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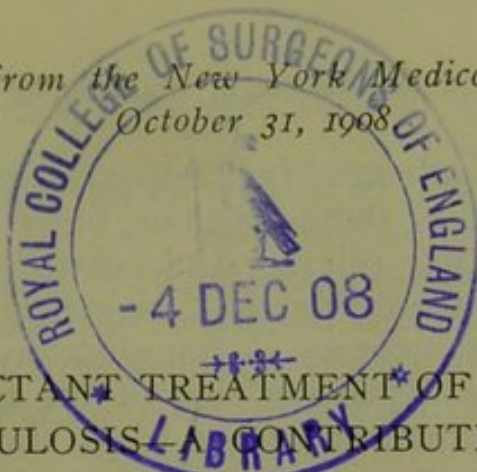


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THE EXPECTANT TREATMENT* OF PULMONARY
TUBERCULOSIS—A CONTRIBUTION FROM
ORTHOPÆDIC SURGERY.*

BY ADONIRAM B. JUDSON, M. D.,
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A letter from an old schoolmate reads as follows:
"I know of only two, yourself and Keen, of our
class (Brown University, 1859), who have ad-
vanced our knowledge of the processes of repair of
human organisms. The rest of us have tried to
keep up with the procession, but have added noth-
ing." The Keen referred to is Dr. W. W. Keen,
of Philadelphia. The writer of the letter, Dr.
Charles H. Perry, of Worcester, Mass., gave me a
great compliment in placing my name with that of
the renowned surgeon. Perry never lost the frank
and generous impulses which endeared him to his
classmates. He was eminent among the practition-
ers of New England, men who daily add lustre to
our profession, modestly unconscious of the fact
that a good physician occupies about the most hon-
orable position attainable by any one. On the other
hand, the pardonable ambition to add to the sum of
medical knowledge leads to questionable ground.
It gives entrance to the fairyland of giants and
giant killers, where it is hard to tell the real from
the unreal, the substance from the shadow. There
are many seekers for buried treasure in this en-
chanted field, but the credit of having found a true
gem comes, if at all, at the caprice of rare good for-
tune, or perchance as an immaterial post mortem

*Read at the International Congress on Tuberculosis, Washington,
U. S. A., October 2, 1908.

decoration. Each new fact appears first as a novelty in the mind of some dreamer, but fails to be appreciated till other related, and belated, discoveries, in other departments perhaps, concur to give to it recognition and potency. Imagination walks ever in front of the advancing line of the arts and sciences, and no member of the band may move forward except in company with the rest. Furthermore, concurrent conditions must be awaited in vogue, habits of thought, and the customs of the country. An illustration is found in the fascinating story of the mosquito fevers. Before our time suspicious glances had doubtless been cast on the mosquito, and the necessity of sequestration had probably been proved by unrecorded experiments before it was demonstrated by Finlay, whose findings were confirmed at heroic sacrifice and supplemented with scientific exactness. It remains for sanitary authority to enlarge its powers at the bidding of new public opinion and complete a great achievement of preventive medicine.

Responding to the courtesy of the president of the section, Dr. Jacobi, I venture to propose a contribution to the discussions of the congress as follows: Patients affected with tuberculosis of the lungs will recover without treatment if the environment is favorable, an extension of the doctrine derived from the study of orthopædic cases that tuberculosis in the joints owes its destructive character to unfavorable environment and not to an inexorable disposition of its own.

Aside from whatever infective quality it may have, tuberculosis of the joints, the worthy rival of infantile paralysis in the production of lameness, is clinically the expression of a conflict between destructive and reparative forces. After a period of advance the disease retreats. The cause and method of this benign change are not understood, but the surgeon, encouraged by the certainty of its

coming, invites its approach by mechanically protecting the affected part, and providing the best possible general environment. This he will continue to do till the nature of the trouble is understood. When knowledge of the tuberculous process leads to its arrest and prevention a portentous medical riddle will be solved.

In all sections of the congress pulmonary tuberculosis will be very much in the minds of our colleagues as the chief burden of their professional lives. In the wide range of general medicine it stands out in baleful perspective. The same distinction is held in the limited field of orthopædic surgery by hip disease.

