

## THE FUTURE OF TROPICAL MEDICINE<sup>1</sup>

ALFRED C. REED

*Medical School, University of California, San Francisco*

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In the last few years a series of provocative addresses has been presented before the American Society of Tropical Medicine. These have been concerned with the history, accomplishments and human service of tropical medicine under the American flag. Outstanding was the presentation of Dr. F. F. Russell (1) in 1934, on the educational background for the practice of tropical medicine. Russell noted the wide interest in adequate medical care which meant preventive as well as curative medicine. He stated that a proper combination of the two requires better undergraduate instruction in hygiene and public health.

In 1936, Reed and Forster (2) surveyed the location and extent of teaching facilities in tropical medicine and recorded the rapid recognition of the contribution of tropical to general medicine. After this, the council of our Society set up a committee on education in tropical medicine, whose report at this session marks a long forward step in preparation for the future of this specialty.

In his presidential address in 1935, Dr. E. B. Vedder (3) reviewed the development of tropical medicine in general, nicely orienting its inception and progress in the United States with its growth the world over. In 1937, Dr. G. W. McCoy (4) gave the history of leprosy in the United States in his Charles Franklin Craig lecture before this Society. In the same year, Dr. Herbert C. Clark (5) discussed the problem of disease spread by present-day transportation. He noted the uncontrolled disease hazard from the large number of persons illicitly crossing international

<sup>1</sup> President's address delivered before 35th Annual Meeting of the American Society of Tropical Medicine at Memphis, Tennessee, November 21-24, 1939.

boundaries. He referred to the unexpected situation arising from the social effects of a population melting pot, which spreads tropical disease widely over the United States. The solution for this, Dr. Clark gave as better instruction in the recognition and treatment of tropical diseases.

In 1937 also, Dr. W. A. Sawyer (6) gave a significant address before the Academy of Tropical Medicine on the importance of environment in the study of tropical diseases. He defined tropical disease as any disease as it behaves in a tropical environment. He stated that the word "tropical" which appears in the name of this Society, differentiates it from other medical organizations and refers to a type of environment. This means emphasis on the influence of environment on the epidemiology and clinical manifestations of disease in man in warm climates. Sawyer stressed that environment and epidemiology must receive intensive study if preventive medicine is to gain its rightful place in the tropics, where so much disease is preventable, and where so large a portion of medical work is done by physicians in governmental service.

In 1933, Dr. T. H. D. Griffiths (7) discussed the relation of air traffic to public health. He concluded that "notwithstanding the fact that airplanes may, or do, transport mosquitoes, this mode of introduction of mosquito-borne disease,—or any other insect-borne disease,—is probably secondary in importance to the importation of infected man."

In 1933, Earl B. McKinley (8) gave an address at the Society luncheon in Richmond which will richly repay re-reading by every one of us. McKinley quoted Shattuck's definition of tropical diseases as "the most interesting diseases." He went on to show the need of two things,—the application of existing knowledge in tropical preventive medicine and increasing research. He predicted that tropical medicine would develop in these two main channels. He emphasized the future and permanent importance of the tropics in world economy and in the future relations of the United States. He affirmed his conviction that the United States was destined to play a leading role in the development of tropical medicine. He said, "We hope that the time

will come when several basic industries will support a public health program in the tropical countries in which they invest their capital, as one contributing form of insurance for the success of their enterprise. We hope that . . . private philanthropy will recognize tropical medicine as a worthy field to support, both in its research and practical aspects."

Finally, in 1936, Dr. Richard P. Strong (9),—whose tremendous contributions to American tropical medicine allow us on this very day to express our appreciation by the award of the Theobald Smith medal of the Academy of Tropical Medicine,—discussed before this Society the modern period of tropical medicine, reviewing its achievements and the rapid systematizing of work in this field in the United States. He closed an inspiring address with these words, "What reward can compare with the inner satisfaction which may come through attainment in this our chosen field,—the most romantic and comprehensive in preventive medicine."

