

section and the tumor found malignant. Its important service in this instance is most readily appreciated. If it is found benign, reassurance is given to the surgeon and those much concerned during such times. Where a diagnosis of malignancy is made and confirmed by the microscope during the operation the extreme extent of extirpation is aimed at fearlessly, restricted only by surgical dangers. Should in this last instance, as it does rarely occur, the report be negative, it seems the surgeon's duty to act upon his own diagnosis. This, of course, implies experience on the part of the operator in such diagnoses. If after removing detailed sectioning proves it malignant, the discrepancy at the time of operation was no fault of the pathologist in that the unit of tissue given him was what he reported, but formed no index to tumor's complete character. Should it be found benign the surgeon has acted to the best of his judgment and ability (*Errare humanum est*).

Thus it is seen that viewed from four standpoints it forms a valuable guide in two, a governor in one and a consideration in the last. Such results must be of value.

In fine, it must be remembered that the rush is in procuring the section and not in the diagnosis, i. e., it is a rush section, not a rush diagnosis. Once a properly stained section is obtained, the diagnosis is often, *prima facie*, simple and absolute. Positive diagnoses are absolute, negative reports place the responsibility upon the surgeon.

The New Orleans School of Tropical Medicine and Hygiene.*

By CREIGHTON WELLMAN, M. D., New Orleans, La.,

Professor and Head of the Department of Tropical Medicine and Hygiene, including Preventive Medicine, and Director of the Laboratories of Hygiene and Tropical Medicine, Medical Department, Tulane University.

(Studies from the Laboratory of Tropical Medicine and Hygiene, Under the Direction of Creighton Wellman, Medical Department, Tulane University of Louisiana.—No. 1.)

In the words of one of the greatest living authorities in the realm of statistics, "every fifty seconds a life is lost from preventable disease."

This means that, if present conditions continue to obtain, over six million lives will be needlessly destroyed in the United States during the next ten years. Prof. Irving Fisher, of Yale Univer-

* Read before the Orleans Parish Medical Society, March 11, 1912. This paper was also delivered as an Inaugural Address before the Faculty and Students of the Medical Department of Tulane University at the opening of the 1911-1912 Session, and repeated in part by request before the New Orleans Forum.

sity, has estimated, on the most conservative basis, that the knowledge which we already possess, if properly applied, "can add fifteen years to the present average length of human life." Contemplating this from purely a mercenary standpoint, that is, saying nothing of the suffering and sorrow involved, and regarding each life lost as worth only the amount earned by the average day laborer, in other words, appraising "each life lost at only \$1,700, and each man's average earnings for the year at only \$700, the economic gain to be obtained from preventing postponable diseases, measured in dollars, exceeds one and one-half billions annually."

It has been conservatively estimated that typhoid fever costs the nation \$350,000,000 annually (Kober).

Malaria costs us \$100,000,000 each year from deaths, loss of labor, reduced values in real estate and in other ways (Howard).

It has been estimated that the yellow fever epidemic of 1878 alone invaded 132 towns, caused a mortality of 15,954 persons and that the pecuniary loss to the country was not less than \$100,000,000 in gold (Wyman).

It is yet too early to secure accurate figures regarding the ravages of hookworm, but it has been estimated that "it costs South Carolina (alone) not less than \$30,000,000 per year" (Weston).

Fisher, after studying these appalling figures, concludes that "one-half a billion yearly could be *saved* from the present cost of illness." And it is cheering to reflect on some of the advances already made.

Cholera was wont to visit the cities of the Atlantic Coast in the past about every ten years, and it was a standing menace to the world every summer. It was not uncommon for the disease to decimate whole towns and cities (Ditman). To-day the disease is unknown in our country.

It has been said that the discovery that the mosquito is the carrying agent for yellow fever "is saving more lives annually than were lost in the Cuban war, and that it is saving the commercial interests of the world a greater financial loss each year than the cost of the entire Cuban war" (Leonard Wood).

The death rate is twice as high in India as in Europe. During my own lifetime the death rate has fallen in Berlin from 33 to 16 per 1,000, and in Washington from 28 to 19 per 1,000, and these differences are largely the triumphs of preventive medicine.

Little wonder that the universities, the states and the nation are waking to the enormous and needless waste of vitality and wealth still going on all about us, and that farsighted men are planning and giving for the purpose of preventing avoidable suffering and death. Little wonder that a distinguished physician has said "the highest aim of scientific medicine to-day is the eradication of preventable diseases" (Kober), and a great scientist has written that "preventive medicine is the watchword of the hour" (Rosenau).

Metchnikoff, than whom no greater exponent of these ideas is living, has said "to hygiene belongs without doubt the place of honor in modern medicine. It is in the prevention of infectious diseases that the interest of the medical art is now mainly centered," and in the recent report of the Carnegie Foundation for the advancement of teaching, Flexner writes: "The laboratory sciences all culminate and come together in the hygienic laboratory out of which emerges the young physician equipped with sound views as to the nature, causation, spread, prevention and cure of disease, and with an exalted conception of his own duty to promote social conditions that conduce to social well being." In his report on national vitality Fisher has well said that "the curricula of medical schools should be rearranged with greater emphasis on the training of health officers. Universities and research institutions need to take up the study of hygiene in all its branches."

Thus we see that the trend of scientific opinion and endeavor has set strongly toward the realization of Pasteur's noble dream that "it is within the power of man to rid himself of every parasitic disease," and one of the most cogent factors in the movement is, as it should be, a financial one, for, as Emerson said, "Health is the first wealth."

I mention these mighty opinions of great men that you may more fully realize what I am sure you have never doubted: that Tulane University, New Orleans and the South have made no mistake in the movement which we are discussing to-day.

In the South the great handicap of disease has been felt the most painfully because, in addition to all the sickness rife in the North, we have various tropical and subtropical scourges which add to the already too heavy burdens which have been laid upon a long-suffering humanity. And it is in the South that some of the greatest

triumphs of preventive medicine and the knowledge of tropical disease have been obtained.

It is, therefore, peculiarly fitting that a great movement for the study and conquest of disease, and particularly tropical disease, should originate in the South, and it was inevitable that New Orleans, the great port of the South, should be its location, and Tulane, the great University of the South, its sponsor.

