state society and later to the sections of the American Medical Association.

In the practice of medicine the student days are never over. There is so much to be learned that a long and industrious life leaves one with the feeling that he is but a beginner. The most important habit a young physician can form is the "daily study habit." Let him put in even one hour a day with the reading of journals and books of reference and much can be accomplished. He should keep an account of the time, and if something interferes for a day he should charge himself up with it. A two weeks' vacation means fourteen hours to be made up. Most men can do more, and no man has a right to do less, no matter how busy he may be. The leaders in our profession make a daily average of five or six times this amount of study the year round, in addition to the demands of an active practice.

The practitioner must make frequent trips away for the purpose of observation. In no other way can he avoid the rut of self-satisfied content, which checks advancement and limits usefulness. No amount of diligence as a student can take the place of personal contact with men in the same line of work.

What are the rewards of so laborious a life? They cannot be measured, because there is no standard of comparison. To realize that one has devoted himself to the most holy of all callings, that without thought of reward he has alleviated the sufferings of the sick and added to the length and usefulness of human life, is a source of satisfaction which money cannot buy. I know many a man grown gray in the profession with little of a tangible nature to show as a result of his work, but who is not only contented with his lot, but proud to have served in the ranks, and who looks back on a life of privation and hardship for the benefit of humanity as a privilege which he is thankful has been vouchsafed him.

Let us continue to strive as individuals for the honor and dignity of our profession. In this we but follow out the aims and ideals of those who have gone before and prepared the way. But the great movements of the future cannot be brought about by individual action. They must be initiated and controlled by united effort, and in no other way can the epoch-making truths of preventive medicine be made to bear fruit. Unity is the spirit of the times; it marks the difference between the old and the new.

The vital need of the medical profession is a harmonious organization — an organization that will encourage right thinking and good usage among ourselves, help to secure needed medical reforms, compel redress of grievances and promote and encourage the highest interests of its individual members; and in this lies the future usefulness of our profession as a whole.

TRAINED NURSES FOR THE PHILADELPHIA PUBLIC SCHOOLS.—The Board of Education has advocated the employment of a number of trained nurses for work in the public schools. — *N. Y. Medical Journal*.

Original Articles.

THE HYPEREMIA TREATMENT OF CONGESTED AND INFLAMED TISSUES.*

BY E. H. BRADFORD, M.D., BOSTON.

ANYONE whose attention has been called to the recent literature of the subject will have noticed the frequent reference made in German medical journals to the hyperemia treatment of chronic inflammatory conditions, and even to some of the more acute forms of tissue inflammation. The reported cases are presented as demonstrating the efficacy of a new method of treatment which is claimed to be of value in a variety of disorders.

When a method is credibly reported to be generally and successfully applied in so great a range of affections as ulceration of the cornea, cervical endometritis, gonorrhea, tuberculous joints, furunculosis and eczema, it deserves more attention than has been accorded to it in American literature.

In this country attention has for some time been directed toward the hot air treatment of swollen joints, which, with some elaboration and expense in outlay, has been used for the last few years; but the general medical profession has been more inclined to regard this as a manner of treatment to be classed with hydrotherapeutics and massage, rather than to consider that it contains a new principle of therapeutics. In Germany, however, the hyperemia treatment appears to be regarded as almost a new medical dispensation. The principles of the treatment which have been recently ably presented and advocated by Professor Bier of Bonn, though not absolutely new, are not, however, to be regarded a revival of the old method of counter-irritation by blisters, by setons or the cautery, but are based upon a more rational hypothesis consisting of an attempt to combat certain stages of inflammation by increasing the amount of blood in the tissues.

In the earlier days counterirritation was employed by surgical theorists for the purpose of drawing the peccant humour from the tissues. With the decadence of the humoral pathology a system of treatment directed toward combating congestion by the application of cold and compression, inducing anemia, became almost universal. Bier claims that under certain conditions the true antiphlogistic is not induced by anemia, but, on the contrary, by increasing rather than diminishing the amount of blood in the affected parts. Where degenerative changes are taking place, these are assisted or checked by an increased amount of blood in the tissues. It is manifest that this hyperemia treatment is not applicable to all stages of inflammation, but this may be equally true in regard to the treatment by anemia.

Taking it for granted that the theoretical reason for supporting the hyperemia treatment

* Read at a meeting of the Boston Medical Library, April 11, 1906.

may be sound, the question of its application and practicability is of importance. The most simple method of producing thorough hyperemia is the application of dry heat. The usual methods of the application of moist heat do not permit evaporation nor excite perspiration, and although they furnish means affording relief, as has been shown by poultices, hot cloths, the application of Denver mud, etc., yet where the perspiration is prompted rather than checked, a greater amount of heat can be employed with benefit; this constitutes the Bier method of active hyperemia, which consists in surrounding the affected parts by a chamber of hot, dry air.