"Satan exalted sat, by merit raised
To that bad eminence."

If nothing can be done to promote recovery from hip disease except to correct environment, it will be but a step further to say the same of pulmonary tuberculosis.

The tuberculous hip has been intractable to all forms of positive treatment. Medication has not been neglected. New devices of minor surgery are constantly in the stage of experimentation. New mechanical methods have been counted by the hundreds, and operative surgery has been pushed to the extreme. Although patients have, almost without exception, recovered, curative treatment has not been found, and the often disappointed observer, led by reason and experience, relies confidently on expectant treatment. He provides a local environment which frees the affected part from disturbance, and a general environment which includes abundant food, innocuous occupation, and sanitary housing. The patient is thus assured of recovery with the least inconvenience and the best result allowed by the nature of the case.

Can pulmonary tuberculosis be viewed in the same therapeutical light? It may be said that as

one is fatal and the other not fatal, recovery from both cannot be expected to follow the same treatment. Sir Benjamin Brodie said: "Why should hip disease be dangerous? The hip is not a vital organ," and Dr. Henry G. Davis, the leader of the modern renaissance of orthopædic surgery, wrote: "Medical men are convinced that when consumption has once taken possession, it goes not out until the spark of life goes with it."¹ The parts affected have, however, peculiarities of anatomy and physiology which make it reasonable to believe that the treatment accorded to one may be applied, *mutatis mutandis*, to the other. The lung is a semidetached, almost pedunculated organ. The hip is an inherent part, interlocked with other parts of the body by far reaching and rigid processes. The construction of the lung is simple, that of the hip complex and jointed. Lung tissue is soft and homogeneous, completing development with the cry of the new born, while the tissues of the hip range from hardest bone to impalpable synovial membrane, and reach development in late adolescence. The vascular net work of the lung invites infection and encourages repair, while the hip, with its comparatively deficient circulation, reluctantly yields to disease and reacts so slowly that a typical case of hip disease covers several years. If the hip rises superior to tuberculous infection, what forbids the expectation of signal recovery in the lung, so separate from the rest of the body, so simple in construction, with rapidly developing, homogeneous, and plastic tissue, so infused with vascularity, and altogether so alert and responsive to the appeals of disease and recovery? And the factor of safety is to be considered. If both lungs were seriously impaired the case would be fatal, but when it is known that with only part of a lung life may be indefi-

¹*Conservative Surgery*, 1866, p. 284. Reprint from the same, *The Curability of Pulmonary Consumption*, p. 4. His views, except in their optimism, have little in common with those here presented.

nately prolonged who can put a limit to recovery in a favorable environment?

It will be in order to note the environments required in hip disease and pulmonary tuberculosis respectively. A therapeutic precept followed alike by Nature and art is the arrest of the function of an inflamed organ. This is especially applicable to the hip, endowed with wide and active motion, and no less applicable to the lungs, which are in constant motion. The arrest of motion which is sought in the tuberculous hip by fixation may be sought in the tuberculous lung by the omission of exercises that unduly quicken the breath and circulation and by keeping respiration at the minimum, such as is seen in healthy sleep. The possible volume of respired air is a provision for emergencies, but not necessary for health and recovery from disease. It is an unanimous opinion that the seat of inflammatory action must be protected from violent disturbance. This protection is sought in the hip by recumbency or the use of portable apparatus, and may be sought in the diseased lung by the cessation of coughing.

The interesting question arises whether coughing can be arrested or prevented. The impulse comes from a congested point, where an adhesive exudation promptly appears. Coughing destroys this protection and a semifluid secretion soon calls for renewed efforts attended by temporary and doubtful relief and certain injury to membranes in a state of subacute inflammation liable to become chronic. Coughing increases the irritation, and the irritation in turn increases the cough. This is a vicious circle and certainly calls for the intervention of reason and self control. That the lungs are exposed to the risk of injury is clear on a consideration of the mechanics of this muscular convulsion. The thoracic and abdominal muscles act on occasion as expulsive organs, and when they respond to an im-

pulse to cough their great power is displayed in severe compression, alternating with sudden release and agitation of the whole respiratory apparatus, while the compressed air driven through the tubes recalls the action of a steam pencil, wanting only the mordant agent to become an excoriating sand blast.