The time was ripe for the movement and, as I shall show later, it has been everywhere agreed that our city and our university are the heirs of the future and the logical center of tropical medicine and sanitation in the Western Hemisphere. Sectional and institutional jealousies have been put aside in a most remarkable manner, and it is the unanimous opinion of the many distinguished scientists and educators who have been consulted regarding the project that New Orleans and Tulane are marked for a great and manifest destiny in the great work of educating the Western Hemisphere in the vital questions of ridding ourselves of the disease scourges which have too long hindered the commercial, social and moral growth of the many who look to us for guidance and help.

The venture upon which we have embarked is no novel idea, as you are aware. The Dean of the Undergraduate Medical Department of Tulane University has had the project under constant consideration for several years, as I personally know. In an address on Founder's Day, March 3, 1910, Dr. Dyer said:

"New Orleans is the logical point at which to study all the products of exotic types, including disease, and Tulane is the logical field for the investigation. Tulane should have a school of hygiene and sanitation. To such a school the future custodians of health in the South should come to be trained in methods of health, of food supply, of disease, and the means of its prevention. Tulane should be the selected site for the study of tropical diseases, and there should be a school of tropical medicine here under the ægis of Tulane. There is no other place for such a school on the North American Continent! The diseases come to our hospitals, to our port, and to our profession, which should be trained to know them. To-day Liverpool and London, with some of the large cities in the continental colonies of Great Britain, have such schools; in Manila the United States Government conducts such a school; and in each there is a great success. In the hurry of modern civilization a stray utterance in a public address may not linger long in the minds of those who hear or read, but there are many men and women in the South who might help to train physicians right. Tulane, in its Medical Department, has always been honored, and not burdened. The medical alumni have spread to every quarter of the globe."

I believe that many others, both at Tulane and in other parts of

the United States and also abroad, have been looking to New Orleans and the South for initiative in this work. Special mention must be made of Dr. Isaac W. Brewer, of the United States Army, who in May, 1907, published an article pointing out the great advantages of New Orleans as a center of education in tropical medicine for this country.*

Others have recognized the logic of the situation. After criticising various scattering and abortive attempts which have been made to establish schools or chairs of sanitation and of tropical medicine in impossible places—a chair of tropical diseases in some seaport town of Indiana, or courses in industrial diseases for students who will practice in the corn belts of Kansas and Nebraska—the Report to the Carnegie Foundation already quoted says: "We cannot ignore the patent fact that students tend to study medicine in their own states, certainly in their own sections. In general, therefore, arrangements ought to be made, as far as conditions heretofore mentioned permit, to provide the requisite facilities within each of the characteristic groups. There is the added advantage that local conditions are thus heeded and that the general profession is at a variety of points penetrated by educative influences. *New Orleans, for example, would cultivate tropical medicine.*"

This opinion, important as it is, is by no means singular. With your permission I will quote from some of the many letters received by the University:

Dr. J. W. Ames, University of Colorado:

"New Orleans is the logical center for such intensive work, and Tulane's reputation gives sufficient assurance of its success."

Dr. James M. Anders, Philadelphia, former President of the American Society of Tropical Medicine:

"It is with much pleasure and satisfaction that I learned your intention of organizing a School of Tropical Medicine and Sanitation in New Orleans. I have long since been fully convinced that such a school, conducted on broad, progressive lines, was greatly needed in this country, in order to meet professional requirements, more especially in view of the growing interest in the study of tropical diseases, and the increasing number of physicians who are entering upon the practice of medicine in our tropical possessions. Your project is to be highly commended."

Dr. Bailey K. Ashford, U. S. A., Porto Rico:

"Perhaps we must wait awhile and let the great and powerful City of New Orleans take the first and basic step; but there are many of us here

* *Vide* NEW ORLEANS MEDICAL AND SURGICAL JOURNAL for 1907, Vol. LX, p. 763.

who hope, with as yet no formulated plan, that a center of tropical medicine be founded in Porto Rico. My small voice, therefore, is lifted in support of the proposed School of Tropical Medicine in Louisiana."

Dr. Lewellys F. Barker, Johns Hopkins University:

"The country is to be congratulated that the Medical Department of Tulane University has decided to start a School of Tropical Medicine in New Orleans. There is urgent need for just such a school in America, and there could be no better location for it than in your city and under the auspices of your university."

Prof. F. E. Blaisdell, Medical Department Leland-Stanford University, San Francisco, California:

"I most heartily congratulate you upon the beginning organization of the New American School of Tropical Medicine. I consider the field one of great possibilities. The work that is to be taken up by your school is in its infancy. The benefits thus far achieved for mankind from a study of the relations which the lower organisms bear to man are but a hint as to what may be done."

Professor R. Blanchard, Ecole de Médecine, Paris:

"Sur l'opportunité de la création d'une Ecole de Médecine à l'Université Tulane, il m'est très agréable de vous exprimer mes plus chaleureuses félicitations pour la création projetée, et tous mes vœux pour son succès. La Louisiane se trouve aux confins de la zone tropicale; elle est, assurément, de tous les Etats de l'Union, le plus qualifié pour prendre une telle initiative. Je suis sûr que sous votre active et habile direction, l'Ecole nouvelle ne peut manquer de prospérer et de faire œuvre utile, tant au point de vue de l'enseignement, qu'à celui de la découverte scientifique."

Dr. Rupert Blue, Surgeon-General, United States Public Health and Marine Hospital Service:

"I am heartily in favor of establishing a School of Tropical Medicine in this country, and believe that New Orleans is the logical point for the location of such a school."

Dr. W. C. Braisted, U. S. N., Acting Chief of the Bureau of Medicine and surgery:

"New Orleans is a peculiarly appropriate place for the establishment of such a school, and the standing of the Medical Department of Tulane University is a guarantee that its newly-established School of Tropical Medicine will not fail to fill a long-felt want."

Dr. Anton Breinl, Director of the Australian Institute of Tropical Medicine:

"I have learned with great pleasure that you are organizing in New Orleans, in connection with the Tulane University, an American School of Tropical Medicine. I am perfectly convinced that an institution like this is absolutely necessary for tropical parts of the United States, and if the school is taken up along broad, scientific and practical hygiene lines, it will do no end of good for New Orleans and surroundings. I must confess that I have been rather surprised that an institute of this sort had not been started yet in New Orleans."

