conditions are very much worse.

Ten years ago I happened to come across some very interesting statistics dealing with the Russian peasant. I succeeded in proving statistically that the mortality rate of the Russian peasant, which is very high, higher than that of the negro, varied in inverse proportion to the amount of land the peasant had; the more land they had, the less the mortality rate was. The average rate was about twenty-six, and it varied from seventeen to thirty-four, according to the prosperity of the community. If a similar investigation was ever undertaken, I think it would be established that the mortality rate of the negro would not be higher and could be reduced to the same level as that of the white race.

DR. CHARLES J. HASTINGS, Toronto, Canada: The most important phase of public health work is education. Dr.

Levy spoke of the amount of money that was expended by insurance companies in this connection. I think we agree that that is the most valuable lesson that the public is receiving, so far as administrators of public health are concerned, because the insurance companies are in it for the money that is in it. They know that money used in public health work is not an expenditure, but an investment. They know they are going to get big returns out of what they spend in that way or otherwise they would not spend it. If we can have the public properly educated along that line, and the members of our various boards of health, and those who are responsible for supplying the sinews of war in this particular work, then a great deal, probably nine tenths of the work, will have been accomplished. In regard to the great objection to uniform standards: If we strike a happy medium between discarding that altogether and accepting a uniform standard, we will probably be a little safer. I think, undoubtedly, that to have a uniform standard up to a certain point is extremely important. I heard at a discussion in a medical meeting not long ago some rural public health officers refer to cases of measles in which they were satisfied that the contagion was conveyed through a letter from across the Atlantic. Now, when there is that condition of ignorance existing, I think it is extremely important that there should be a uniformity in regard to what the real sources and modes of infection are.

Most departments of health are doing a tremendous lot of work on what are only very indirectly public health problems. I do not think that any intelligent health officer today thinks that garbage disposal, or sewage disposal, or street cleaning, or even plumbing inspection, etc., are directly public health problems, and yet municipalities are having that charged up as a per capita allowance for public health administration. I do not think that one of us could trace any single death, we certainly could not trace any communicable disease, to that in any of our municipalities. It is a duty of the department of health to see that that work is properly administered, but it should not be charged up to the department of health. There is other work that a public health department should undertake, and that is to realize the fact that in putting up a campaign against communicable diseases, or all forms of diseases, that it must be directed along two distinct lines, first, to prevent the disease germs from entering the body; and second, to build up and maintain the resisting powers of the body against these germs, should an invasion take place. In endeavoring to do the latter, we find at the very foundation of public health administration the social problems in the home. We have got to get into the home. We have got to ascertain the revenue of the home. In many cases when we trace up diseases to the home, we ascertain that there is a social problem there, that the revenue of that home has not been sufficient to do more than simply keep soul and body together. It should be the duty of the department of health to act as social agents, and refer these cases to the proper social organizations, and see that the social problem is solved, because until the social condition is remedied they have not got at the real etiology of disease.

In regard to education, my experience in Toronto has been that the first ones we are required to educate are our boards of health and members of our council. It is extremely important that we have every member on our board of health an enthusiast in public health administration. We want to get him to realize that he constitutes one of the custodians of public health. I have always made it a point to advise the chairman of the board of health that whenever there was an obstructionist in the council, to have him appointed on the board of health, and inside of three months that man would advocate public health administration. When we get the public properly educated, and get public sentiment behind us, we can do anything.

DR. O. P. GEIER, Cincinnati: I would like to ask Dr. Levy to comment on the matter of industrial hygiene in the modern department of health. Recently there was formed an organization of industrial physicians. It seemed apparent that there were possibly hundreds of thousands of men today under very definite supervision of the industrial physician. Now they must be making a very definite contribution to public health work, and it seems to me it is possibly the new note in

public health work where the first opportunity comes of doing intensified personal hygiene with the individual.

DR. ERNEST C. LEVY, Richmond, Va.: The point brought out by Dr. Fronczak and Dr. Hastings as to what constitutes proper activities for municipal health departments is just what I tried to bring out. As I stated, there is no civic activity without some health aspect. It is for us to determine what things the health department itself should do. Other matters having such intimate relation to public health as one of the things referred to by Dr. Fronczak, namely, the attention to privy vaults, need not be actually done by the health department, but the health department should by all means have such control over it as to see that it is efficiently done.

I cannot agree with Dr. Rubinow in some of the things he said regarding the negro race. I can only repeat what I have said, that it is only those of us who work in the South and are familiar with this problem who understand each other. As I tried to bring out, we do not say for one minute that inherent racial peculiarities are the only thing responsible for the high negro death rate, but we do say that these remain after you have done everything else that you can do; and I further qualify this by saying that this applies to our cities. I do not believe that in the country the difference between the death rate of the colored race and the white race is so marked. But it is in our cities, in spite of anything which we may do. Under equal sanitary conditions the negro death rate in cities is much higher than the white race. It seems to me there is, perhaps, one little discordant note in the discussion which was due to my not making myself understood. I do not think that we can standardize a complete working program of municipal health departments, but I do think that we can standardize each of the activities. We can have standardization of the various units of municipal public health activity, but the determination of which of these units we are going into depends on the factors I have discussed.