These brief annotations can be summarized strikingly in three words,—*education, environment, transportation.*

In turning now to look ahead to the future of tropical medicine under the American flag, we must first consider the frame within which it will lie, then the general problems and lines of actual advance, and finally the immediate requirements of the situation. I propose to cover these points concisely, almost in outline form.

I. The future of tropical medicine of necessity will lie within the same social frame as that of general medicine. This means that research and practice will needs adjust themselves to social health insurance, to new and more extensive governmental relationships and to a new conception of public health agencies, where research and propaganda (often miscalled education) will emphasize health and not disease, hygiene and not quarantine. Recognition of social needs will preponderate over individual freedom. The good of the group will take precedence over minority desires. Even the functions of clinical practice will be partially absorbed and largely modified by the health authority, in the interest of economy, completeness and efficiency. Tropical medicine can find its place in the new order, just as the medical

profession as a whole will find its place. But it is incumbent on us now to avoid considering old methods the only methods or even the best methods. It is incumbent on us to be responsive to the social climate, and to lead in the search for social integration and coördination of tropical medicine with the confused evolving of the new social order. It may be that in medical education our best campaign will be made. Research on environment leads at once to integration of the patient, and the medical problems of transportation are practical and soluble.

II. When we turn to the general problems and actual advance of tropical medicine in the future, we must adhere carefully to general principles and logical, socially-minded fields of cultivation. Tropical medicine must play its valuable part in the development of the better society of the future. It must be pointed with objectives and goals rather than drift with the individual taste and preference of its practitioners. From such a point of view we see the future of our beloved specialty fall almost naturally, one might say, into certain categories of activity. I shall mention some of these, but my list is neither final nor exhaustive.

1. Tropical medicine has a contribution for medical education. This contribution is both to the factual content of medical teaching and to the conception of medical ecology,—that is, the relationship of environment to man's state of health. There is no doubt that every practicing physician in the United States needs systematic instruction in those diseases most prevalent in warm climates, as a part of an integrated course in general medicine. Lacking such instruction his preparation is weak and his professional service is definitely handicapped. He needs also the great new emphasis brought by tropical medicine in the field of medical ecology and the integration of the patient as a whole patient. Too much has medical practice failed because symptoms and specific diagnoses were treated instead of the whole patient, who after all, is greater than the mathematical sum of his pathology, physiology and anatomy. Instruction in tropical medicine must be coördinated and oriented with the general medical course. It can only be taught successfully by instructors who have taken special work and who have had actual field

experience in warm climates with considerable travel. To provide such instructors, a few qualified graduate centers are necessary and even now are in development in this country.

2. Tropical medicine is of such crucial social and economic importance for the future United States, that research must become a matter of public and community recognition, as Earl McKinley has stated (8). Coördination of research in tropical medicine is highly important to avoid unnecessary duplication, to provide for specific problems in the most advantageous places, and to survey the needs of the future in order that important problems should not be overlooked. The American Foundation of Tropical Medicine is organized for these specific purposes and its present close tie-up with this Society is necessary for the future. Through its activities money resources should be available in proportion to the great national importance of tropical medicine.

Special fields of research in tropical medicine are numerous and of deep significance for the future. Among these we can pause to note only a few illustrations.

(a) American drug and chemical manufacturers are beginning to notice the huge potential markets for pharmaceutic and biologic products in the diseases and disabilities of warm climates. These markets are incalculable abroad and extend widely into the United States itself. The field includes curative preparations and very especially products for use in the prevention of disease and maintenance of health, as in the group of deficiency diseases and malnutrition.

(b) Adaptation to warm climate brings an impetus for better housing with new architecture and engineering. Fabricated and standard types of construction are now extremely backward in the United States. The entire housing industry needs new ideas, new blood and the use of principles developing in tropical medicine for improved adaptation to warm climates. Extensive research on a commercial basis is the foundation for this development. One illustration of such a basic unsolved problem is the provision of a single inexpensive system combining cooling and heating of low-priced dwellings.