Dr. A. Calmette, Pasteur Institute, Lille France:

"Les hommes de science de tous les pays apprendront avec grande satisfaction la réalisation prochaine de votre projet d'institution d'une école de médecine et d'hygiène tropicales à la Tulane University de la

Nouvelle-Orléans. Votre Université est merveilleusement placée pour organiser cet enseignement dans les conditions les plus parfaites de telle sorte qu'il puisse non seulement remplir pour le continent Américain la même fonction éducatrice que remplissent en Europe les grandes écoles de Liverpool, de Hambourg, de Londres et de Paris, mais encore attirer de tous les pays vers vous les jeunes médecins Européens désireux de connaître et d'étudier la pathologie tropicale et subtropicale de l'Amérique."

Dr. Solomon Solis Cohen, Philadelphia:

"New Orleans seems to be admirably situated for such an institution, the necessity for which is so obvious that argument in its favor would seem superfluous. I should be very glad to know that you had succeeded in carrying out a project which promises so much benefit, not only to medical science, but to commerce, and, indeed, to all human relations."

Dr. C. W. Daniels, Superintendent London School of Tropical Medicine:

"The need for such an American school is well known to us, as so large a number of Americans have come to our school in London, and though we shall be sorry to miss any of them, we quite realize that they can only represent a small section of those who could and should attend some good course, and to come to England for the purpose is expensive, both in time and money, and with your chances in New Orleans I have no doubt of the success of your venture."

Dr. Ralph T. Edwards, Late Director Government Serum Laboratories, Siam:

"New Orleans is, to my mind, the place for such a school in America. I certainly hope there will be no lack of moral and financial support of the movement."

Mr. Abraham Flexner, Carnegie Foundation:

"I believe this effort is distinctly in the interest of science and humanity."

Dr. Gedoelst, School of Colonial (Tropical) Medicine, Brussels:

"J'ai été fort heureux d'apprendre qu'il était question d'organiser une école de Médecine Tropicale, annexée à l'Université Tulane à New Orleans. La création d'une semblable école s'imposait aux Etats-Unis après les merveilleux développements que les études de Médecine Tropicale ont pris dans les pays les plus divers. Si l'on songe aux travaux remarquables qui ont vu le jour dans les Laboratoires de Manille, de Manguinhos, de São Paulo, pour ne parler que de ceux qui vous touchent le plus près, on peut prévoir que l'école de New Orleans deviendra rapidement un nouveau centre de progrès pour la Médecine Tropicale. La sphère d'action s'étendra tout naturellement par toute l'Amérique Centrale, qui lui réserve une moisson abondante. Je ne puis que vous encourager le plus vivement à poursuivre la réalisation de vos projets, et formuler mes meilleurs voeux pour leur réussite."

Col. W. C. Gorgas, U. S. A., Commissioner and Chief Sanitary Officer Canal Zone, Panama:

"There is no doubt in my mind that New Orleans is the proper point for the establishment of a School of Tropical Medicine, and it would be greatly to the advantage of such a school to be organized as a department of the already firmly established Medical Department of Tulane."

Dr. Ramon Guiteras, New York City:

"If there is any city in this country where, from its geographical position, such a school should be founded, it is in your city, and I expect to see it the center for the study of tropical medicine on this side of the ocean."

Dr. Maximilian Herzog, Late Pathologist to the Bureau of Science, Manila:

"There can be no doubt as to the desirability, nay, even the necessity, of establishing such a school in our country. Our own tropical and sub-tropical possessions bring us constantly, directly or indirectly, in contact with tropical diseases, and our medical men should have the opportunity to be properly prepared to handle such cases, as well as questions of tropical hygiene. I am heartily in sympathy with the project which you have under consideration at this time."

Dr. Walther Horn, Berlin:

"That the need and usefulness of a great department of Preventive Medicine and a school of Tropical Medicine in the United States of America nobody can have a differing meaning. Such institutions are everywhere more than necessary, and especially welcome in your country, where the people of your country really understand their own advantage. They have to take the greatest interest in your work. A good deal of the future of all tropical countries is now in the hands of your and similar institutions."

Dr. L. O. Howard, Chief of Bureau of Entomology, Washington, D. C.:

"It seems to me that New Orleans would be a desirable place to establish such a school, perhaps the best in the whole of the United States, and that such a school is needed there can be no doubt."

Dr. A. Jacobi, President-Elect American Medical Association:

"I have read and studied your printed project of the New Orleans School of Tropical Medicine and Hygiene. Its reasoning is wise and practical, and cannot be improved upon. The question of how our social, financial and political interest in tropical regions, and their welfare and diseases was rapidly developed, does not come up. But it has always been the object and purpose of medical men to so prevent or to cure the direful results of the sins of men and peoples. This is only one of the reasons why all should warmly approve of your project. *If the American people would award you for a thousand millions it has spent on conquests, a single one for the endowment and foundation of your school*, both would be served. The actual advantage both the commonwealth and the individual will derive from its existence is invaluable. Fortunately, the democratic spirit of the American citizen has rarely been found wanting in the support of what his intelligence deemed both laudable and profitable."

Prof. E. Jeanselme, Ecole de Médecine de Paris. (Prof. Jeanselme sent a complete article on the subject, which is being published in another place.)

Prof. Vernon L. Kellogg, Leland-Stanford, Jr., University, California:

"The enormous importance of increasing the scientific knowledge of preventive medicine and tropical disease is a matter that every one cognizant of the situation recognizes. The great interests of both business and humanity demand American aid and endeavor in increasing this knowledge. We have been peculiarly backward, in comparison with other nations, in recognizing our duties and opportunities in the scientific study

of tropical and Oriental diseases. I wish you the largest measure of success in your laudable present endeavor, and I shall be glad to have you call on me for whatever aid I can give in connection with your campaign."

Prof. S. Kitasato, M. D., Imperial Institute for the Study of Infectious Diseases, Tokyo, Japan:

"Your project of establishing a new School of Tropical Medicine and Hygiene has been received. We cannot appreciate too much this kind of project, and especially the school of tropical medicine and hygiene, in which we find a vast tract of unknown land where explorers are wanted. If such a new field be opened to human welfare in America, all the world will enjoy the benefit alike, and the result will be universal."