Dr. Hastings' account of the doctor who thought that a case of measles was brought by a letter from abroad is of course not an illustration of any need of standardizing our public health activities, but of the need for better education in sanitary science. I am very glad that Dr. Geier touched on the question of industrial hygiene. It strikes a new note in public health work. The future in this direction is tremendous. I do not know of anything more important. Unfortunately, few of us know much about it.

There is in my mind, however, even a newer note than that, and also a bigger one. Up to a few years ago we were content to have for our highest ambition the prevention of certain diseases. If we did not have people dying of typhoid fever or malaria, or one or another communicable disease, we thought we had done just about all we could. Nowadays our ambition is far higher. We are not doing enough if we simply keep the people from dying of disease which we class as preventable. The newer ambition of public health work is a community of strong, robust, aggressively healthy people, every unit in it developed to its highest activity of mind and body.

**Endemic Diseases and Mental Retardation.**—Not only does the continued presence of endemic diseases entail great economic losses to communities where they prevail by reducing the physical efficiency of a great part of the population, but they are also accompanied by a similar reduction in mental efficiency. These harmful influences continue to exist because of the general lack of information so common in rural communities concerning their cause and prevention. In a number of instances it is a difficult matter to secure the cooperation of the adult population, which is set and fixed in its habits, in measures intended to improve the community health. Health supervision of school children not only gives valuable information concerning the prevalence of these conditions, but it also exercises an educational effect on the rising generation, through whom the sanitary redemption of these communities is largely to be brought about.—T. Clark, *Public Health Reports*, Aug. 25, 1916.

## A FURTHER REPORT ON THROMBOPLASTIN SOLUTION AS A HEMOSTATIC\*

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Somewhat over a year ago, in a preliminary report on "Tissue Extract as a Hemostatic,"<sup>1</sup> it was stated that a very efficient hemostatic could be prepared from brain tissue, and that this preparation, which was termed "thromboplastin," had been found serviceable for local use in hemorrhage, especially in bleeding associated with true hemophilia. This substance is a solution and a fine suspension of ox brain in normal salt solution, with 0.3 per cent. of tricesol added in order to preserve it. Some months later a paper was published by Cronin<sup>2</sup> stating that he had made use of "thromboplastin" in a routine way in over 2,000 tonsil and adenoid operations which were performed in the clinics of the New York department of health, and that he found it of decided value in decreasing bleeding and the incidence of undue hemorrhage. For about a year the research laboratory has distributed thromboplastin solution to physicians and has collected reports on the results obtained. During this period I have also had many occasions to make further trials of its clinical value, and have also carried out numerous laboratory tests to determine more fully its various properties. It is the sum of these twofold experiences which forms the basis of this second report.

Thromboplastin solution has been supplied to several of the maternity hospitals of the city, where it has been employed locally in cases of melena neonatorum, in bleeding from the cord, skin, mouth, vagina, etc. It has also been used by physicians in these institutions as a dressing where there was undue hemorrhage following circumcision. The following two cases illustrate its application in melena:

CASE 1.—April 18, 1916, baby 1 week old, seen at the Bellevue School for Midwives, on the service of Dr. Austin Flint, showed numerous cutaneous hemorrhages, as well as some in the mouth, at the junction of the hard and soft palate. The main site of bleeding was the cord. There had been some bleeding from the bowel. Jaundice was moderate. Thromboplastin solution was applied to the cord, and the bleeding was checked and did not recur.

A case which is of particular interest on account of the persistence of the bleeding and the fact that numerous other hemostatics had been previously applied without result was the following:

CASE 2.—Jan. 15, 1916, a 5-day-old baby was seen on Dr. Edwin Cragin's service at the Sloane Maternity Hospital. The frenum of the tongue had been incised two days previously, and since this time hemorrhage had persisted. When seen, the infant presented some subcutaneous ecchymoses and a small hematoma of the scalp, and was evidently suffering from loss of blood. Various measures had been tried to check the bleeding. Human serum and whole blood had been injected subcutaneously. Locally silver nitrate had been used, tannic acid applied assiduously for a period of two hours, and clamping had been attempted. The bleeding persisted for two days in spite of all these efforts. Thromboplastin solution was applied locally with partial success. Following this a few cubic centimeters of the preparation (which had

\* From the Research Laboratory, Department of Health, New York City.

1. Hess, A. F.: Tissue Extract as a Hemostatic, *JOURNAL A. M. A.*, April 24, 1915, p. 1396.

2. Cronin, J. J.: Thromboplastin (Tissue Extract) as a Hemostatic, *THE JOURNAL A. M. A.*, Feb. 22, 1916, p. 557.