This method has been much elaborated, but as used in the Bonn clinic it is to be seen in its simplest as well as most efficient form. It is evident that where the heat is prevented from radiating rapidly, the tissues can be treated by the application of a much lower heat. It is therefore essential that the chamber surrounding the joint should be made of a material which does not permit rapid radiation. It is also advisable that the arrangement employed should be portable and cheap, and that the heat should be under careful regulation. It is for this reason that a light wooden box is preferable to the heavy and expensive appliances which have been furnished by many instrument makers. Electricity has been utilized as a means of furnishing a heat without the danger of inflammability, but electrical heat is not as easily regulated as that given from a Bunsen burner.

The advantages of the method of active hyperemia have been shown in many well-recorded cases, but in certain instances no benefit has been derived from its application, and it is for these that the method of passive hyperemia has been recommended.

By passive hyperemia is meant increasing the amount of blood in the tissues without increasing the arterial flow. This is accomplished by constricting the limb above the point affected, and can be done most simply by placing an ordinary elastic bandage around the limb, and retaining this moderate constriction for a sufficiently long time to congest the tissues.

Practical experience has shown that better results are obtained where this constriction is applied for a comparatively long time as a moderate amount of pressure than where constriction to a great degree is applied for a short time. It is not desirable that the limb should be made cold, or that the limb should lose its reddish color.

This method should not be applied except under the direct eye of the surgeon, and the degree and duration of constriction are matters of judgment in each individual case. Where the hip and shoulder joints are involved, constriction can be applied by placing an elastic band in the groin and in the axilla, and retaining it by cross straps around the trunk. Congestion of the tissues of the head is brought about by a moderate amount of constriction applied to the neck.

A still further application of this congestive method is afforded by the method of suction hyperemia, which is perhaps suggested by the old method of vacuum treatment, or perhaps earlier by the method of cupping. As applied at present, the limb is placed in a glass cylinder with the open portions furnished with flexible rubber cylinders which are bound upon the limb, preventing the entrance of air. Suction is applied to the contained air by means of an

ordinary pump, and in this way not only is a slight amount of constriction furnished to the limb by the pressure of the rubber fabric preventing the increase of air, but congestion is increased by the attenuated air chamber surrounding the part. Where portions of the body are to be treated which cannot be incased in the cylinders, cupping glasses of various shapes can be applied.

Anyone who has had experience with this suction method can testify that it appears to be of advantage in ways which are not furnished by the application of heat. Patients will express a sense of relief from its application. The perspiration is increased during the application of suction, and benefit in the flexibility of the joints and in the circulation of the tissues follows.

The three varieties of application of the hyperemia treatment are considered as applicable to different conditions. The suction hyperemia is especially applicable to brawny and septicly congested tissues, as is seen in cellulitis, phlegmons, etc. The constriction hyperemia is applicable to the less virulent infections, as those of tuberculosis, and especially of benefit in blennorrhagic joints, while the active hyperemia is more applicable to what may be termed the less active forms of inflammation as in arthritis nodosa.

In reviewing the evidence which has been presented in the literature, the critic naturally queries as to what the method of treatment by hyperemia actually accomplishes. How much may be regarded as fact, and how much as fancy. Is there an underlying scientific truth which can be utilized, and are the supporting clinical facts carefully reported, and are these methods in reality of more value than a varied application of the cupping glass and blood-letting of our predecessors?

To anyone who has tried the methods it is clear, however, that the hyperemia method of

treatment in its various forms of application furnishes to the surgeon important means of increasing the flow of blood to the skin, and to the deeper tissues. With it we can stimulate the circulation more easily than by previous methods but it is not yet proved whether heat can act in any other way than a stimulation to the circulation. It has been suggested that sluggishness of the lymph circulation may be overcome by suction, and it is even possible that by the application of slow heat for a length of time cell

disappeared from the tissues as if washed away by the congestion induced. He thinks that it is probable that the bacteria and other toxins have also been influenced in the same way. But it is evident that much more thorough investigations than have yet been undertaken are needed before the method has been brought to a sound scientific basis.

Improvements in the methods of application of active hyperemia and dry heat are needed. It is desirable to furnish the cheapest, most

activity may be promoted, or, in other words, that the chemistry of the living tissues may be changed by a process which may be called a cooking by a slow fire.

It is not improbable that the action of the lymphatics may be altered by suction, but in order to determine these facts further physiological investigations are of importance. Some investigations, which have been made at the clinical laboratory of the Children's Hospital by Drs. Low and Z. Adams, were undertaken with a view of determining more carefully the changes made in the tissues by the methods under consideration, and although these results have not yet been published, I am permitted by the kindness of these gentlemen to report that there can be no doubt of the dilatation of the smaller vessels produced by suction, heat and constriction.

Hofman in the *Munich Medicin. Wochenschrift*, Sept. 26, 1905, claims that the leucocytes have

portable and efficacious appliances for this purpose. Experiments in regard to this matter are now being conducted at the Children's Hospital under the direction of Dr. Z. Adams who has succeeded in constructing a heat box where practically no radiation takes place.