Dr. E. Liceaga, President Superior Health Board, City of Mexico:

"Todos los esfuerzos que se hagan para organizar establecimientos en que se estudien las enfermedades tropicales y endonde se hagan investigaciones originales, deben ser alentados y por consiguiente yo le doy todo mi apoyo moral (supuesto que tiene Ud. la bondad de pedirmelo)—para que se funde, formando parte del Departamento Medico de la Universidad de Tulane, la Escuela de Medicina Tropical destinada a este objeto."

Dr. George C. Low, editor *Journal of Tropical Medicine and Hygiene*, London:

"I am very glad indeed to hear that the Tulane University has decided to start an American School of Tropical Medicine. Such an institution is required in America quite as much as in England, France, Germany and other countries. There is an abundant wealth of tropical material in the Southern States and in your tropical dependencies, and, possessing such, it would be a pity not to make use of it. I am quite convinced of the necessity of an institution of the kind, and think you could not do better than establish it in the State of Louisiana. The good work America has done in the field of tropical medicine is well known, and with the establishment of a definite school where students and young practitioners can be suitably trained before proceeding abroad, there is no doubt that they will do even more in the future. I have not the slightest doubt that your fellow-countrymen will soon raise the necessary funds to properly endow your new school. It will be a good investment and will bear a valuable interest in the years to come. I wish you the greatest success in your new venture."

Prof. E. P. Lyon, Professor of Physiology and Dean St. Louis University:

"I learn that an effort is being made to organize, on a broad basis and with a large endowment, an American School of Tropical Medicine connected with Tulane University of Louisiana. I wish to state that, in my opinion, this is one of the most promising movements in medical education within recent years. I believe that New Orleans is the proper location for such a school, and that, great as has been the need of such a school in the past, the present relations of this country with the tropics, both in a business and also in a governmental way, now render such a school imperative. The importance of such a school in the prevention of the introduction of disease through commerce, in the control of disease in our own country, and the suppression of disease among our neighbors in the tropics, should insure the support of the school. I hope soon to learn that the establishment of the school is assured, and then I shall begin to look for a decided increase in useful knowledge regarding the tropical diseases of our hemisphere."

Dr. W. G. MacCallum, Columbia University, New York City:

"I have long looked forward to the establishment of a School of Tropical Medicine and Hygiene in New Orleans, since it seems that that is the place in America best adapted for such a school. There the students and investigators could surely obtain in greater quantity than anywhere else the material necessary for such study; and I feel sure that the school will have the support and co-operation of every one interested in medical science."

Sir Patrick Manson, London School of Tropical Medicine:

"I wish the project every success, and if the kindred institutions in London can in any way help our colleagues in New Orleans I am sure we can be relied on to do our best. I feel quite sure the need of a well-endowed tropical school in America has only to be known to have all the money required placed at your disposal. Even in impecunious England we are getting the money, and surely our pushful cousins across the Atlantic cannot allow themselves to be beaten in work so necessary and beneficial. America requires tropical schools quite as much, if not more than England. The Government and the country generally now recognize what a boon they have been to all our tropical possessions, and it would be strange if the American triumphs over yellow fever and deadly Panama have not effectually appealed to your countrymen and stimulated them to renewed exertions in coping with the disease scourges of the tropics."

Dr. Joseph McFarland, Medico-Chirurgical College, Philadelphia:

"I have read your little pamphlet, 'Project of the New Orleans School of Tropical Medicine and Hygiene or the Medical Department of the Tulane University of Louisiana,' with much interest. It seems to me that the arguments therein set forth are sufficiently cogent to convince any well-informed reader of the desirability, indeed, the necessity, of founding and maintaining such an enterprise."

Dr. C. Mense, Editor *Archiv für Schiffs und Tropenhygiene*:

"I am sure that the school, under your direction, will obtain a world-wide reputation."

Prof. E. Metchnikoff, Pasteur Institut, Paris:

"I find certainly very useful and desirable the institution of schools of tropical medicine in the countries where tropical diseases can be studied."

Dr. John K. Mitchell, Philadelphia, Pa.:

"The advantages possessed by a school of tropical medicine situated in New Orleans are, of course, obvious. The necessity for such teaching for tropical research work and for instruction in medicine of the hot countries is undisputed. There seems to me no subject in medicine of so great importance which is so little provided for, and I trust your plans will be successful."

The late Dr. John Herr Musser, University of Pennsylvania, ex-President of the American Medical Association:

"The Medical Department of the Tulane University does well by the science and art of medicine in arranging for the establishment of a School of Tropical Medicine. The location of the school and the advantages of a corps of skilled and enthusiastic teachers and experts in tropical diseases invites the support of the undertaking by every one interested in medicine and hygiene in our country. With the increase in our interests in tropical countries, it goes without saying that a school of such character has become a necessity."

Prof. F. G. Novy, University of Michigan:

"I am pleased to learn of the plan entertained by your school to establish a Department of Tropical Medicine. Your location is such as to make this step a most desirable one, and I am sure that the very best results will be attained thereby."

Prof. H. F. Nuttall, F. R. S., Cambridge, England:

"I sincerely trust that you and your colleagues will succeed in establishing a thoroughly efficient School of Tropical Medicine in New Orleans. There can be no question but that such a school should exist in America, and it appears to me that the City of New Orleans is eminently suited, geographically, for the work which you propose to undertake. I trust that the necessary endowment will be secured from public-spirited citizens and corporations in the United States, for any money that they may give will surely be well spent."

Prof. Edward B. Poulton, F. R. S., Professor of Zoology of the University of Oxford:

"I am confident that a great Department of Preventive Medicine and a School of Tropical Medicine in America would be of immense advantage, and that the Tulane University of Louisiana at New Orleans would be a peculiarly appropriate locality in which to found these institutions. The relation to the tropics is there so close that many of the problems could be studied with special advantages. Such institutions would be of the utmost value not only for the training of the large number of American medical men who practice in the tropics, both of the Old World and the New, but also for undertaking research into the problems which will certainly confront the students who have been trained in the school and who still keep in touch with their old teachers at the university. I shall look forward with the greatest interest to the establishment and to the rapidly growing success of these institutions. My acquaintance with those who are leading this movement convinces me that the new school will be conducted along the broadest possible scientific lines, and that its influence will be felt in all parts of the world."