(c) Tropical medicine has a peculiar function in the future

study of social and population groups within the United States. Among these are to be noted various exotic racial minorities, the American Indians, the Elizabethan whites of the southern mountains, the migratory indigents, and the negroes. Extensive studies of each of these from the ecologic point of view of tropical medicine are necessary foundations for solution of the complex social, economic and health problems involved. Medical anthropology, which belongs inherently in medical ecology, is in the very center of tropical medicine. Its function can be illustrated by the problem of the negro with his racial adaptation to tropical Africa and his peculiar biologic adaptations to the warm climates of the western hemisphere, for which strangely enough he is better fitted than is the American Indian. American racial problems are too much ignored by medical research. Tropical medicine is fitted to make a contribution of lasting value here.

(d) A sadly overdue field of research lies in the long-term study of nutritional deficiencies in fixed population groups. This includes that large section of human health status which lies between actual disease and active good health. It is best called devitalization. Few data are available as to its environmental relations and on these chiefly depends its control.

(e) A field for research lies in the study of the primitives of the western world, Indian, negro and lower South American. Your attention is called to the significant book by C. P. Donnison, "Civilization and Disease," in which the way is outlined whereby a parallel study of primitive and civilized cultures leads to understanding of the real disease hazards of civilization, thereby, allowing a more rational approach to the problem of their prevention.

(f) The psycho-somatic approach to the problem of disease and health has been largely absent from research in tropical medicine. The new medical quarterly, Psycho-somatic Medicine, is devoted to this new field whose rapid expansion is still but a few years old. "The medical profession has awakened to the necessity of studying systematically what is commonly referred to as the 'art of medicine,' the understanding and the therapeutic utilization of the psychic component in the disease process, and

in the emotional relationship between physician and patient" (10). Medicine, including tropical medicine, is opening with rapidity this new field of the synthesis of psychologic and physiologic processes. The shackles of Virchow's cellular pathology and physiology are being broken. We look forward in this new direction to the greatest scientific achievements yet made in the study of man.

In addition to the psycho-somatic approach, and nourished by it, tropical medicine has a particular interest in environment. One great field of research in tropical medicine must be in the syntheses arising from study of human environment. This subject has been splendidly systematized by J. W. Bews of Natal in his book, "Human Ecology." There is a rich and promising field for such study in the Western World and in the United States. Climatic factors are in this field and are attracting a new method of investigation from the geographic, statistical, and clinical points of view, as we see exemplified in the new book by our own fellow member, Dr. Clarence A. Mills, on Medical Climatology.

(g) Tropical medicine has a pioneer field of obvious future value in the study of aviation medicine. Here the essential factor of tropical medicine, environment, comes into full play and many of the problems of aeronautics pertain to physiologic effects induced by rapid changes of environment. Attention is being given already to the twin problems of transference of disease vectors and of infected persons. Detailed information is necessary on the data of radiation, air pressures, dust carriage and rapidity of physical changes in order that aviation medicine may expand sufficiently to cover its own field adequately.

(h) Other types of transportation bring similar problems, conditioned by their forms and situations. Automobile traffic is increasing faster than most of us realize. Its problems are unsolved to a surprising degree. Since man began to move about on this earth, his forms of transportation have been changing constantly, and solutions always lag behind new problems of traffic. Referring to the hazard of disease introduction into this country from Latin America, Dr. George W. Cox, State

Health officer of Texas, states in a personal communication, "I feel that this is a question which will have to be worked out jointly with this country and the Latin American countries, and that the now existing Pan-American Sanitation Commission is in an excellent position to act in an advisory capacity in this matter."

Control of disease in passenger traffic will depend on

1. Education of travellers in a very simple and concise way such as by short, plain printed rules for health protection, widely distributed in Portuguese, Spanish and English. A draft of simple Health Rules for Travellers is appended hereto.

2. Close coördination between health authorities in the various countries with uniform and simple methods employed by all.

3. Coördination and standardization of sanitary oversight in the various countries, with definite warnings to passengers where specific areas, as in the case, for instance, of yellow fever, malaria, dysenteries, the typhoids, and in the habitats of special disease vectors.

- (i) Finally we may note for the future of tropical medicine a program of coöperation with other countries in the western hemisphere in the study of common health problems of which there are many, and of local health problems of which there are still more.