If the hyperemia treatment is of value, it is, of course, probable that the methods at present employed may be improved upon; active hyperemia by heat may be combined with suction hyperemia; and it is also possible to alternately subject tissues to the pressure of compressed air, and to the suction of attenuated air.

The former of these has been attempted by Dr. John Adams of Boston, and the alternation of anemia with hyperemia has been used by Dr. Monks of the Boston City Hospital.

It is probable, also, that a combination of these methods of treatment with hydrotherapeutics, with ice massage with the ice bag, may be bene-

ficial if judiciously used. The hyperemia treatment is naturally aided by massage, vibration and electrical irritation.

In brief, it may be said that the hyperemia treatment of congested tissues is not only one which deserves careful investigation, but may be regarded as undoubtedly deserving an assured position in the treatment of certain affections which are not readily amenable to the methods previously used.

SANITARY AND MORAL PROPHYLAXIS.*

BY PRINCE A. MORROW, A.M., M.D., NEW YORK.

I WISH to express my appreciation of the honor of being invited to appear before this society and my sense of great personal gratification that the subject appointed for this evening's discussion is one in which I have long been interested.

Preventive medicine presents no more pressing problem at the present day than the prophylaxis of a class of diseases which have such important relations to the public health, the welfare of the family and the interests of society.

The advances made in our knowledge of the pathology of venereal diseases within recent years have singularly amplified our conception of their danger to the public health, and especially their significance as a social danger from their morbid irradiations into family and social life.

Venereal diseases from their nature and mode of communication are the most essentially human of all diseases; they enter into the most intimate and sacred of human relations; they contaminate the very sources of life itself; they are the only diseases transmitted in full virulence to the offspring — destroying the productivity and sapping the vitality and vigor of the race.

The prophylaxis of these diseases has long been recognized as the most difficult and delicate of all the problems of social hygiene. Certainly its satisfactory solution would represent the greatest possible benefit that preventive medicine could render humanity.

We may first inquire does sanitary and moral prophylaxis offer such solution? Can this problem be worked out along the lines indicated in this scheme of prevention? Upon this point, it will be admitted that there is a pronounced skepticism on the part of many members of the medical profession. A similar skepticism was manifest a few years ago in regard to the prevention of many infectious diseases which have since been brought under control. The present era of preventive medicine has been marked by a singular aggressiveness on the part of sanitary science in attacking communicable diseases which had hitherto defied control. Perhaps its most notable achievement is the successful crusade now being waged against the "great white plague," but before the "great black plague" it has paused irresolute, baffled and beaten back. It sees no clear way in which this pestilence, intrenched in the stronghold of pri-

vacy, wearing the defensive armor of shame and secrecy and protected by social sentiment as well as by professional ethics, may be reached by the strong hand of official repression. Notification, the first and most essential condition of sanitary control, does not appear practicable; here the medical secret dominates the situation.

The problem of prevention is rendered especially difficult by the exceedingly complicated character of its factors. Many of these factors are purely social and lie entirely without the sphere of sanitary control; it is evident that medical measures must be supplemented and reinforced by influences and agencies which can more effectively intervene in the correction of the causes of these diseases and the conditions under which they are spread; especially must they be adapted to their peculiar nature and communicative mode.

One distinctive peculiarity of venereal diseases is that they are commonly contracted and communicated by the voluntary acts of individuals, but we cannot draw a sharp line of distinction between *voluntary* infections and *ignorant* infections. No man voluntarily exposes himself to tuberculosis, but thousands of individuals expose themselves and infect others through ignorance; and it was to correct this ignorance that a campaign of education was inaugurated in the warfare against tuberculosis. The same is true of venereal infections; the vast majority of young men expose themselves ignorantly; men carry disease and death into their families through ignorance. It is the duty of the medical profession to enlighten them — to let them know to what they expose themselves, and especially to let them know that the introduction of these diseases into marriage has, upon their dependents and future generations, all the consequences of crime. There are, however, peculiar difficulties in the way of this prophylactic education which will be presently referred to.

Experience in dealing with tuberculosis and other communicable diseases has shown that the primary and most essential condition of success is the creation of public sentiment by awakening the perceptions of the general public to an appreciation of the nature and extent of their dangers. The public must comprehend the value as well as its need of prophylaxis. Publicity, which has proven to be the mightiest of all modern agencies in the correction of political, public and commercial evils, is a no less potent factor in the correction of social ills.

It is especially needful that the light of publicity should be turned upon a class of diseases which infect unseen the social body, which aptly typify "the pestilence that walketh in darkness," and whose ravages, especially the havoc wrought in the home and family, have always been covered up and concealed.

This can be most effectively done along the lines indicated in this evening's program, by exposing the grave dangers to health from venereal infection, the economic and social

* Read before the Philadelphia County Medical Society, March 28, 1906.