Dr. Milton J. Rosenau, Department of Preventive Medicine and Hygiene, Harvard Medical School:

"New Orleans is the logical place in our country for such a school, and I believe, on account of its nearness to the tropics, the facilities for studying the diseases which threaten our own country are almost unexcelled. I wish you success in this new enterprise, which will place us abreast of European countries in their attack upon these subjects."

Professor Doctor Ruge, Marine Generalarzt, University of Kiel, Germany:

Liegt doch New Orleans so günstig wie möglich für eine Schule für Tropen-Medizin, Gelbfieber, Ankylostomiasis, Amebiasis, Pellagra, etc., alle Krankheiten, die in den Südstaaten weit verbreitet oder wiederholt dahin eingeschleppt worden sind, schaffen Ihnen ein weites Feld für eine segensreiche Thätigkeit."

Dr. F. M. Sandwith, Gresham Professor Physic; Lecturer at the London School of Tropical Medicine:

"We look to the United States to continue the magnificent work in stamping out tropical diseases, and the success already obtained in the Panama Canal and elsewhere encourages us to hope that uncinariasis, pellagra and many other problems affecting the health of the community may shortly yield to preventive efforts. The citizens of the United States will not be slow in following the lead which has already been given them,

and it is not too much to say that all the diseases of your great continent are preventable, and should be prevented by the application of present and future knowledge. Every rich man should be invited to subscribe to your endowment scheme, for there is no doubt that money so invested in your Tropical School will bring forth a speedy return. The day will come when every American physician, about to practice his profession in the Southern States or in your tropical dependencies, must undergo preliminary instruction in a tropical school."

Dr. W. A. Sawyer, Director California State Hygienic Laboratory, Berkeley, Cal.:

"I am greatly pleased to learn that at last plans are being formulated for the school of tropical medicine which we have so long needed in America."

Dr. Henry Skinner, Curator Academy of Natural Sciences of Philadelphia, Philadelphia:

"New Orleans is an ideal place for the American School of Tropical Medicine—I believe the best in the United States. All eyes will be upon it, and what it does will have a great bearing on tropical medicine everywhere in this country."*

Gen. George M. Sternberg, U. S. A., Washington, D. C.:

"There is no place within the limits of the United States that would be more suitable as a location for such a school. If you can secure a sufficient endowment and the services of trained men for research, your school ought to do much for scientific medicine, and especially for the prevention of tropical diseases."

Dr. John M. Swan, Watkins, N. Y., Secretary of the American Society of Tropical Medicine:

"The American Society of Tropical Medicine has systematically urged the necessity of the establishment of such a school in this country."

Dr. W. S. Thayer, Johns Hopkins University, ex-President American Society of Tropical Medicine:

"The opportunity for the study of tropical diseases in New Orleans is of the very best, and it seems to me a matter of the greatest importance that every opportunity should be offered for the study and investigation of tropical diseases at Tulane University."

Prof. J. L. Todd, Macdonald College, Canada:

"The establishment of a School of Tropical Medicine in the United States is a sign that the Republic wishes to take in tropical medicine a position equal to that in which it has attained in other branches of human activity."

F. V. Theobald, Vice-Principal Southeastern Agricultural College, Wye, Kent:

"I am very glad to hear you are starting an American School of Tropical Medicine, and you may be sure I will give it any support I can."

Dr. Henry B. Ward, University of Illinois:

"New Orleans is the natural gateway to the tropics of the New World; to it comes commerce, and with it comes disease to the aggressive nation to which we belong. To develop the commerce adequately

*Dr. Skinner also sent a short article on the subject, which was published in the *NEW ORLEANS MEDICAL AND SURGICAL JOURNAL*, December, 1911, Vol. LXIV, p. 466.

we must control the disease. To do our duty by the world we must reach out and control it at the source, rather than by waiting its appearance in our own territory. There is no point at which a center for the study of tropical medicine and hygiene will be in as easy touch with the tropics as at New Orleans. Materials come in constantly, and will come still more with the development of new routes of commerce soon to be established, while the same conditions make it possible to go out after that which is needed for the work of such a research institution, with the minimum expenditure of time and money. There is another point in which I think you will have the advantage of any other school in existence. The great function of such a school is research, and even if that side is slower in its development it must be regarded as fundamental and emphasized at all times. Now, for research the investigator must be able to carry on experiments without regard to season, continuously, over long periods, and when the need comes, rather than when the calendar says so. In New Orleans the climate permits this, with slight expense, during the entire year, whereas at other places it has been a source of very large expense to continue such experimentation through the winter. One can hardly overestimate the advantage of being able to maintain readily these experiments regardless of season. The plan you have outlined seems to me very good, and you are right in emphasizing the importance of co-operation with boards of health and other organizations in spreading knowledge of such diseases, their means of introduction and prevention, and their general commercial and social importance. I should think the presentation of the case must appeal strongly to some of our more favored citizens, who have the means to aid, and who cannot be entirely without the sense of duty to the nation and the world, and of the privilege in advancing the welfare of mankind. Money devoted to this purpose means much, even commercially, and the brilliant successes of our medical men at Havana and Panama are a source of pride to the whole nation. I am confident that the proposed school has geographic and scientific advantages which will render its work an equally great source of pride not only to the citizens of the city and State, but also to all Americans, North as well as South, East as well as West."

Dr. J. H. White, U. S. P. H. and M. H. S., New Orleans, President Society of Tropical Medicine:

"No other city can offer anything like the natural advantages of location and environment, and, further, it is natural and proper that such a school should be a part of Tulane"

Dr. J. C. Wilson, Philadelphia, Pa.:

"The satisfactory teaching of tropical medicine requires particular local conditions—either a great commercial port in constant communication with many tropical and subtropical cities, or a populous city in a subtropical region. In New Orleans both these requirements are now fulfilled, and you only await the opening of the great canal to have them fulfilled in the largest measure."