It is to be noted that research always tends to open up new applications of medical knowledge to specific problems and obligations, and thereby increases the need for men trained in tropical medicine. This brings us back again to the fundamental importance of teaching the practicing physician the essentials of tropical medicine and providing a few places for intensive graduate training for that increasing number whose practice and research will be primarily in the field of tropical medicine.

III. The immediate needs of tropical medicine under the American flag, looking toward a systematic program for the future, will at least include the following points.

- a. In the American Society of Tropical Medicine are centered all of the interests, accomplishments and ideals of tropical medicine in the western hemisphere. All scientists and others inter-



ested in tropical medicine are eligible for membership. The roll of the Society should reach 1,000 as soon as possible. Its membership should be representative of all agencies and individuals concerned with American tropical medicine.

b. The Society is becoming more and more a coördinating center for tropical medicine in this country. A great impetus in this direction was the organization of the Academy which is furthering the development of organized financial support on a national scale for research and promotion of tropical medicine. As the center for comparison and coördination of scientific work, both clinical and laboratory, the Society has achieved recognized leadership in its field. Its future growth and strength are inevitable. At the present moment it particularly needs to draw younger men into its membership and give them support and inspiration in the lines of clinical practice, research, and teaching.

c. THE JOURNAL OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE has a recognized preëminence in scientific medicine. The JOURNAL must become a monthly, so fast as financial support is available. The long and constructive work of the Editor, Dr. Charles F. Craig, must bring new interest on the part of the members. The high standard of the JOURNAL will allow its extension and enlargement so that it becomes perhaps the principal agency in building up the Society and in presenting a permanent complete record of American tropical medicine.

d. The Society will assume leadership in the coördinating and organization of teaching of tropical medicine in medical schools, in graduate courses and facilities all over the country and in development of a few well equipped centers for research and graduate teaching.

e. The annual meetings of the Society will continue the progress of the last several years and will more and more draw in younger men from a constantly wider geographic distribution. The meetings will continue their high scientific excellence and in addition will furnish an informal forum for discussion, comparison and personal friendship. These later objectives are of real importance. An attendance of 25 per cent of the membership is desirable and attainable.

## CONCLUSION

I have attempted to outline briefly the frame within which tropical medicine will develop in this country, the lines which seem most probable and desirable for its development, and the immediate goals and outlook for the Society. At this meeting, your officers and council have gone to much effort to build up the personal side, to promote mutual acquaintance and to afford the maximum opportunity for personal discussions and comparison of work informally and outside of the scientific program. I look forward to the ensuing years with the greatest anticipation. Our Society has a valuable history and tradition. It has a worth while purpose and field of activity. It cannot but have a necessary and highly useful future as it is integrated with the general field of medicine and the future development of the United States at home and abroad.

## ADDENDUM—HEALTH RULES FOR TRAVELERS

1. *Before starting*, be vaccinated against typhoid fever and smallpox. (After 55 years of age, typhoid vaccination is not so necessary.)
2. *Eat and drink* only articles known to be clean and free from infection. Water must be boiled or otherwise sterilized. If uncertain as to this, drink only bottled soda water or spring water of known safe standard brands. *Never* eat raw food or salad, *except* fruit which is dipped in boiling water and then peeled without contamination. *Never* eat warmed-over food, especially meats. Eat no food which has an unpleasant odor. Never drink unboiled milk unless it is pasteurized or certified by local health officer.
3. *Invariably* wash the hands with soap and water just before eating.
4. In hot climates, be very moderate in the use of alcoholic drinks.
5. Get some exercise *every day*.
6. Do not get over tired. Abundant sleep and rest are necessary for good health when traveling.

7. Carefully avoid constipation, using mild laxatives only, if needed.
8. Sun exposure is easily prevented by wearing a well-ventilated felt hat.
9. Bathe daily, preferably in tepid water.
10. Never go barefoot. Avoid swimming in muddy or stagnant fresh water.
11. Avoid insect bites of all kinds.

These common-sense rules should become a habit and will go far toward keeping the traveler in good health.

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