It may not be doubted that intelligent effort will abate this habit and in many cases lead to its cessation. It is not easy to ignore laryngeal irritations and temptations to cough and to give up what one has been accustomed to for years. Reform is a tedious process, because it takes longer to go up hill than down. Neither is it altogether frivolous to say that if you do not cough the first time you do not have any cough. Expectoration, when unavoidable, may be facilitated by assuming for a moment an attitude in which the direction of the air passage is changed from the vertical to a downward inclination, when gravitation and a little effort provide a harmless exit. In such straits quadrupeds have an advantage with their inclined wind-pipes, as was seen during the epizootic which visited American horses in 1872.

The local treatment of pulmonary tuberculosis, based on the teaching of orthopædic practice, may be outlined as follows: 1, The omission of whatever unduly excites respiration and circulation; 2, the habitual reduction of the volume of respired air to the minimum; and, 3, the inhibition of coughing.

Turning now from local to general considerations, it is evident that a favorable general environment should be equally accorded to the hip-patient and the consumptive, and, indeed, in view of prevention, to every member of the community. The question of how to distribute evenly the advantages of abundant food, innocuous occupation, and sanitary housing is calling aloud for quick attention.

In passing, I suggest the possibility of relaxing the custom which regulates the hours of taking food. Is it wise to eat three meals at short intervals and then give a long interval to fasting? An old custom of the navy called for the "meal pennant" at 8 bells. Thus the men had breakfast at 8 o'clock, dinner at 12, and supper at 4. Three meals within eight hours were followed by a fast of sixteen hours. The efficiency of the ship's company may not have been appreciably reduced, but an even distribution and the omission of fasting would have agreeably modified the dietary. In this connection the method of the machinist when he gives fuel to his engine may be recalled, and the rules which govern feeding in the nursery and the typhoid ward.

It has been said that prevailing east wind and atmospheric moisture are less potent as factors of pulmonary tuberculosis than parsimony. Tuberculosis of the joints is especially a menace to childhood, and yet in this period, when the vital processes are at their best, and growth and development are active, it would seem that natural resistance to general disease should be alert and give protection from dangers of this kind. In early youth the circulation is rapid and full. Children are not easily deprived of their share of respiratory activity. They are not given to introspection and melancholy, which have been thought to favor the approach of general or constitutional diseases. Their habits are far from sedentary. Their minds are free from worry and their bodies from overwork and long hours without rest and recreation. By this process of exclusion their danger may perhaps be traced to some mismanagement of alimentation. Some unfortunates are, from sad necessity, denied sufficient food. Others, perhaps, suffer because prudent economy finds easy expression in a scanty allowance to the younger members of the

family, reinforced by a common and not altogether unreasonable idea that it is bad for a child to eat too much. Overeating may, of course, induce acute disorders of brief duration, but, on the other hand, prudence of this kind may easily lead to the more serious mistake of opening the door for chronic affections by withholding sufficient nourishment. Certain young parents who have no reason for economy seem to have an idea that the precious object entrusted to their possession has delicate and sublimated qualities which, for a time at least, exempt it from the common necessity of an abundance of good food.

Without experience in diseases of the lungs, I am not so presumptuous as to assert too much for the therapeutical concept included in this paper, but logical inferences may prove to be practicable and useful, and the argument here ventured will not be in vain if it throws a single ray of light on a most important subject.

The prevention of disease is what gives to the physician the greatest pride and delight. Next to that comes the satisfaction of recognizing and providing for the miracle of recovery by the expectant treatment. It may be asked what will be the status of the medical profession when prevention and expectation shall have reached the beneficent extremes so eagerly anticipated. The medical student, if he has time to read these remarks on pulmonary tuberculosis, will say, "But where does the physician come in?"—My young friend, he is not coming in. His successor, say fifty years from now, may be the trained nurse, coming in with cap and frou-frou. The physician (*Dr. Sine Qua Non*) may then be found in the State laboratory, making a diagnosis, or perchance prescribing absent treatment for the Martians.

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