Dr. Paul G. Woolley, Dean of Medical School, University of Cincinnati:

"I am overjoyed for you and for Tulane, New Orleans, Louisiana, and several other places, which, when added together, will comprehend the United States. We have needed just such a school in just such a place for a long time, and now that it has come, and that it is organized on broad, comprehensive lines, one feels that we in the United States need not long remain behind the European countries in studies in tropical medicine."

The late Surgeon-General Walter Wyman, U. S. P. H. and M. H. S., Washington, D. C.:

"The experience of American physicians in the United States and its insular possessions has demonstrated somewhat the effect of tropical diseases on the health of communities, and rapid advancement has been made in the study of these diseases. There is great opportunity for extending these studies and making practical application of the knowledge thus acquired for the improvement of public health. I am very much gratified to learn of the proposed establishment of a school of tropical medicine in New Orleans, and trust that your ambitions may be realized to make of it a center for tropical research, with the resulting good that will undoubtedly accrue to the community in which it is located and to the country as a whole."

I read these letters because they show that our ideas and plans have been from the first closely in accord with the counsel of experts, which counsel we are daily receiving.

Therefore, before taking up in detail the discussion of our plans, we should never lose sight of the fact that our work, while of the South and initiated by Southern enterprise, is not local, or sectional, or even national—but international in its scope.

In view of the importance and interest attaching to the work we are undertaking, it has seemed wise to me to outline somewhat carefully, and in detail, the plans we have decided upon in the shaping of its policies and activities.

It is impossible in the beginning of any enterprise to forecast the exact form which its manifestations in every instance will take. Some of the plans which I shall outline will doubtless be changed or possibly even abandoned. Other plans will probably be projected and realized, but I shall hope to say enough to place you in possession of the spirit and method of the work which we hope to do.

However, we may safely say of the new Department of Tropical Medicine, Hygiene and Preventive Medicine:

(1) It will have a definite, scientific point of view. The science of preventive medicine has been chopped up into several more or less narrow fields, each of which has striven to annex and hold part or all of the ground for itself. Thus we do not produce hygienists with a broad and sound fundamental training upon which may safely be built subsequent specialization. All who have studied the training of sanitarians in our American Universities are agreed that, with a few notable exceptions, a lamentable lack of perspective and sense of proportion too often obtains. We have

statisticians who know nothing of the interpretation of the data they handle so easily, sanitary engineers who know nothing of sanitation, and medical entomologists who know nothing of medicine. The comparative novelty of the present conceptions of tropical medicine has attracted the interest of many who dream that acceptable work may be done in this difficult field without a critical and rigid training in the methods of scientific research that pertain to general medicine and hygiene. I have taught elementary bacteriology to an engineer whose specialty was the building of septic tanks!

There is one principle alone which is broad and deep enough to harmonize and interpret the data and doctrines employed by the statistician, anthropologist, sociologist, economist, physiologist, bacteriologist, parasitologist, entomologist, engineer, physician and tropical expert, all of which go to make the science which our new department will attempt to teach. Bacteriology, engineering or medicine are none of them or all of them sufficient to co-ordinate and explain all that must be employed for our ends. Nothing less than general biology furnishes us with the key to our problem. As Huxley says, "There can be no doubt that the future of pathology and of therapeutics and therefore of practical medicine depends upon the extent to which those who occupy themselves with these subjects are trained in the methods and impregnated with the fundamental truths of biology." Consequently, we shall present a biological interpretation of public health and from this ground we shall plan our attack upon the great questions of tropical disease. The problems of health will be stated in the terms of general biology and the various public health activities will be viewed as springing from and relating to the primitive biological functions.

The diseases of man, which may be illustrated by the evolution of animals under domestication, will be approached along the broadest possible scientific lines, while the philosophical, economic and social aspects of the question will be reduced to their most practical and helpful phases.

The vital functions common to cell, individual and community, such as growth, waste, labor, rest, repair and decay, are to be viewed as finding some of their most natural and valuable expressions in child conservation, sewage and refuse disposal, industrial hygiene, house sanitation, food and water supplies and pre-

ventive medicine. The protection of the community may be viewed as an inevitable outgrowth of the original obligations of pack dwelling and sanitary law as one of the developments of the primitive rule of the pack. So the phenomena attaching to tropical and general disease and its control may be studied from different biological viewpoints, such as their relation to interdependence of organisms, their effect upon the persistence of type, their influence on organic evolution and their connection with the adjustment of organisms to environment. It seems to the speaker that in adopting such an orientation for our subject we get a point of view, a sweep and a grasp of our science that will enable us to train men whom we can expect to approach the mighty problems awaiting them with that freedom from prejudice and command of scientific method which will insure the value of their work and study.

(2) The instruction will be comprehensive. By comprehensive I do not mean that it will consist of a smattering of a large number of facts. I have rather in mind a comprehensiveness of principles and a wide range of their practical application. In this connection I may be pardoned for referring a little more fully to the plans which have already been outlined in the preliminary announcement of the aims of the departments. We have planned:

(1) Co-operation with boards of health, health officers, societies devoted to the study and prevention of special diseases or to the protection of childhood, churches, public institutions for unfortunates of every description, hospitals, the press, and with every sort of State, civic, commercial, social and other institution or organization interested or susceptible of interest in the prevention of sickness and suffering and the conservation of health and vitality.

(2) Health education of teachers and students in all departments of Tulane University which will result in higher general efficiency and scholarship.

(3) Informational training of public school and private teachers and pupils throughout the city and State, as well as of the general public, with special emphasis on rural hygiene where conditions suggest this. Courses suitable for school superintendents and teachers, gymnastic and other organizations having to do with physical culture, will be specially planned.

(4) Technical laboratory training of State, city and district health officers, training particularly adapted to conditions in the South. Such questions as the handling of infectious diseases, the making out of vital statistics and other important matters, will be taught, as well as such special problems as hookworm, malaria, pellagra, etc.—problems which, in a very real sense, bear upon the great aim of removing the immense handicap which, more than is generally realized, has too long hindered the material and higher welfare of our Southern States. Extended courses which will enable carefully-chosen men to become skilled sanitarians will form one of the features of the department.

(5) Definite training in the study of various tropical diseases which constitute a distinct menace to all parts of our country, especially to the South, and in a very particular sense to New Orleans. Courses for the general training of undergraduate students of medicine will be conducted, which courses will lay emphasis upon the points necessary for every practitioner in the South to know. Other more elaborate courses will seek to fit medical missionaries, colonial officers and other medical men who expect to practice in warm countries. Besides these, special training in the technique of research and independent investigation will be designed to meet the requirements of specially-fitted men. It is hoped to publish the results of those who succeed in adding to our knowledge, and thus to our control, of tropical disease, and to aid and inspire competent research workers in every possible way.

As illustrative of these general plans perhaps a more concrete statement of a few of the practical details already in our minds may be of interest. In some instances these are definite plans already in process of realization or perfectly possible in the near future. In other cases the ideals are to be regarded as ardent hopes the attainment of which will depend upon the co-operation and sympathy of the authorities and faculties of the University (which I am sure we may count on to the fullest extent), and upon the public, the medical profession and financial support of our city, our State, the South and the nation (which I have every reason to believe will also be ours to a greater and greater degree as we make our needs and the value of our work known).

Some of the special projects we have in mind, and which we shall attempt to realize as soon as possible, are the following:

(1) The fitting up of a Laboratory of Hygiene and Tropical Diseases with all the apparatus necessary to teach these branches according to the most modern, practical and scientific methods. We have in the Hutchinson Memorial Building the space needful for all our present needs, and as the work grows we hope in the future some good friends of Tulane will give us a building which will be a model of its kind in every regard.

(2) We hope to found a Departmental Library dealing with Hygiene and Tropical Medicine, Parasitology and allied subjects which will form a mine of wealth for research and reference and which will make it unnecessary for anyone interested in these questions to go elsewhere for any important reference. In connection with this library we plan to have complete card indexes which will place at the disposal of any worker not only the resources of our library, but also of the literature of the world.

(3) We expect to build up a museum of educational and scientific value, consisting of specimens, drawings, exhibits, etc., which will add vastly to the value of the Department. For instance, one of the features of this museum should consist of a complete teaching collection of disease-carrying insects and other arthropods—a much-needed thing which cannot be found in this hemisphere, nor, in its best form, in the world.

(4) In connection with the Department we need well organized and carefully conducted clinical services in our hospitals, which contain such a wealth of rare and valuable tropical material. In time special wards or even a special institution may be needed to fulfill the plans to the fullest degree.

(5) A bulletin or publication of some kind is needed in which we may publish our reports and the results of our researches and investigations. This, of course, may at first appear irregularly and may be confined to the special interest of the School, but later should be expanded into the recognized *Journal of Tropical Medicine and Hygiene* of this country and the official organ of the American Society of Tropical Medicine.

(6) An extensive correspondence must be carried on with leading authorities and institutions throughout the world, keeping us in touch with all that is latest and best in our field. Question blanks concerning certain problems must be sent to tropical workers in different countries and the widest range of scientific opinion and observation elicited.

(7) Visits and expeditions to sister schools and to tropical countries should be planned for the elucidation of particular problems and in order to secure complete co-operation between the schools and laboratories devoted to Hygiene and Tropical Medicine both in the United States and Europe and also in tropical lands. In this connection, the speaker might state that he is personally anxious to revisit in his new capacity the schools of tropical medicine of London, Liverpool, Hamburg, Paris and Lisbon, and mention might be made of our dream of a floating laboratory which might visit ports in Central and South America, including the vast territory drained by the Amazon and its tributaries, which we hope some present or future friend of the School will give us.

(8) Again, special lectures and addresses, both scientific and popular, and open to the public, are planned in connection with the

School. Eminent authorities will be invited to deliver these, and it is hoped that great interest will be aroused.

(9) Last and most immediately practical of all, the Department will make definite sanitary and epidemiological surveys from time to time and propose plans and measures against the many influences still retarding the health and prosperity of the Southern States.

These are some, not all, of the plans we have in mind, and I have mentioned them, not only in order to lay before you some of the possibilities of such a school, but also that you may know that we are looking far into the future and attempting to lay broad and deep foundations upon which may be built an edifice worthy of Tulane University, of this city and State, of the South and of the Nation.

(3) And finally, we may say of the instruction of the Department, it will be practical.

Tropical Medicine and Sanitation together form a body of knowledge which is almost exclusively concrete and practical in nature.

Comparatively little didactic instruction is necessary or appropriate for the courses which we have outlined to cover the instruction which should be given to fit our students for the practice of sanitation and tropical medicine. It would be as ill-advised to attempt to teach chemistry, bacteriology or internal medicine from books or by lectures as the subjects in our department. The work must largely be done in the laboratory, in the hospital and the field. And in a very real sense all these are laboratories. A hospital is a laboratory in the genuine meaning of the word, and the man who observes scientifically a sick person or who experiments scientifically with sanitary apparatus outdoors are both to be classed as laboratory workers.

This conception of our work is in close accord with the most authoritative opinions on the subject. For instance, the Report of the Carnegie Foundation for the Advancement of Teaching, already referred to, recommends that a "close relation be secured between agencies concerned with public health and those devoted to medical education. The public health laboratory may become virtually part of the medical school—a highly stimulating relation for both parties. The school will profit by contact with concrete

problems, the public health laboratory will inevitably push beyond routine, prosecuting in a scientific spirit the practical tasks referred to it."

With this spirit animating us, we have proposed the following courses, which we offered beginning with October 1, 1911:

(1) A laboratory course in Tropical Medicine, Hygiene and Preventive Medicine required of Junior Students of Medicine for 1911-12. It is planned to give this course, somewhat developed, regularly hereafter. The work consists of lectures, demonstrations, laboratory periods, field work and clinics.

(2) A Lecture and Demonstration Course in Tropical Medicine, Hygiene and Preventive Medicine required of Senior Students for 1911-12. The work includes lectures, demonstrations, clinics and some field work. This course has been devised in order to give the present Senior Class as much advantage as possible in the new Department, and it is intended after 1912 to discontinue the course as at present conceived and to divide and extend the work of the preceding course so as to occupy both Junior and Senior Classes.

(3) A broad non-technical elective course on the Principles of Hygiene, both from a general and from a personal standpoint, suitable for teachers, school superintendents, Y. M. C. A. workers, physical directors, instructors in gymnastics, social workers and general students. This course will consist of laboratory periods, field work, demonstrations, reports, conferences and lectures. The course will last 12 weeks, from October 1 to December 30. It is intended to offer this course each year.

(4) A technical elective course in Public Health and Preventive Medicine designed for the training of health officers, physicians, sanitary practitioners, and teachers, and others intersted in advanced hygiene. This course will extend from January 1 to March 31, and it is intended to offer this course also every year. The course will be open to graduates and undergraduates in medicine and engineering and others approved by the University authorities and the Head of the Department. The work will be largely practical, and will consist of laboratory periods, field work, surveys, reports, experiments and discussions.

(5) A general and special course on Tropical Diseases open to graduates and students of medicine and other qualified persons approved by the University authorities and the Head of the Depart-

ment. This course is planned to equip medical men and women and especially qualified laymen, including medical missionaries, both Catholic and Protestant, who expect to proceed to the tropics or who are on furloughs from the tropics, so that they will be adequately prepared to recognize, treat and investigate the diseases peculiar to warm regions. The work will consist of laboratory periods, demonstrations, exhibits, clinics, lectures and student investigations, and will extend from April 1 to June 30 each year.

The three preceding courses are so planned that they may all or any two of them be combined into one longer course, and it is proposed to grant a certificate of attendance and efficiency to students taking any or all of them and passing an examination on the work done.

(6) A special course in Medical Parasitology open to students and graduates in medicine and other qualified persons. The work will be largely practical and will include advanced laboratory technic and methods of study. The duration and periods of this course will be arranged with the applicants each year.

(7) A special course in Medical Entomology consisting of practical field and laboratory work on the arthropods concerned in disease transmission. Students will be required to do systematic bibliographical work, and the entire technic of the subject will be practically taught. Open to graduate students, advanced undergraduates, physicians and students of medicine and other special students accepted by the University authorities and the Head of the Department. The duration and periods of the course will be arranged each year in conference with those entering for it.

(8) A research course consisting of selected problems in Public Health and Preventive Medicine. Properly qualified students may enter at any time and are advised to choose all their work along one of the general branches of hygiene, viz., sanitary chemistry, sanitary biology, preventive medicine, etc.

(9) A research course on selected problems in Tropical Medicine. Properly qualified students, both graduates and undergraduates, may enter this course at any time, and opportunity will be given such to enjoy as many laboratory and clinical advantages as they desire. Such students will also receive suggestions, advice and criticism regarding bibliographical usages, methods of investigation and details of publishing results of their studies.

(10) A research course in Medical Parasitology taking up problems suggested by or meeting the approval of the Department. Approved students may enter at any time.

(11) A research course in Medical Entomology. Special problems will be worked out in the field or laboratory of the Department. Qualified persons will be received at any time as students.

In addition to the foregoing we hope some time in the near future, when our staff is increased and fuller arrangements are completed with other Departments of the University, to offer at least two other courses, namely:

(12) A lecture and demonstration course in Public and Personal Hygiene from the standpoint of General Biology for all general undergraduate students of the University. The instruction will be given to both men and women, and it is hoped that various lectures of such a course will be given by specialists from other Departments of the University and from other institutions.*

(13) A course on First Aid to the Sick and Injured from the Standpoint of Preventive Medicine open to all students of the University and to other approved persons. The sections should be limited to 20 students, and the course will consist of lectures, demonstrations, drills and other practical work. The instruction will be given to both men and women, and on its completion and the taking of an examination the students will be recommended for the National Red Cross Diploma.†

It is possible, even probable, that applicants for all these courses will not appear during the first, or even the second year, of our history; but we have looked forward to the time when Tulane shall be the center of such instruction in this country, and we hope to continue to offer adequate courses until students realize their value and avail themselves of their advantages.

Such are in brief some of the plans we have in mind for our Department, and we hope to have your interest and aid in their realization. For the success of this venture is dependant upon the co-operation it receives from you. New Orleans, the inevitable heir of tropical medicine and hygiene in the Western Hemisphere, has said she wanted this Department, and I am sure she will not let

* *Vide* my lecture on "Hygiene and The Modern University," delivered March 5, 1912, in the Annual University Extension Course of Tulane University, and published in the *Tulane Graduates' Magazine* for January, 1912.

† *Vide* lecture on "Hygiene and The Modern University," *op. cit. supra*.

it die for want of means. We are starting in a modest way, without much *eclat*, but I believe we are starting a great enterprise.

Mr. President and Gentlemen: I do not wish to grow oratorical; I am not carried away by personal wishes or glittering generalities. I have not voiced in this address one-half the enthusiastic hopes expressed by those who are among the soberest and most cautious scientific minds of our generation, whose letters are on file as part of the archives of the nascent Department which we present to Tulane University, to New Orleans, and to the South, for your approval and your support. It is your Department, and the School which we hope to see developed in our midst will be your School. I, whom you have so highly honored in calling to aid in its organization and direction, and the colleagues who have gathered around me, cannot and should not be asked to assume the cares of the financial foundation of the institution. We shall be jealous of its scientific reputation, solicitous for the quality of the training given the students committed to our charge, accountable for the character and weight of the scientific research accomplished and published and responsible for the value and influence of our work in meeting the problems before us, but to you we look for the funds necessary to develop and use the great opportunities around us. To you, the Officers, Faculty, Students and Alumni of Tulane; to you, the Medical Profession and Citizens of New Orleans and of Louisiana; to you, the People of the South and of the Nation, we commit the fate of a great and beneficent possibility!

Modern Sanitation.*

By OSCAR DOWLING, M. D., Shreveport, La.,

President Louisiana State Board of Health.

In an active campaign for the reduction of disease and death, the Health Officer meets obstacles varying widely in character. Many are obvious and tangible. The hostility of individuals is a foregone conclusion; the apathy even of the intelligent, and the negligence of local authorities are common in every community. But there is one kind of opposition not so evident as these. Yet, it is positive, firmly rooted, and is clearly apparent to those engaged in the work.

* Read before the Orleans Parish Medical Society, March 11, 1912.

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